

WORK, HEALTH AND SAFETY

AN INQUIRY INTO OCCUPATIONAL HEALTH AND SAFETY

Volume 2: Appendices



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A INSTITUTIONAL ARRANGEMENTS

This appendix details the structure of institutional arrangements which enable the delivery of occupational health and safety services in each jurisdiction.

A.1 State and Territory jurisdictions

Each State and Territory has occupational health and safety legislation which sets out the range of powers and functions to be carried in that jurisdiction. There are a number of similarities in the types of activities endorsed by each jurisdiction. For example, they generally have arrangements to administer and enforce occupational health and safety legislation, give advice and guidance to workplaces, fund research, collect and disseminate statistics, carry out awareness campaigns and provide training.

New South Wales

The WorkCover Authority operates under the *WorkCover Administration Act 1989* and is responsible to the Minister for Industrial Relations. The Authority's responsibilities cover occupational health and safety, workers' compensation and rehabilitation. The Authority administers the *Occupational Health and Safety Act 1983*. It is self-funded and commercially oriented.

The Board of Directors of the WorkCover Authority is appointed by the Governor on the recommendation of the Minister. The Board consists of the General Manager and six part time members including a chairperson and deputy chairperson. It is responsible for determining WorkCover's policies and for ensuring that its activities are carried out properly and efficiently. The Board is subject to the control and direction of the Minister.

The main functions of the Authority with regard to occupational health and safety are information dissemination, education, licensing of hazardous occupations, research, promotion of workplace health and safety awareness, inspection and enforcement.

The Occupational Health, Safety and Rehabilitation Council of NSW is an advisory body constituted under the *WorkCover Administration Act 1989*. It is composed of nine members and seven deputy members appointed by the Minister. The Council has a tripartite structure of employer and employee representatives and a nominee of the Minister for Health.

The role of the Council is to provide advice in response to referrals from the Board of the WorkCover Authority or the Minister on specific occupational health, safety and rehabilitation matters. The Council comments on the content and potential impact on industry of legislation, standards, codes of practice and guidance notes.

WorkCover administers the *Occupational Health and Safety Act 1983* for all industries except mining. The inspectorate of the New South Wales Department of Mineral Resources administers the *Occupational Health and Safety Act* and the *Mines Inspection Act 1901* for the mining industry and the *Coal Mines Regulation Act 1982* for the coal industry.

Victoria

The Department of Business and Employment is responsible for administering the *Occupational Health and Safety Act 1985*. The Health and Safety Organisation (HSO) (formerly the Occupational Health and Safety Authority) is the operating name of the Health and Safety Division and the Chemicals and Plant Safety Division of the Department. The Minister for Industry Services has overall responsibility for occupational health and safety in Victoria. The *Occupational Health and Safety Act 1985* covers all workplaces in Victoria.

The Health and Safety Organisation is partially funded by the Victorian WorkCover Authority from employer levies.

The major activities of the Health and Safety Organisation are:

- adoption of appropriate occupational health and safety legislation through performance-based requirements and codes of practice;
- training of managers, supervisors and health and safety representatives to implement workplace health and safety measures;
- provision of information to employers, employees and associated organisations and the promotion of workplace health and safety issues;
- prevention, compliance and enforcement programs; and
- identification of priority industries and high-risk hazards.

A workplace health and safety advisory committee provides advice on occupational health and safety issues to the Deputy Secretary, Industry Services. The Committee is made up of three nominees of the Victorian Congress of Employer Associations, three nominees of the Victorian Trades Hall Council and three persons nominated by the Minister for Industry Services.

Major issues reviewed by the Committee during 1993–94 were strategies for reducing the level of work-related fatalities in Victoria, strategies for

encouraging organisations to adopt best practice in workplace health and safety, and ways of measuring workplace health and safety performance.

Queensland

The Minister for Employment, Training and Industrial Relations is responsible for the administration of the *Workplace Health and Safety Act 1995*. The legislation is administered by the Division of Workplace Health and Safety in the Department of Employment, Vocational Education, Training and Industrial Relations (DEVETIR).

The main activities of the Division are:

- developing, marketing and disseminating health and safety information;
- consulting with industry in the development of standards and procedures to improve workplace health and safety;
- conducting inspections and providing advice through health and safety audits;
- accrediting trainers who offer courses for workplace health and safety officers and representatives; and
- licensing certain occupations to ensure plant and machinery operators have a basic knowledge of the safe operation of equipment.

The Act applies to all workplaces except for:

- mines covered by the *Mines Regulation Act 1964* or the *Coal Mining Act 1925*. The coal inspectorate of the Department of Minerals and Energy administers the *Coal Mining Act 1925* and the subordinate legislation;
- land used for obtaining, mining or conveying petroleum under the *Petroleum Act 1923*;
- certain workplace health and safety matters concerning the operation of vessels and mechanical equipment on board vessels within the tidal influence; and
- health and safety issues resulting from ineffective design, maintenance and operation of motor vehicles used on public roads (*Motor Vehicles Safety Act*).

The Workplace Health and Safety Council, established by the *Workplace Health and Safety Act 1995*, advises the Minister on workplace health and safety matters. The Council only addresses major policy issues, referring other detailed workplace health and safety concerns to Industry Workplace Health and Safety Committees. The Council comprises:

- Director-General of the DEVETIR;
- Director, Division of Workplace Health and Safety;
- Department of Health representative;
- four employer representatives;
- four employee representatives; and
- three workplace health and safety experts or persons representing community interests.

There are 11 Industry Workplace Health and Safety Committees each comprising the following membership:

- one nominee of the Minister as Chairperson;
- one nominee of the Minister representing DEVETIR;
- two nominees of the Minister who are workplace health and safety experts;
- four employer representatives;• four employee representatives;
- two experts in workplace health and safety; and
- any other persons appointed by the Minister.

Western Australia

The Department of Occupational Health, Safety and Welfare assists the Minister for Labour Relations in the administration of the *Occupational Health, Safety and Welfare Act 1984*. The activities of the Department include the enforcement of occupational health and safety regulations, investigations, education, training, information, certification and licensing.

The Occupational Health, Safety and Welfare Commission (OHSW Commission) was established in April 1985 under the *Occupational Health, Safety and Welfare Act 1984*. The OHSW Commission comprises a Commissioner and 11 other members:

- three employer representatives;
- three employee representatives;
- three members with relevant experience and knowledge of occupational health and safety;

- nominee of the Minister of Productivity and Labour Relations; and
- nominee of the Department of Occupational Health, Safety and Welfare.

The OHSW Commission's primary role is to make recommendations to the Minister for Labour Relations on occupational health, safety and welfare matters. The OHSW Commission's strategic plan identifies six priority areas that it will pursue:

- the promotion of awareness of occupational health, safety and welfare;
- the prevention of manual handling injuries;
- the review of Occupational Health, Safety and Welfare legislation;
- the prevention of workplace fatalities;
- the enhancement of workplace consultative mechanisms; and
- the prevention of occupational injury and disease amongst young workers.

The Commission may appoint advisory committees made up of employer and employee representatives and those with specialist knowledge or experience in occupational health and safety. In general, a member of the Commission acts as chairperson on each of the advisory committees.

Workplace health and safety in the mining industry is covered by the *Mines Safety and Inspection Act 1994*. This act is the responsibility of the Minister for Mines and is administered by the Department of Minerals and Energy which also provides the inspectorate service. The Mines Occupational Health and Safety Advisory Board consists of representatives from industry, the mines inspectorate, employee inspectors and unions.

South Australia

The South Australian Occupational Health and Safety Commission, a tripartite-based organisation, was disbanded in July 1994. The functions of the former Commission have been assigned to either the WorkCover Corporation, the Minister for Industrial Affairs or the new Occupational Health, Safety and Welfare Advisory Committee.

The Occupational Health, Safety and Welfare Act 1986 (amended 1994) is now administered by the WorkCover Corporation. The Corporation has established an occupational health and safety Division to carry out the following activities:

- promoting awareness of effective occupational health and safety strategies and programs;
- supporting the formulation of standards;

- preparing and promoting guidelines to assist people with workplace health and safety responsibilities;
- devising and promoting workplace health and safety training;
- initiating and carrying out educational or research projects; and
- collecting, analysing and publishing information and statistics.

The Occupational Health, Safety and Welfare Advisory Committee is a tripartite organisation set up in July 1994 to advise the Minister on policy and legislative matters, including Act amendments, proposals for legislation and codes of practice. The advisory committee also keeps the administration of occupational health and safety under review, consults with relevant national, state and territory authorities, and approves health and safety representative courses.

The Department for Industrial Affairs provides the State's occupational health and safety inspectorate which has both an advisory role and the responsibility for all enforcement of occupational health and safety legislation in South Australia, including the mining industry. The Department also provides, through its Occupational Health Division, a source of scientific and technical health and safety expertise to industry and government, and professional education in health and safety disciplines.

There is a division of responsibility in relation to the delivery of preventative programs and services to the private and public sectors. The Corporation is responsible for managing all occupational health and safety programs in the private sector and the Department for Industrial Affairs for managing all programs in the public sector.

The Mining and Quarrying Occupational Health and Safety Committee is a tripartite body aimed at promoting workplace health and safety and prevention in the mining and quarrying industry. It provides funding for injury and disease prevention and research projects. The major function of the Committee is to administer expenditure of the Mining and Quarrying Industries Fund. This fund was originally set up in 1941 under the Workmen's Compensation (Silicosis) Scheme. Money in the fund (approximately \$9 million) is now kept as a special account with the WorkCover Corporation and interest on investments is used to fund Committee initiatives.

Tasmania

Responsibility for occupational health and safety resides with the Minister for State Development and is administered as a branch of the Industry Safety and Mines Division in the Department of State Development and Resources.

Workers' compensation arrangements are administered by the workers' compensation branch of the same division.

The *Workplace Health and Safety Act 1995* is the principal Act covering occupational health and safety in Tasmania. It is applicable to all industries, including mining.

Under the new arrangements, the policy advice functions of the tripartite Workers Compensation Board will be expanded to include occupational health and safety matters. The Board is to be renamed the WorkCover Board and will operate according to the *Workers' Compensation Act 1988*.

Occupational health and safety inspectorate services are provided by officers of the Department of State Development and Resources.

Australian Capital Territory

The Australian Capital Territory *Occupational Health and Safety Act 1989* is administered by ACT WorkCover (called the ACT Occupational Health and Safety Office up to 1 July 1994). ACT WorkCover is part of the Chief Minister's Department and reports to the Minister for Industrial Relations.

The major occupational health and safety activity of WorkCover is its inspection, investigation and dispute settlement service which covers both the ACT private sector and public sector. Its other activities include licensing, advertising campaigns and education and training programs.

Commonwealth employees in the Australian Capital Territory (one-third of the total Territory workforce) are covered by the Commonwealth's *Occupational Health and Safety (Commonwealth Employment) Act 1991*. However, ACT WorkCover provides occupational health and safety services to Commonwealth employees in the Australian Capital Territory on a contractual basis.

ACT WorkCover provides secretariat functions to the tripartite ACT Occupational Health and Safety Council. The Council advises the Minister on issues relating to workplace health and safety matters and consists of three government representatives (including the chairperson), four employer representatives and four employee representatives.

Northern Territory

The Work Health Authority is responsible for the administration of the *Work Health Act 1986*, *Dangerous Goods Act 1980* and the *Radioactive Ores & Concentrates (Transport and Packaging) Act 1980*. The Authority reports to the Minister for Work Health, Territory Insurance and the Liquor Commission.

The Authority's responsibilities are to:

- implement an effective occupational health and safety regime including regulation of dangerous goods, explosives, machinery and construction safety;
- monitor the workers' compensation scheme including data collection and analysis, and approving insurers to provide workers' compensation insurance; and
- promote appropriate and early rehabilitation of injured workers.

The authority is operated by a management board consisting of the Chief Executive Officer, six Directors and a staff representative.

The *Work Health Act 1986* provides for the establishment of a Work Health Advisory Council. The Council has ten members representing a range of sectors — employers, employees, medical associations, the public service and the insurance industry. The chairman of the Council is the Chief Executive Officer of the Work Health Authority. The functions of the Council are to inquire into matters referred to it by the Minister and to investigate any matter under the Work Health Act or relating to the administration of the Act.

Occupational health and safety in the Northern Territory mining sector is covered by the *Mine Management Act 1990*, administered by the Department of Mines and Energy.

A.2 Commonwealth jurisdiction

The Department of Industrial Relations (DIR) has major carriage of policy development on labour market issues, including occupational health and safety and workers' compensation. The Department has portfolio responsibility for four acts which cover workplace health and safety matters within the Federal jurisdiction:

- the *National Occupational Health and Safety Act 1985*;
- the *Industrial Chemicals (Notification and Assessment) Act 1989*;
- the *Safety, Rehabilitation and Compensation Act 1988*; and
- the *Occupational Health and Safety (Commonwealth Employment) Act 1991*.

A departmental officer is the Minister's representative on NOHSC and the Commissioner representing the Commonwealth on the Safety, Rehabilitation and Compensation Commission.

The *Occupational Health and Safety (Maritime Industry) Act 1993* is administered by the Seafarers Safety, Rehabilitation and Compensation Authority, which is within the Transport Portfolio.

National Occupational Health and Safety Commission (Worksafe Australia)

The National Occupational Health and Safety Commission (NOHSC) is a statutory corporation, established on an administrative basis in October 1984 by the Minister for Employment and Industrial Relations. The *National Occupational Health and Safety Commission Act 1985* was proclaimed on 20 December 1985. The Minister for Industrial Relations has responsibility for NOHSC.

NOHSC is a tripartite organisation comprising 18 members.

- a Chairperson appointed by the Minister for Industrial Relations;
- the Chief Executive Officer of Worksafe Australia;
- three members nominated by the Australian Chamber of Commerce and Industry;
- three members nominated by the Australian Council of Trade Unions;
- one member nominated by the Commonwealth Minister for Industrial Relations;
- one member nominated by the Commonwealth Minister for Health, Housing, Local Government and Community Services; and
- eight members nominated by each of the State Premiers and Territory Chief Ministers.

NOHSC established Worksafe Australia on 15 April 1986. Worksafe Australia acts as a secretariat to the National Commission and is responsible for facilitating the processes of the Commission and for implementing the Commission's decisions. Worksafe Australia consists of a National Occupational Health and Safety Office which is NOHSC's operational arm and a National Institute of Occupational Health and Safety which forms NOHSC's technical and scientific arm.

The main role of NOHSC in recent years has been to co-ordinate and facilitate a national approach to the development of 'national standards', with the Commonwealth, States and Territories retaining jurisdiction over occupational health and safety legislation. NOHSC has conducted activities in a number of other areas including research and statistics, promotion of enhanced occupational health and safety performance in Australian industry, chemicals

assessment (as required under the *Industrial Chemical Notification and Assessment Act 1989*), national coordination and participation in international activities.

NOHSC may constitute tripartite committees as it thinks necessary. Committees, with the approval of the NOHSC, may establish expert sub-committees.

Safety, Rehabilitation and Compensation Commission

The *Occupational Health and Safety (Commonwealth Employment) Act 1991*, or OHS (CE) Act, provides a legal basis for the protection of the health and safety of 450 000 employees in Commonwealth departments, statutory authorities, government business enterprises and the Australian Defence Force.

The *Safety, Rehabilitation and Compensation Act 1988 (SRC Act)* primarily covers the Commonwealth's rehabilitation and workers' compensation arrangements. However, certain prevention functions are also specified.

Formal responsibility for both of these acts resides with the Safety, Rehabilitation and Compensation (SRC) Commission. The SRC Commission is a tripartite organisation consisting of ten members and reports to the Minister for Industrial Relations.

The OHS (CE) Act confers the following occupational health and safety functions on the SRC Commission:

- to ensure, in accordance with the Act and the regulations, that the obligations imposed by the Act are complied with;
- to advise employers, employees or contractors, on health and safety matters;
- to collect, interpret and report information relating to health and safety in Commonwealth employment;
- to formulate policies and strategies relating to the health and safety of employees;
- to advise the Minister for Industrial Relations on the most effective means of giving effect to the objectives of the Act; on the making of regulations under the Act; and on the approval of codes of practice;
- to accredit occupational health and safety training courses; and
- to liaise with other bodies concerned with occupational health and safety.

Comcare administers the functions of the OHS (CE) Act and the SRC Act on behalf of the SRC Commission.

Seafarers Safety, Rehabilitation and Compensation Authority (Seacare)

Until recently, occupational health and safety in the Australian maritime industry (other than ships coming under the jurisdiction of the States and Territories) was regulated solely through the *Navigation Act 1912* and subsidiary legislation. In 1992, the Commonwealth Government agreed to proposals by the maritime unions and ship operators that seafarers should be covered by modern occupational health and safety legislation.

The *Occupational Health and Safety (Maritime Industry) Act 1993* (OHS (MI) Act) took effect on 18 July 1994.

The Navigation Act and subsidiary legislation (marine orders) implements numerous International Maritime Organisation and International Labour Organisation Conventions. There is nothing in the Navigation Act which inherently conflicts with the OHS (MI) Act. However, if an unsafe situation arises on a ship and the remedy is to be found in a marine order, the operator would be obliged to use the prescribed remedy. The Navigation Act is administered by the Australian Maritime Safety Authority.

The OHS (MI) Act is administered by the Seafarers Safety, Rehabilitation and Compensation Authority which operates under the corporate name of Seacare. The Authority is also responsible for administering the *Seafarers Rehabilitation and Compensation Act 1992*. The Authority reports to the Federal Minister for Transport.

The Authority comprises a Chairperson, Deputy Chairperson, two members nominated by employer interests, two members nominated by employee interests and the Chief Executive of the Australian Maritime Safety Authority. The Department of Transport provides administrative support and funding for the Authority.

Functions conferred on the Authority by the OHS (MI) Act are:

- to ensure, in accordance with the Act and regulations, that the obligations imposed by or under the Act and regulations are complied with;
- to advise operators, employees or contractors, either on the Authority's own initiative or on being asked, on workplace health and safety matters;
- to liaise with other bodies concerned with occupational health and safety; and
- to advise the Minister on the most effective means of giving effect to the objectives of the Act, the making of regulations and the making of codes of practice.

The inspectorate function is performed by the Australian Maritime Safety Authority.

In the case of offshore industry mobile units (such as drill ships and offshore construction barges) the OHS (MI) Act only applies when the units are in transit. While engaged in operations associated with petroleum exploration or production, mobile units are generally covered by the local state or territory Occupational Health and Safety Act. However, in the waters off Western Australia and Queensland the occupational health and safety provisions of the *Petroleum (Submerged Lands) Act 1967* apply. There is currently no offshore exploration or exploitation activity in Queensland.

ATTACHMENT A1

INTERNATIONAL ASSISTANCE ACTIVITIES

A1.1 Worksafe Australia

In recent years, Worksafe has assisted a number of regional developing countries to improve their occupational health and safety performance. These activities have largely been funded from Worksafe's own resources, or from the Australian aid program.

Worksafe helped Fiji set up occupational health and safety regulatory structures, education and training programs, and an occupational health and safety information system. New South Wales Workcover and the Northern Territory Government are also involved in the project. A training program has been developed for inspectors, and one is being developed for workplace health and safety managers. As part of the project, Ballarat University is designing training courses at the University of South Pacific in Fiji.

In Indonesia, Worksafe is assisting the Indonesian Department of Manpower to set up a occupational health and safety regulatory infrastructure. Indonesia has expressed an interest in developing national standards, statistical systems, analytical skills, research and development, and training of inspectors.

Worksafe has also provided assistance to China's coal mining industry, which is looking to develop a tripartite approach to occupational health and safety.

As part of an ILO project (ASILO) funded by the Australian Agency for International Development, Worksafe has provided training programs in Thailand, China, Vietnam and Indonesia to develop non-specialist capability in industrial hygiene (sub. 396, p. 13).

The National Occupational Health and Safety Commission is co-ordinating the development of a strategy to enhance Australia's role in improving occupational health and safety in the Asia-Pacific region (see NOHSC 1994). The primary aim of the strategy is to provide a policy framework for members of the Australian occupational health and safety community (both public and private sector) to guide their activities in the Asia-Pacific region. An assessment has been undertaken of Australia's strengths and weaknesses as a provider of health and safety services.

A capability statement is being prepared by Worksafe at the suggestion of Austrade, to describe potential Australian contributions in OHS services to

regional countries. This will be similar to capability statements which have been prepared for the agricultural and health sectors.

A1.2 State governments

Several state governments are aiming to provide assistance to developing countries in the Asia-Pacific region, or to facilitate the entry of Australian organisations into regional markets for occupational health and safety.

In April 1994, the Western Australian Labour Relations Minister announced plans to provide occupational health and safety services to Asia on a commercial basis (*Occupational Health Newsletter*, Issue No. 320, 28 April 1994). The Department of Occupational Health Safety and Welfare is assisting Australian construction companies working overseas to ensure that their local contract workers operate according to Australian occupational health and safety requirements.

The Victorian Health and Safety Organisation is investigating the potential for sales of its Safety MAP system in Asian markets such as Malaysia and China (sub. 178, p. 34).

The Northern Territory Work Health Authority aims to co-ordinate and facilitate regional health and safety efforts and to become a clearing house for information on safety products, services and courses that could be utilised by countries in the region (sub. 43, p. 8).

The Queensland Government has identified a number of areas with potential for expansion of export volume, including technical services, information technology, education and training, and government inspection and advisory services (sub. 79, p. 39).

B LEVEL AND CAUSE OF WORKPLACE INJURY AND DISEASE

Statistical information is important for analysis of performance — an indicator of the effectiveness or otherwise of present workplace injury and disease preventive policy. Furthermore, in order to prevent or reduce the number of deaths, injuries and diseases in the workplace, it is necessary to have some understanding of their causes.

B.1 Sources of information

The Commission was directed to report on the ‘level’ of workplace injury and disease in Australia. The limited statistics available made this task difficult.

The *National Data Set for Compensation-based Statistics* (NDS) compiled by Worksafe Australia — and statistics available at the separate jurisdictional level — are based on workers’ compensation data that have a number of inadequacies that limit its use as a true measure of the occupational injury and disease experience occurring in Australia (see Appendix S). However, some jurisdictions do supplement their workers’ compensation data with data from other information sources where appropriate.

Because of data limitations, the Commission contracted the Australian Bureau of Statistics to undertake a national household survey in order to get a better indication of the extent of the Australian population affected by work-related health problems. This survey is called the Population Survey Monitor. For a discussion on the methodology of this survey see Attachment B1.

Other data sources have also been used where appropriate. These include the 1993 NSW WorkCover Survey (undertaken by the Australian Bureau of Statistics), the National Health Survey conducted in 1989–90 and Worksafe Australia’s Work-related Traumatic Fatality Study (WTFS).

National Data Set for Compensation-based Statistics

The NDS is a data-set based on successful workers’ compensation claims recorded by the Commonwealth, State and Territory workers’ compensation agencies, as well as some self-insurers. These jurisdictions provide Worksafe Australia with their workers’ compensation claims data on an annual basis, based on a minimum agreed set of data items.

The NDS classifies claims according to whether they are an injury or disease. Workplace injuries are the result of a single traumatic event with a short or non-existent latency period. Workplace diseases are defined as those injuries which have resulted from repeated or long-term exposures to agent(s) or event(s), and those injuries which are the result of a single traumatic event but where there has been a long latency period.

The Population Survey Monitor

The Commission contracted the Australian Bureau of Statistics to undertake a quarterly survey of Australian households as a means of estimating the level of the OHS problem Australia. The survey targeted three populations — persons working (between 18 and under 65 years old), persons not working (between 18 and under 65 years old) and those 65 years and over. The survey was first conducted in April 1994, and was followed by surveys in August and November 1994 and February 1995.

The results presented in the Draft Report were based on the combined data set of the April and August surveys. The results presented here are based on the combined data set of all four surveys. (As well as increasing the sample size, this also overcomes any problems associated with seasonal fluctuations in the level of work-related injury and disease).

The results of the Population Survey Monitor (PSM) presented in this appendix are based on a combined sample size of about 9 200 persons. Some caution should be exercised when interpreting data from such a small sample. Although the tables presented in Attachment B2 are based on the PSM at a disaggregated level, the Commission has only sought to present findings of the survey at the aggregated level in the text or where the sample estimate was sufficient that it did not attract significant standard errors.

For those in the population who were defined as working and between 18 and 65 years old, the PSM only captured those who had at least one day off work in the two weeks prior to the survey being conducted. Therefore, those workers who were suffering from a work-related health problem but were not away from work (excluding those who were experiencing effects at work that restricted their normal duties), were not captured in this survey. The National Health Survey and the NSW WorkCover survey captured this population.

An important objective of the PSM was to try and capture all persons who were suffering from a work-related health problem — not just those whose condition was caused by an accident at work, or whose employer or doctor had ‘confirmed’ the link between their ill health and work. The survey was designed to include those workers who, for a multitude of reasons, had not

brought their 'perceived' work-related health problem to the attention of their employer or doctor. Consequently, the findings from the PSM are presented throughout this appendix with a range — a lower limit ('confirmed' responses only) and an upper limit ('confirmed' and 'perceived' responses).¹

Work-related injuries and illnesses, New South Wales, October 1993

The Work-related Injuries and Illnesses survey, commissioned by NSW WorkCover, was conducted throughout New South Wales in October 1993 by the Australian Bureau of Statistics (ABS 1994a). The survey covered persons aged 15 years and over who were either currently working or had worked in the 12 months prior to the survey. The main objectives of the survey were:

- to assess the level of awareness of workers to their compensation rights when injured at work;
- to quantify the level to which workers' compensation is not sought by those injured at work; and
- to determine whether rehabilitation had been undertaken by injured workers.

The survey was conducted as a supplement to the ABS Australia-wide Monthly Population Survey. Information was sought from approximately 8800 persons of whom about 80 per cent responded.

National Health Survey, 1989–90

The National Health Survey (NHS) was conducted by the ABS during the twelve months from October 1989 to September 1990, covering approximately 22 000 households throughout Australia. The NHS covered a wide range of topics — including whether identified injuries or illnesses were the result of an accident, and where the accident had occurred. Information concerning time off work and reduced duties at work was also collected. The Commission requested special tabulations from unpublished records for these latter items.

¹ Plomp (1993) argues there is substantial discrepancy between trained occupational physicians' and workers' assessments of the work-relatedness of their health problems. This is consistent with the PSM's use of 'upper' and 'lower' limits.

Work-related Traumatic Fatality Study

Worksafe Australia's study of traumatic work-related deaths based on coroner's records over the period 1982 to 1984 has also been utilised (Harrison et al 1989). Over 16 000 coronial records were viewed to isolate work-related death cases — deaths that were attributed to trauma or to acute poisoning. Over the three year period, some 1544 deaths involved persons who were employed in the civilian labour force and died as a result of work-related trauma.

B.2 Workplace fatalities

Each year, a number of Australian workers are killed at work or die as a result of exposure(s) to hazardous materials at the workplace.

Level of workplace fatalities

According to the NDS, there were 459 compensated fatality cases in 1991–92, of which 421 were male and 30 were female (8 were not stated). A further 122 fatalities compensated over this same period related to journey cases.

Although the following commentary provides further information on work-related fatalities, some caution needs to be exercised. The recording of fatalities, as with injury and disease claims data, differs among the jurisdictions according to the coverage as specified in each of the separate workers' compensation Acts. For example, in Victoria, heart attacks at work are more routinely accepted as compensable compared to other jurisdictions (sub. 222, p. 14).

Moreover, recent studies suggest that deaths from cancer as a result of workplace exposure to hazardous materials could be anywhere between 650 and 2200 workers per year, implying that the NDS underestimates the true level of work-related disease by anything up to 1000 per cent (see discussion below). In the case of death due to mesothelioma, Worksafe Australia commented that only about 5 per cent of cases are recorded in workers' compensation data (sub. 50, p. 139).²

The largest number of fatalities, some 195, were recorded in Victoria. New South Wales recorded 147, followed by Queensland with 57. The Northern Territory and South Australia recorded the lowest number of workplace fatalities in 1991–92.

² Mesothelioma is a cancer caused by prolonged exposure to asbestos. Such exposures are overwhelmingly associated with work.

Not surprisingly, the greatest incidence of fatalities was in Victoria where there were 13 workplace deaths per 100 000 wage and salary earners. The second highest fatality rate occurred in the Northern Territory. South Australia and the Commonwealth jurisdiction had the lowest workplace fatality rates (see Table B.1).

Table B.1 Compensated workplace fatalities in Australia, by jurisdiction, NDS, 1991–92

<i>Jurisdiction</i>	<i>Number of fatalities</i>	<i>Incidence rate^a</i>
New South Wales	147	7
Victoria	197	13
Queensland	57	6
Western Australia	26	4
South Australia	20	3
Tasmania	8	6
Northern Territory	5	8
Australian Capital Territory	na	na
Commonwealth	13	2
Australia	459	7

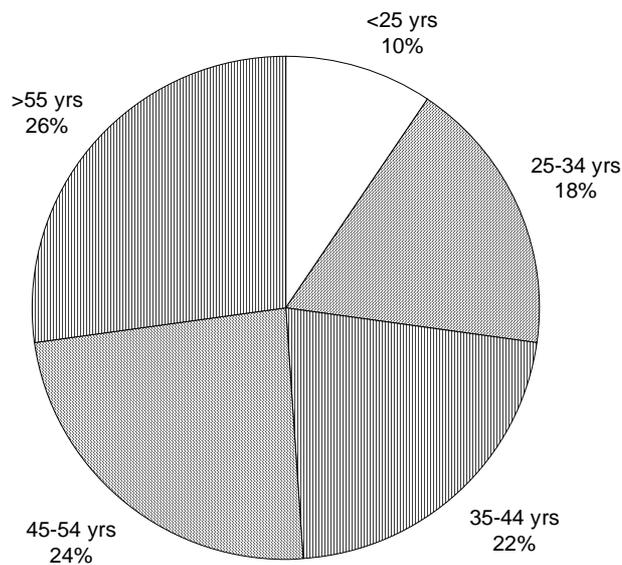
a Incidence rate is the number of fatalities per 100 000 wage and salary earners.

na Not available.

Source: Worksafe Australia, 1994c, pp. 2–6, and unpublished Worksafe national data.

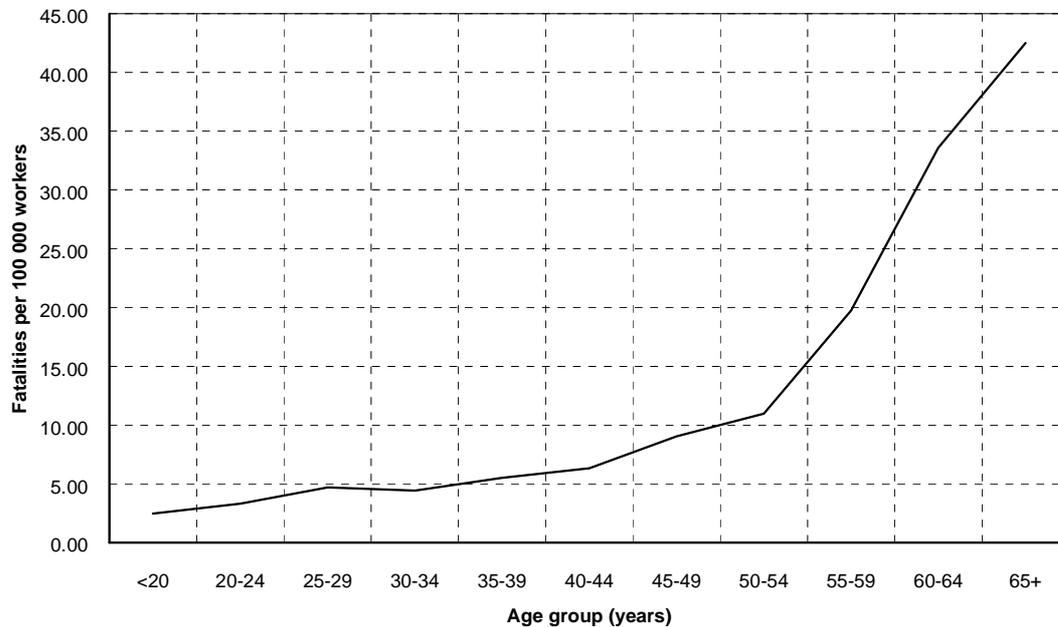
The number of workplace fatalities increased with age. Dividing the fatalities into five separate age groups, the number of fatalities increased from 43 for the under 25 years age group, up to 121 for workers over 55 years of age (see Figure B.1). The increasing fatality rate with age generally remained when workforce participation was accounted for — that is, the incidence rate of fatality increased with age (see Figure B.2).

Figure B.1 Compensated workplace fatalities in Australia, by age, NDS, 1991–92



Source: Worksafe Australia, unpublished national data.

Figure B.2 Compensated workplace fatalities in Australia, incidence rate^a, 1991–92



^a Fatalities incidence rate is the number of fatalities per 100 000 wage and salary earners.

Source: Worksafe Australia 1994c, p. 4, and unpublished national data.

The incidence of death by disease also increased sharply with age. According to Worksafe Australia, for workers up to 34 years of age, the ratio of disease to injury was 3 to 7, however, the ratio was reversed for workers over 45 years of age — the majority of fatalities being disease related (1994c, p. 4).

The Work-related Traumatic Fatality Study (WTFS) generally shows similar age trends, however, an important distinction needs to be made concerning differences in the two data sources. The data provided by coroner’s records only relates to traumatic death — it does not include disease cases (see Figure B.3 and Table B2.1 in Attachment B2).

Figure B.3 Incidence of work-related fatalities by age group, Australia, 1982 to 1984



Note: Fatalities incidence rate is the number of fatalities per 100 000 wage and salary earners. Incidence rates for ‘workplace traffic deaths’ and ‘journey deaths’ for those workers 65 years and over were unreliable due to the small population size.

Source: Harrison et al 1989, p. 120.

The incidence of traumatic death by age group was most marked for that subgroup of workers whose death resulted from injury while working and was not traffic-related — defined as ‘workplace deaths’. For this group of workers, the incidence rate consistently increased from about 2.5 deaths per 100 000 workers aged between 15 and 19 years, to 7.0 deaths for the 60 to 64 year age group —

almost a three-fold increase. This rate dramatically increased for workers aged 65 years and over.

Although the NDS and the WTFS clearly show that older workers are more at risk of work-related death, traumatic work-related fatality data from Western Australia presents a different picture.³

Commission estimates of the incidence of traumatic work-related fatalities by age from Western Australia for the combined years of 1987–88 through to 1993–94, indicates that workers aged between 25 and 34 years are the most at risk of traumatic work-related fatalities of all age groups — over 31 per 100 000 workers (see Figure B.4).⁴ The 20 to 24 year age group had a similar incidence rate of almost 29 per 100 000 workers. On the other hand, the incidence rates show that those least at risk of death at work were workers under 20 years and those between 35 and 64 years. The authors comment:

It is interesting to note that while young workers (aged between 15 and 25 years) have higher rates of [non-fatal] injury and disease compared with older workers ... they are under-represented in the proportion of fatalities relative to employment (White 1994, p. 20).

Findings on non-fatal cases from Western Australian data according to age group are discussed in Section B.3.

Workers between 15 and 19 are at a lower risk of death at work than all other age groups. In addition, those aged between 20 and 24 face a lower risk of death at work than older workers.⁵

The Western Australian data points to the 20 to 34 year age group as those at most risk of death at work (excluding the over 65 age group). The two national data sources show that as a worker gets older, the likelihood of work-related death increases.

Interpretation of the NDS according to age should be undertaken with caution, as it may mask the incidence of exposure to hazardous substances at an early age. Conditions such as work-related cancers may not be detected until a much later age.

Notwithstanding the differences in findings between the data sources, it should be noted that as labour projections indicate a steadily increasing proportion of older workers in the workforce compared to younger workers, this will have

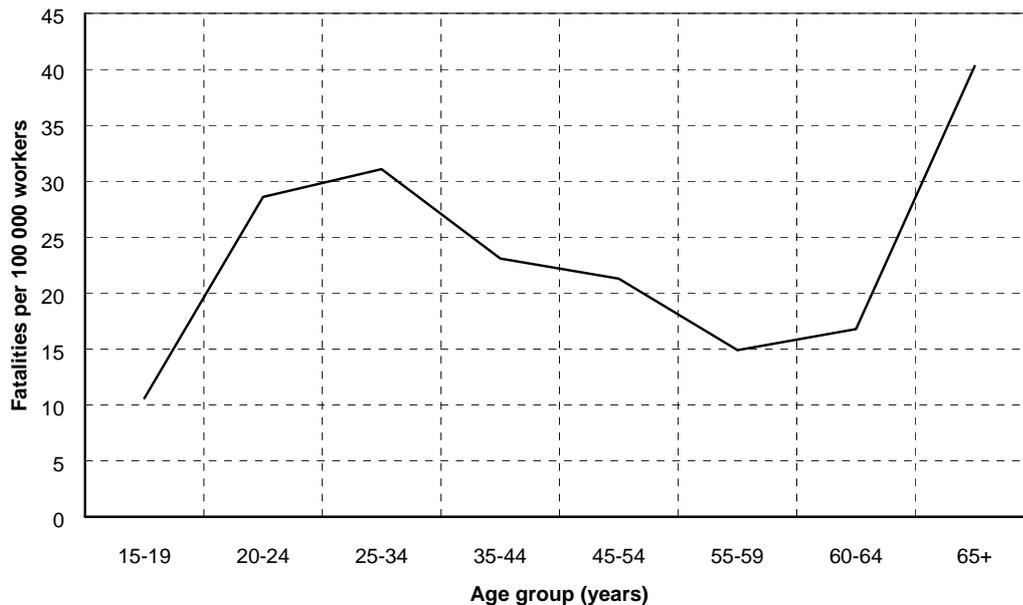
³ The Western Australian data is based on all traumatic work-related fatalities known to the OHS agency in that State — not just solely workers' compensation claims data.

⁴ It is difficult to interpret the over 65 age bracket as only 2 deaths occurred over the study period.

⁵ This conclusion is not supported by the Western Australia data.

implications for the incidence of fatalities among this older age group in the workforce, particularly male workers (see ABS 1994b).

Figure B.4 Work-related fatalities in Western Australia by age group, 1987–88 to 1993–94



Source: Industry Commission (derived from White 1994, p. 20).

Research suggests that workers from non-English speaking backgrounds face a higher risk of fatal injury than workers from English speaking backgrounds (see Box B.1).

Box B.1 Higher fatality rates among migrant workers

Further analysis undertaken of the 1982 to 1984 coronial records by Corvalen et al (1994) shows that fatality rates among migrant workers with less than five years residence in Australia were higher than Australian-born workers. Importantly, it also found that 'in the first year in Australia, migrants from non-English speaking countries had almost four times the risk of fatal injury than their Australian-born counterparts' (reported in NOHSC 1994, p. 16).

National information on industry and occupation of workplace fatality cases is provided through the NDS and the WTFS.

The greatest number of fatalities in 1991–92 occurred in the ‘manufacturing’, ‘transport and storage’, and ‘wholesale and retail trades’ industries — 81, 74 and 65 workers respectively (NDS). However, when the number of workers in each industry is taken into account and the data disaggregated, the greatest incidence of fatality at work occurs in the ‘services to water transport’ industry sector — 56 deaths per 100 000 workers. This is closely followed by ‘road freight transport’ and the ‘forestry and logging’ sectors — 51 and 48 deaths per 100 000 workers respectively (see Table B2.2).

The greatest number of deaths according to major occupation groups occurred in the ‘plant and machine operators and drivers’, ‘labourers and related workers’ and ‘tradespersons’ categories — 67, 66 and 59 deaths respectively. However, the most dangerous occupations according to incidence rates are ‘farmers and farm managers’, ‘road and rail transport drivers’ and ‘mobile plant operators (except transport)’. The incidence rates were 29, 22 and 21 deaths per 100 000 workers respectively (see Table B2.3).

The Harrison et al study (1989) found that the incidence rate of death as a result of traumatic injury in mining, transport and rural occupations was much higher than the average incidence, and managerial and clerical occupations had the lowest fatality incidence rates.

Work-related traumatic fatalities in Western Australia over the period 1987–88 to 1993–94 follow a similar trend (White 1994).⁶ Of 182 fatalities, the majority occurred in the mining, agriculture and construction industries — 32, 21 and 16 per cent respectively. In terms of major occupation groups, most fatalities occurred to workers in the occupational groups of labourers, plant and machine operators and tradespersons — 38, 24 and 24 per cent respectively. White concluded that:

Examination of the incidence of work-related fatalities in Western Australian industry shows that fatal accidents are more likely to occur in those industry groups which predominantly involve physical labour outdoors or underground (1994, p. 6).

⁶ The Western Australia data is based on all traumatic work-related fatalities known to the Department of Occupational Health Safety and Welfare (WA). However, the data does not include journey deaths and only includes fatal road and aviation fatalities where there is a clear relationship between the accident and the work performed by the worker. The Harrison study includes data on workplace traffic and journey deaths.

Death as a result of workplace disease

According to national workers' compensation data, deaths due to disease accounted for almost half of the 455 successful fatality claims during 1991–92. However, a number of studies suggest that this estimate of the number of fatalities due to disease could under-estimate the true figure by between 400 and 2000 — predominantly cancers — believed attributable to exposure to hazardous materials in the workplace. For example, according to Worksafe Australia:

Current best estimates put the number of work-related deaths in Australia at around 2700 each year (sub. 50, p. 135).

This estimate is based on 2200 disease-related deaths and about 500 deaths resulting from traumatic injury at work.

The recording of diseases attributable to workplace factors is problematic because in many cases there can be multiple causation (for example, the impact of lifestyle factors), long latency and exposure at more than one workplace. Importantly, deaths due to many diseases — such as cancers — are quite often the result of exposures that have happened many years previously. This affects our understanding of current disease risks in the workplace.

A number of studies have attempted to determine how many deaths occur annually as a result of cancer and other diseases contracted following exposure to hazardous materials in the workplace:

- Kerr et al estimated that the number of deaths is about 2200 annually (cited in sub. 50, p. 135)⁷;
- Doll and Peto estimate a range of between two and eight per cent of all cancers (US 1991, cited in sub. 220, p. 1);
- Mathews estimates between 5 and 15 per cent (1993, p. 325);
- the Economic Impact Analysis (EIA) for the Control of Workplace Hazardous Substances Regulations estimates between four and 25 per cent (cited in sub. 220, p. 1); and
- Winder and Lewis estimate that about 1230 cancer deaths annually are a result of chemical exposures (sub. 151, p. 8).

There is dispute within the scientific community about the methodology used in these estimates. In particular, the Plastics and Chemicals Industries Association (sub. 220, p. 1) and the Chamber of Manufactures of NSW (sub. 90, p. 2) are critical of Mathews' estimate range, the former stating that it is

⁷ Worksafe Australia comment that this estimate was based on the underlying assumptions of Doll and Peto's 1981 study.

‘unsubstantiated’, the latter arguing it has no ‘scientific validity’. The Plastics and Chemicals Industries Association (PACIA) are also concerned at the EIA range, stating that:

PACIA does not deny the potential of chemicals to harm people, but believes this EIA and subsequent comments from Worksafe over-estimate the role of chemicals in the workplace in the inducement of cancer (sub. 208, p. 6).

In recent correspondence with PACIA, Worksafe Australia state that the EIA range is too broad in light of further investigation and analysis in this area, and add that:

The final determination of a suitable range for occupational cancers is difficult and should theoretically only be made on the basis of full consideration of all relevant data published (cited in sub. 220, p. 3).

Consequently, the available evidence presently only provides a ‘best estimate’. According to participants — including Worksafe Australia — the most credible range is that based on the work of Doll and Peto (USA) who estimated that between two and eight per cent of all cancer deaths were attributable to work-related causes. In Australia, this translates to between 650 and 2200 work-related cancer deaths each year.

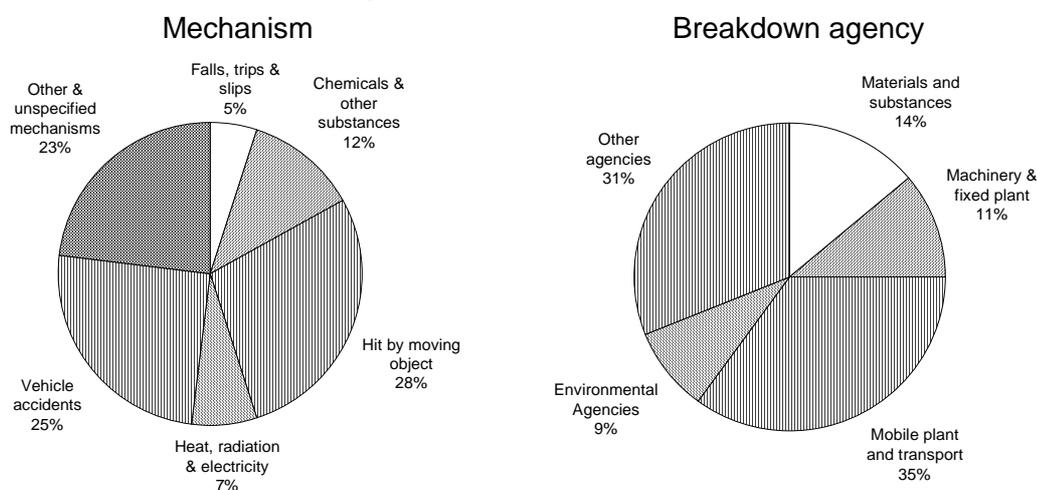
Nature of workplace fatalities

The Worksafe Australia Compendium (1994c) divides the total number of workplace fatalities by ‘type of occurrence’ details. However, as data from Victoria, Queensland, the Northern Territory, and the Australian Capital Territory were not available, the mechanism and agency data presented here is based on less than half the fatality claims and therefore should only be seen as indicative of the fatality occurrences that were claimed in 1991–92 (see Figure B.5).

‘Vehicle accidents’ and ‘hit by moving object’ made up over one-half of all fatality cases. Within the latter category, one-third of cases involved being ‘hit by falling object’ and one-fifth being ‘trapped by moving machinery’ or ‘between stationary and moving objects’ (1994c, p. 5). About 80 per cent of ‘chemical and other substance’ exposures involved long-term contact.

The breakdown agency responsible for the largest share of fatalities (over one-third), was ‘mobile plant and transport’ — according to Worksafe Australia, over three-quarters of these involved ‘road transport’. ‘Materials and substances’ accounted for 14 per cent of fatalities and ‘machinery and fixed plant’ accounted for 11 per cent of fatalities.

Figure B.5 Compensated workplace fatalities by mechanism and breakdown agency, Australia, 1991–92



Source: Worksafe Australia 1994c, p. 13.

B.3 Workplace injury and disease

Each year, a large number of Australian workers are injured at work. Many more are exposed to hazardous materials that may lead to health problems later on in their life. Although many injuries and diseases are only temporary, many cause permanent health problems.

Level of workplace injury and disease

The level of non-fatal workplace injury and disease in Australia is presented below. Various data sources have been used to provide as comprehensive a picture as possible.

In 1991–92 there were about 164 500 workers' compensation claims Australia wide that resulted in five or more days off work (see Table B.2).⁸ Overall, almost 74 per cent of these claims were made by males, however this varied across jurisdictions — from 67 per cent in the Commonwealth sector to 80 per cent in New South Wales.

⁸ This is based on data received by Worksafe Australia up to May 1994. Tables provided later in this appendix give a slightly higher number of claims as the NDS is continually being up-dated as claims are processed and sent to Worksafe. Note that the Victorian scheme only pays from six days off work.

Table B.2 Workers' compensation claims, by jurisdiction, 1991–92

<i>Jurisdiction</i>	<i>Number of claims ('000)</i>		
	<i>Males</i>	<i>Females</i>	<i>Persons</i>
New South Wales	39.2	9.7	48.9
Victoria	32.9	10.9	43.8
Queensland	20.8	5.6	26.4
Western Australia	14.4	4.5	18.9
South Australia	8.6	4.0	12.7
Tasmania	2.8	0.9	3.7
ACT	na	na	na
NT	1.0	0.4	1.4
Commonwealth	5.9	2.9	8.7
All	125.7	38.8	164.5

na Not available.

Note: Includes fatality claims.

Source: Unpublished national data supplied by Worksafe Australia.

The total time lost due to work-related injury and disease — based on 1992–93 workers' compensation claims — is estimated by Worksafe Australia to be about 6.5 million working days.⁹ However, this is based on workers' compensation claims of five days or more duration and only accounts for workers covered by the relevant Acts who make a successful claim.

Workers' compensation data — particularly the NDS — does not provide a good estimate of the true level of the OHS problem in Australia. The NSW WorkCover survey indicates that 53 per cent of workers who suffer an injury or illness at work do not make a workers' compensation claim. Of these, about half did not claim because their injury or illness was thought minor and claiming was not necessary (see Table B.3 and Table B.6). A further 14 per cent were not eligible because they were self-employed. The remaining one-third (about 41 000 workers) indicated that they did not claim for other reasons — such as not being aware of any workers' compensation benefits or afraid of retrenchment and what others might think.

⁹ An estimate based on 1991–92 data is not available. The estimate based on 1992–93 unpublished data should be viewed with some caution as the data used may change significantly as updated information is provided in subsequent years.

Table B.3 NSW injured workers who did not apply for workers' compensation by reason why they did not apply, October 1993

Main reason for not applying for workers' compensation	Males		Females		Persons	
	Number	Per cent of workers	Number	Per cent of workers	Number	Per cent of workers
	('000)		('000)		('000)	
Self-employed — not eligible	13.5	0.9	*4.1	0.4	17.7	14.4
Minor injury — not necessary	39.5	2.7	24.8	2.2	64.3	52.3
Not aware of workers' compensation	*2.3	*0.2	*1.0	*0.1	*3.3	*2.6
Afraid of possible retrenchment	*5.2	*0.3	*4.8	*0.4	10.0	8.1
Did not think eligible	7.3	0.5	*6.3	*0.6	13.7	11.1
Concerned about what others might think	*2.0	*0.1	*1.7	*0.2	*3.6	*2.9
Other	6.9	0.5	*3.7	0.3	10.6	8.6
All	76.7	5.2	46.3	4.2	123.0	100.0

* Estimate is subject to sampling variability between 25 and 50 per cent.

Source: Australian Bureau of Statistics, 1994, Cat. No. 6301.1, p. 7.

The NDS may underestimate workers' compensation claims by one-third (NSW Workcover Survey). This estimate is made by removing those not eligible for compensation, and by assuming that injuries and illnesses not claimed for resulted in less than five days off work. This implies that for wage and salary earners covered by workers' compensation schemes, there would be approximately 247 500 claims per year resulting in at least five days off work, had everyone claimed who was eligible.

Additionally, based on Queensland workers' compensation scheme claims records, over one-third of claims lodged are excluded from the NDS because they are of less than five days duration. Using this proportion, an estimate of claims including those of less than five days duration, would be about 370 000 — or about one in every 21 workers. This is likely to be an underestimate given that those not covered by workers' compensation schemes, such as the self-employed, are not taken into account.

The NSW WorkCover survey can also be used to provide an indication of the number of workers affected by workplace health problems on a national scale by estimating upwards. About 8.3 per cent of persons in NSW had suffered a work-related injury or illness at some time within the 12 months to October 1993. Assuming that work-related injury and illness rates found in the NSW workforce are representative of those nationally, it is estimated that about 650 000 workers are affected in some way by a work-related injury or illness annually in Australia — or about one in 12 workers. Almost two-thirds of these could be expected to take some time off work (see Table B2.4).

The 1989–90 National Health Survey also revealed that 4.8 per cent of all employed persons (about 375 000 workers) reported that they were still suffering from an injury or illness which resulted from an accident at work.¹⁰ Less than one-fifth indicated that they had taken time off in the two weeks prior to the survey being conducted.

Importantly, some 68 per cent of persons indicated that the accident had occurred at work more than one year before (see Table B.4). A further 18 per cent had been involved in a work accident that had occurred less than 2 weeks prior to the survey. Interestingly, although a larger number of accidents that resulted in an injury or illness were reported to have occurred at locations other than work (for example, during sport, recreation or exercise, or at home), the data suggest that accidents occurring at these other locations — with the exception of accidents occurring on paths, roads and highways — have relatively less severe consequences in terms of on-going health problems than those occurring at work.

The Commission's household survey revealed that in any given two week period, there are between 160 000 and 220 000 workers aged between 18 and 65 years in Australia affected by a work-related health problem that required at least one day absent from work (see Table B2.5). This represents between 2.1 and 2.9 per cent of the working population.

¹⁰ The reporting of accidents in the survey depended upon the existence at the time of interview of some resulting illness or injury. Note that the NHS results presented here do not include those workers who might be suffering a work-related condition that was not a result of an accident at work (eg many work-related illnesses and diseases).

Table B.4 Persons suffering an illness or injury resulting from an accident: period since accident occurred by place of accident, Australia, NHS 1989–90
(per cent)

<i>Period since accident occurred</i>	<i>At work</i>	<i>During sport, recreation or exercise</i>	<i>At home or home of friends or relatives</i>	<i>On path, road or highway</i>	<i>At school or other educational institution</i>	<i>Other</i>	<i>All</i>
Less than 2 weeks	17.6	30.9	46.3	9.1	41.4	25.4	27.2
2 weeks to less than 6 months	10.2	16.3	16.6	7.6	11.0	14.1	13.0
6 months to less than 12 months	4.0	4.5	2.7	4.6	5.3	3.2	4.0
1 year or more	68.2	48.3	34.5	78.7	42.3	57.3	55.8
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Australian Bureau of Statistics 1992, Cat. No. 4384.0, Table 6, p. 5.

Estimates from the PSM indicate that between 20 and 23 million lost working days per year occur because of work-related health problems (see Table B2.5). Over the same period, less than 500 000 days are lost due to strike activity (ABS 1995, p. 2).

The PSM also identified workers who had to reduce their normal duties at work because of a work-related health problem.¹¹ Between 100 000 and 140 000 workers were performing at some level of reduced capacity during the two week survey period (see Table B2.6). Annually, this represents between 16 and 20 million days where workers are not performing their normal duties at full capacity (see Table B2.6). In addition, Commission estimates based on the NHS reveal that over 8.0 million working days of reduced duties occur annually (see Table B2.7).

Respondents to the PSM were also asked to estimate the amount that their daily output was reduced on the days that they were on reduced duties. The ranges varied from a 10 per cent reduction in duties on only one work day to a 75 per cent reduction for a complete fortnight. The results also indicate that for

¹¹ This is made up of those workers who may have had time off and returned to work, as well as those who had taken no time off work during the two week survey period.

almost 70 per cent of the total number of days over the two week period, at least a 25 per cent reduction in normal duties occurred.

Although the number of working days lost per year provides an indication of the extent that work-related health problems impact on the workplace, the effects are largely considered in isolation from a workers ability to continue a 'normal' life outside of work hours. According to Geoff McDonald and Associates (1995), the damage a person suffers at work can have three different consequences for that person's life in general:

- permanently altered (fatality or permanent disability);
- temporarily altered (full recovery occurs after a period of disability); and
- inconvenienced.

Consequently, a measurement which also takes into account the effect on a worker's life outside of the workplace is proposed — that is, the 'days of living lost'. McDonald argues that:

The person's work situation, family and social situations and their recreational situation must be considered in determining the level of damage (1995, p. 18).

The Commission attempted to address some of these concerns through additional questions in the PSM. The working population was also asked whether they suffered from any long-term work-related health problems which had resulted in a reduction of the amount of paid work they did (or would like to do) or whether it has resulted in a change of jobs (see Tables B2.8 and B2.9).

Between 100 000 and 150 000 workers are estimated to be suffering from a long-term work-related health problem which has meant that they have had to reduce the amount of paid work done. A similar number of workers indicated that they have had to change jobs as a consequence of work-related health problems. Together, these two groups of workers represent between 2 and 4 per cent of the working population in Australia.

Additionally, two groups of the population other than workers were also surveyed to gauge how work-related health problems extend beyond the workforce — those people not working, and those over 65 years.

An estimated 3.5 million people between the ages of 18 and 65 do not work. The survey found that between 4.9 and 5.8 per cent of these — about 170 000 to 200 000 persons — were suffering from a work-related health problem which was preventing them from undertaking paid work. This represents over 1.5 per cent of the total population between the ages of 18 and 65 years.

About 86 per cent of those who had been unable to work because of a work-related health problem had not worked for over a year, and about 34 per cent had not worked for over five years (see Table B2.10).

Work-related health problems also affect the over 65 age group. The PSM found that between 110 000 and 300 000 persons aged over 65 years were still affected by a work-related health problem. This represents between 6.3 and 16.7 per cent of the total population over 65 years. The majority affected were male (see Table B2.12).

Box B.2 Key findings of the Commission's survey

The following summarises the key findings of the Population Survey Monitor undertaken by the Australian Bureau of Statistics on behalf of the Commission (1994–95).

As a consequence of work-related health problems, the workforce was affected in the following manner:

- between 160 000 and 220 000 workers in Australia are absent from work for at least one day in any given two week period;
 - approximately 100 000 to 140 000 workers had to work at a reduced capacity in any given two week period;
 - a further 100 000 to 150 000 workers had to reduce the amount of paid work they can do because of long-term illness; and
 - a similar number have had to change jobs altogether.
- Work-related health problems also affected the non-working population in the following manner:
- between 170 000 and 200 000 persons were prevented from undertaking paid work — of whom the vast majority had not worked for over a year; and
 - between 110 000 and 300 000 persons over the age of 65 are affected.

Industry and occupation

National workers' compensation data provides the most comprehensive source of information concerning the number, incidence and frequency of injuries and diseases across industries and occupations. However, readers should always keep in mind the limitations of workers' compensation data — this is further discussed in Appendix S.

Across all industries, the most up-to-date workers' compensation claims data for 1991–92 indicates that almost 168 000 successful claims for workplace injuries and diseases occurred (see Table B.5). As a proportion of wage and salary

earners in Australia, workers compensation data shows that about 26 workers per 1000 make a successful workers' compensation claim each year. The number of injuries and diseases per million hours worked — that is, the frequency rate — was almost 18 workers per million hours worked.

The largest number of claims for compensation occurred in the 'manufacturing' industry, followed by 'community services' — 42 600 and 28 000 successful claims respectively. However, taking into account the proportion of workers in each industry division, the highest incidence of injury and disease occurred in the 'mining' industry, followed by 'construction' — 65 and 53 claims per 1000 workers respectively. Frequency rates followed the same trend.

According to the major occupation divisions, the largest number of claims occurred in the 'labourers and related workers' category — about 42 400 successful claims. This was followed by 'tradespersons' with almost 30 000 claims made. Once again, taking into account the number of workers as a proportion of each occupation group, the highest incidence rates occurred in both the 'labourers and related workers' and the 'plant and machine operators and drivers' occupations — about 42 claims per 1000 workers for both occupation groups (see Table B.5). Frequency rates followed the same trend.

The NSW WorkCover survey revealed that the largest overall number of injuries or illnesses occurred in the 'community services' industry followed by 'manufacturing' and 'wholesale and retail trade'. Of interest is the magnitude of the levels of injuries and illnesses — an estimated 42 000 workers were suffering from a work-related injury or illness in the 'community services' industry in NSW alone. The occupation of 'labourers and related workers' had 45 600 workers affected.

Of those persons injured at work, the largest proportion who did not apply for workers' compensation were in the 'agricultural industry' (81.5 per cent) or by occupation, 'managers and administrators' (76.4 per cent).

Many inquiry participants highlighted the seriousness of work-related injury and disease for particular industries. These included the taxi industry (Taxi Employees' League; Taxi Industry Service Association of NSW), the health care industry (B. Miller), the brothel industry (Prostitutes Collective of Victoria); the education industry (Australian Education Union — Tasmanian Branch), the rural industry (A. Nicholls; Rural Industries Research and Development Corporation; Newtec Woolharvesting), and the construction industry (Roof Safe).

Table B.5 Workers' compensation claims by industry and occupation: number, incidence and frequency rates, NDS, 1991–92

	<i>Number of claims</i>	<i>Incidence rate^a</i>	<i>Frequency rate^b</i>
<i>Industry Divisions</i>	('000)		
Agriculture, forestry, fishing and hunting	6.9	47.5	27.7
Mining	5.8	64.6	36.7
Manufacturing	42.6	41.2	25.6
Electricity, gas and water supply	3.9	38.0	24.5
Construction	16.1	53.1	32.3
Wholesale and retail trade	19.7	15.2	11.0
Transport and storage	14.7	47.2	28.4
Communication	2.9	22.5	15.5
Finance, property and business services	7.0	9.5	6.2
Public administration and defence	10.6	30.8	21.3
Community services	28.0	20.4	14.5
Recreation, personal and other services	9.1	18.4	14.4
<i>All industries</i>	<i>167.9</i>	<i>26.4</i>	<i>17.8</i>
<i>Major occupation groups</i>			
Managers and administrators	3.0	7.0	3.5
Professionals	3.1	3.7	2.2
Para-professionals	6.3	16.4	11.4
Tradespersons	29.9	36.3	22.4
Clerks	5.0	5.1	3.8
Salespersons and personal service workers	8.1	8.3	6.9
Plant and machine operators and drivers	19.1	42.3	25.6
Labourers and related workers	42.4	42.6	32.5
<i>All occupations</i>	<i>167.9</i>	<i>28.5</i>	<i>19.3</i>

a The incidence rate is defined as the number of occurrences of injuries or diseases expressed as a rate per 1000 wage and salary earners.

b The frequency rate is the number of occurrences of injuries or diseases expressed as a rate per million hours worked by wage and salary earners.

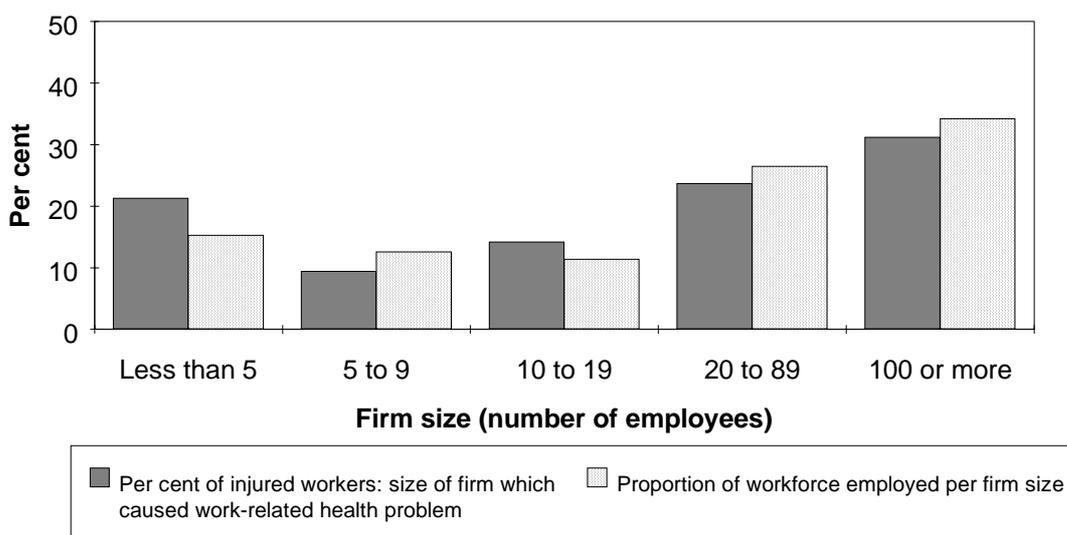
Source: Worksafe Australia, unpublished data.

Size of workplace

The size of individual workplaces where health and safety problems are occurring is important in terms of targeting strategies (both inspection activities and education and training). Data on the number of employees per workplace was considered in the Commission’s survey because of the lack of any existing data of this nature.

The Commission’s survey revealed that the largest number of workplace health problems were occurring in larger enterprises — 24 per cent in enterprises with between 20 and 99 persons and a further 31 per cent with 100 or more employees (see Figure B.6 and Table B2.13).

Figure B.6 Employed labour force suffering a work-related health problem, by workplace size, PSM 1994–95



Source: Industry Commission.

However, when the proportion of workers in each workplace size category is taken into consideration, the results suggest that the workers most at risk may be those who work in workplaces of less than five employees. Although this size workplace accounts for only 15 per cent of employees in the workforce, over 21 per cent of all work-related health problems occurred there.¹² Other workplaces experienced work-related health problems broadly in proportion to the number of workers employed.

¹² This result is statistically significant at the 80 per cent confidence interval only.

Gender differences

There are often marked differences in the effect and type of work-related health problems across male and female workers. Many of these differences exist as a consequence of male and female workers being concentrated in certain industries or occupations.

Females have a tendency to be concentrated in industries and occupations which are characterised by repetitious work and as a consequence, overuse injuries are common. According to a recent publication based on workers' compensation claims, across all industries, women experience about three times the proportion of musculo-skeletal system and connective tissue diseases than men. On the other hand, male workers have a much higher incidence of fatality, open wounds, fractures and dislocations at work because they are concentrated in industries that are susceptible to much greater risks of traumatic injury — such as mining and construction (Worksafe Australia 1994).

National workers' compensation claims data for 1991–92 show that as a proportion of wage and salary earners, 1.5 per cent of female workers and 3.9 per cent of male workers claim workers' compensation. Although women workers make fewer claims, the average time lost per claim is higher — 43 days compared to 36 for men (based on claims of five days or more absence from work) (Worksafe Australia 1994g, p. 15).

The NSW WorkCover survey also reveals that as a proportion of the NSW labour force, women workers also tend to have fewer workplace injuries than male workers — 6.7 to 9.4 per cent respectively. This survey also shows that a larger proportion of women in that State take less time off work because of work-related injury and illness than men. About 40 per cent of women had no time off compared to 34 per cent of men. Similarly, 31 per cent of women, compared to 24 per cent of men, had less than one week off work. On the other hand, and contrary to NDS findings presented above, a greater proportion of men had absences of one week or more — 42 per cent compared to 28 per cent of women (see Table B2.4).

PSM results show that 2.6 per cent of male workers and 3.2 per cent of female workers took at least one day off work due to a work-related health problem in the two week survey period.¹³ Of particular note is the large number of female workers (over one third) who were absent from work due to perceived workplace health problems — that is, neither the worker's employer or doctor confirmed that the health problem may have been linked to the workplace, nor was the health problem the result of a workplace accident. This was particularly marked for absences of less than five days duration. In contrast, over

¹³ This difference is statistically significant at the 90 per cent confidence interval.

90 per cent of male workers were confirmed by their employer or doctor as suffering from a work-related health problem or their health problem was the result of an accident at work (see Table B2.5).

If only confirmed work-related health problems were considered, 2.2 per cent of working males compared to 2.0 per cent of working females were absent from work due to a work-related health problem.¹⁴

The high proportion of work-related health problems affecting women recorded through the PSM as not being confirmed by an employer or doctor could imply that women workers are less likely to bring their health problems to the attention of others, and importantly, are more likely to be able to conceal it as well. For example, men are more likely to be affected by obvious workplace health problems consistent with traumatic injury, as opposed to the less obvious repetitive strain type illnesses that affect women. Geoff McDonald and Associates argue that female workers are less likely than male workers to report workplace injury and illness (see Section B.4).

Trend analysis based on workers' compensation claims produced by the Department of Occupational Health, Safety and Welfare in Western Australia (DOHSWA) suggests that although there has been a steady reduction in the frequency of occupational injury and disease amongst male workers over time, the opposite is true for female workers. They state that:

While further research in this area is necessary, it is likely the increasing frequency rate for women workers reflects the prevalence of manual handling injuries amongst women in industries such as community services, and the extent to which women now are entering relatively hazardous industries and occupations previously dominated by men (sub. 222, p. 15).

¹⁴ This difference is not statistically significant.

Box B.3 National workers' compensation claims data: the experience of male and female workers

Unpublished national workers' compensation claims data for 1991–92 shows that the incidence rates^a across industries and occupations differ by gender (see Tables B2.14 and B2.15). Overall, male workers experienced the largest number of workplace injuries and diseases across almost all industry divisions and major occupation groups. Even when the proportion of male and female workers were taken into account across industries and occupations, male workers still recorded a larger proportion of all claims.

Male workers

For male workers, although the largest number of claims occurred in the manufacturing industry — about 36 800 — the industry groups with the highest incident rates were 'mining and exploration services' closely followed by 'meat products manufacturing' — 138 and 136 claims per 1000 workers respectively. The industry groups of 'coal mining', 'services to water transport' and 'non-building construction' also had incident rates above one claim per 10 workers. The lowest incident rates were recorded in the industry divisions of 'wholesale and retail trade' and 'community services' — about 21 claims per 1000 male workers.

According to major occupation groups, male workers had the greatest number of claims in the 'labourers and related workers' category. The occupation groups which had the highest incidence of injury or disease were 'construction and mining labourers' and 'trades assistants and factory hands' — 70 and 66 claims per 1000 male workers respectively. The lowest incidence rates across major occupation groups were recorded for 'professionals' with only 3 claims per 1000 male workers.

Female workers

The largest number of claims by female workers across all industry divisions occurred in the community services industry. However, the highest incidence of workplace injury and disease occurred in the industry groups of 'defence' and, like male workers, 'meat products manufacturing' — 69 and 55 claims per 1000 female workers respectively. The lowest incidence rate was recorded in the 'finance, property and business services' industry division with about 7 claims per 1000 female workers.

The largest number of claims by major occupation division — like male workers — was 'labourers and related workers' — 10 400 female workers. The riskiest occupations according to incidence rates, are 'construction and mining labourers' and 'stationary plant operators' — 62 and 56 claims per 1000 female workers respectively. The occupation division with the lowest incidence rate was clerks, with below 4 claims per 1000 female workers.

a The number of claims expressed as a rate per 1000 wage and salary earners.

Age and inexperience

Concern has been expressed about the possible higher risks faced by inexperienced workers. Although this group predominantly comprises young workers, it also includes many inexperienced older workers. The experience of each of these groups of workers is reported below.

The 1993 NSW WorkCover survey reveals that the proportion of persons affected by workplace injury and illness by age group is generally in proportion to their representation in the workforce (see Figure B.7). The proportion of work-related injury and illness for the age groups of 25-34 and 55-64 years is, however, slightly larger than their representative age group in the NSW workforce. This contrasts with the incidence of fatalities which rise strongly with age (see Figures B.2 and B.3).

Across gender, however, there is greater proportional variation across age groups for female workers than male workers (see Figure B2.1). Both males and females have a slightly higher level of workplace injury and illness in the 25-34 age group, however, the female workforce is responsible for the overall higher rate of injury and illness in the 55-64 age group. In fact, the proportion of injury and illness among this age group is almost twice their representation in the NSW workforce. On the other hand, the female 35-44 year age-group had the least number of injuries and illnesses compared to their representation in the workforce.

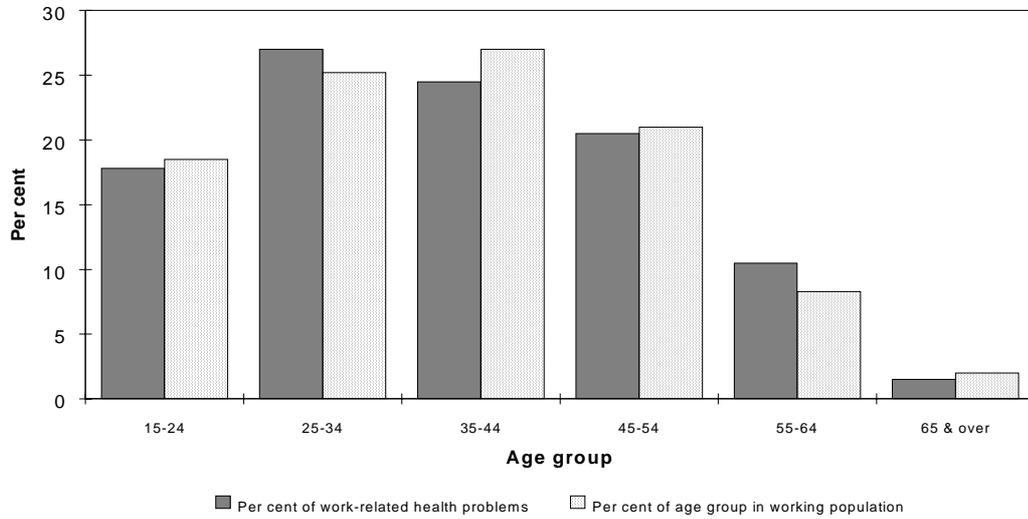
Results from the Commission's survey indicate that the age group most at risk of suffering a work-related health problem is 18 to 24 years. This age group, although making up only 17 per cent of the workforce, experienced about 27 per cent of all work-related health problems.¹⁵ The results also suggest workers aged 55 to 64 years may suffer a relatively high proportion of work-related health problems. This age group, although making up only 8 per cent of the workforce, experienced about 12 per cent of all work-related health problems.¹⁶ All other age groups reported work-related health problems slightly less than their proportion of age groups in the workforce (see Figure B.8 and Table B2.16).¹⁷

¹⁵ This result is statistically significant at the 95 per cent confidence interval.

¹⁶ This result is statistically significant at the 80 per cent confidence interval only.

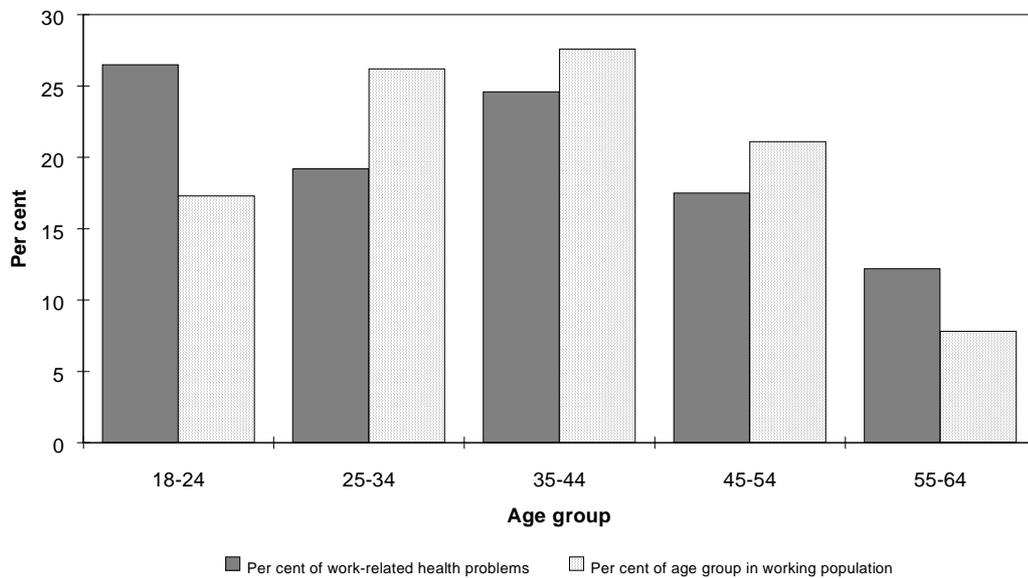
¹⁷ J. McCormack expressed concern about analysing the incidence of injury and disease on the basis of age, particularly when using a relatively small sample.

Figure B.7 Work-related injury and illness, by age group and proportion in workforce, NSW, October 1993



Notes: Based on ABS 1994, Cat. No. 6301.1, unpublished information.
 Source: Industry Commission.

Figure B.8 Work-related health problems, by age group and proportion in workforce, PSM 1994–95



Source: Industry Commission.

For the working population, the PSM revealed that 33 per cent of male workers and 39 per cent of female workers who suffered a work-related health problem did so after less than one year of experience in their particular job (see Table B2.17). For the non-employed population, this figure was just over 10 per cent for both male and female workers (see Table B2.18).

Box B.4 Lost-time injury to young workers — Western Australia

A study of occupational injuries to young workers based on workers' compensation data for 1991–92 in Western Australia indicated that the incidence rate of lost-time injuries to young workers was 1.3 times that of other workers — however, this varied by gender. Young male workers' lost-time injury incidence rate was 1.3 times that of other male workers, but for young females workers, the incidence rate was in fact less than the rate for other females — about 0.8 times. A similar trend for data going back to 1988–89 was also found.

The duration of claims made by young workers was also found to be substantially less than that made by other workers — 13.0 working days compared to 21.6 working days respectively. Over half of all injuries to young workers resulted in less than one week of time lost from work, compared to 38 per cent for other workers.

By gender, the duration rates for young males to females was 12.3 working days to 16 working days, compared to 19.5 and 28.5 working days for older male and female workers respectively.

Source: White (ed) 1993.

The age data presented above does not provide conclusive evidence that certain age groups are more susceptible to work-related health problems than others. Both the NSW WorkCover survey and the PSM data show that workers in the 55 to 64 age group have a relatively high risk of work-related health problems and that females aged 35 to 44 years have the lowest risk of all female age groups. However, the surveys' results differed in several respects. Unlike the NSW Workcover survey, the PSM found that workers under 25 years had a greater proportion of work-related injuries compared to their representation in the workforce, and that workers between 25 and 34 years had a lower proportion.

Ethnicity

Australia has one of the most ethnically diverse populations in the world with people from about 160 different countries and speaking over 100 languages. Consequently, the Australian workforce is also diverse — with one-quarter born outside the country and with over half this number from non-English speaking backgrounds (NESB).

Participants expressed concern about the higher levels of danger faced by migrant workers because of their over-representation in low-skilled industries. For example, the Office of Multicultural Affairs argued that:

Being concentrated disproportionately in unskilled manual jobs, NESB migrants, relative to their proportion of the workforce, face more danger to their physical well-being by their work environment than any other group in Australian society (sub. 214, p. 3).

Additionally, the South Australian Government commented that South Australian WorkCover data demonstrates ‘that the cost of NESB claims are on average 40 per cent greater than that of ESB claims’ (sub. 147, p. 36).

Unfortunately, as discussed in Appendix S, there is limited data available on the health and safety experience of workers according to their ethnic background. Although workers’ compensation data is generally the main source of information available to analyse workplace health and safety, it lacks any proxy that can be used to analyse worker injury and disease experience according to ethnic background. According to the Western Australian Department of Occupational Health, Safety and Welfare:

... workers’ compensation systems are a poor vehicle for collecting useful information on the impact of ethnicity on occupational safety and health (sub. 222, p. 18).

Consequently, the Commission sought to use other data sources, however information is severely limited.

The 1993 NSW study offers some limited information based on country of birth information. The Commission requested special tabulations from the ABS which divided NSW workers by their country of birth according to whether the first language of that country was English or not (see Table B.6).

The Commission’s analysis found that NESBs, as a proportion in the Australian workforce, are less likely to be injured at work than workers from an English-speaking background, including Australian-born workers — 6.7 per cent of NESB workers sustained an injury at work compared to 9.3 per cent of ESB workers.

Analysis of the duration of absence according to country of birth is limited due to the high sampling variability at the more disaggregated level. However,

almost 64 per cent of ESB workers had no time off work or less than one week, compared to 56 per cent of NESB workers. This could imply that although NESB workers sustain fewer injuries and illnesses at work, the duration of absence — or severity — is greater than ESB workers.

Table B.6 Persons injured in the last 12 months: English and non-English speaking, by whether applied for workers' compensation, NSW, October 1993

<i>Country of birth</i>	<i>Persons injured at work</i>	<i>Persons in workforce</i>	<i>Proportion injured at work</i>
	('000)	('000)	(Per cent)
English-speaking Countries (including Australia)			
Applied	96.2		4.4
Did not apply	106.6		4.9
All	202.8	2 171.0	9.3
Non-English-speaking Countries			
Applied	12.1		2.8
Did not apply	16.4		3.9
All	28.5	424.9	6.7
All Countries (including Australia)			
Applied	108.3		4.2
Did not apply	123.0		4.7
All	231.3	2 595.9	8.9

Source: ABS 1994, Cat. No. 6301.1, unpublished data.

Interestingly, the NSW WorkCover survey also revealed that NESB workers are less likely to apply for workers' compensation than non-NESB workers in NSW — 58 per cent compared to 53 per cent. Unfortunately, the reasons given by NESB workers for not applying for workers' compensation could not be disaggregated because of high sampling variability.

The PSM results reveal that overseas-born workers, as a proportion in the workforce, are less likely to be absent from work because of work-related health problems than Australian-born workers — 2.3 per cent of the overseas-born working population to 3.1 per cent of the Australian-born working population (see Table B2.19).¹⁸ Note, however, that the result does not necessarily mean that overseas-born workers are less likely to have a work-related health problem, as they may, for various reasons, not take time off work.

¹⁸ This difference is statistically significant at the 95 per cent confidence interval.

B.4 Causality

Identifying the causes of work-related health and safety problems is fundamental to understanding what actions are required to prevent or reduce them.

National Data Set for Compensation-based Statistics

The NDS includes ‘type of occurrence’ details — nature, bodily location, mechanism and breakdown agency — to characterise causality (see Box B.5).

Box B.5 National Data Set causality descriptors

The following descriptors are used to characterise causality in the National Data Set for workers’ compensation-based statistics.

Nature of injury/disease identifies the most serious injury or disease sustained or suffered by the worker. An injury is the result of a single traumatic event. A disease can result from either a single exposure to a biological agent or from repeated or long term exposure to an agent.

Bodily location of injury/disease identifies the part of the body affected by the most serious injury or disease.

Mechanism of injury/disease identifies the action, exposure or event which was the direct cause of the most serious injury or disease.

Breakdown agency identifies the object, substance or circumstance involved in the first event leading to the most serious injury or disease.

Source: National Institute of Occupational Health and Safety 1994, p. xii.

The NDS characterisation of causality is severely limited. The descriptors used characterise a single event and its immediate outcome, rather than all the factors that led to the event occurring. Participants and a number of authors — for example Quinlan and Bohle (1991) and Hocking and Thomson (1992) — argue that workplace injury and disease is more often the result of a culmination of factors that contribute varying degrees to the outcome or damaging occurrence, rather than a single event.

Additionally, the reporting of NDS type of occurrence data is deficient. Each of the four descriptors are reported singularly — the results are not combined to

give a meaningful description of the specific types of occurrences. The limitations of the NDS are discussed further in Appendix S.

In view of these limitations and a lack of other available causality data, the Commission engaged a consultant to provide expert opinion on the causes of work-related injury and disease (see Appendix T for the consultant brief). The results of this consultancy are summarised below.

Causes of work-related injury and disease

The report by Geoff McDonald and Associates (GMA), *Occupational Personal Damage Causation: Causes of Occupational Injury, Illness and Disease in Australia*, provides a number of interesting insights into the determining factors of work-related injury and disease.

GMA analyse damaging occurrences by examining:

- the personal damage incurred;
- the sequence of events that led to the damaging occurrence (identification of the determining factors);
- the damaging energies involved;
- work duties;
- workers' knowledge and preconceptions;
- information flows, both outside and within the organisation;
- community, government, employer and employee commitment and responses to workplace health and safety; and
- workplace culture.

The determining factors of a damaging occurrence are divided into two distinct categories — 'essential factors' and 'contributory factors'. Essential factors have to be present for a damaging occurrence to occur, whereas contributory factors are not essential but increase the likelihood of an occurrence. Essential factors always include *human* (behaviour), *machine* (design) and the *environment* (workplace and community features). GMA argue that it is impossible to apportion 'cause' to essential factors — adding that it is not unusual for 30 to 50 essential factors to be identified for an occurrence that results in permanent damage.

Damage occurs as the result of one or more exchanges of energy which go beyond tolerable limits. GMA identifies 16 possible energy sources.

In order to manage hazards in the workplace, an understanding of the type of damaging occurrences is required. According to GMA:

This can only come from observation, description and analysis of each individual damaging occurrence and aggregation of individual cases (1995, p. 14).

GMA has developed a framework — the ‘Accident Reference Tree Trunk’ — to guide the observation, description and analysis of each damaging occurrence. The reference framework characterises damaging occurrences by a series of stages — grouped into development, action replay, treatment and final stages. Additionally, each stage is further characterised by human, machine and environmental factors. The consultant uses the reference framework to identify which factors were essential or contributed to the damage in question at each stage of the occurrence. The presence or absence of each of the factors and their interaction with one another at each stage, has a bearing on the extent of permanent damage incurred. Importantly, intervention at any time up to the final stage can alter the outcome.

The identification of essential and contributory factors in the ‘developmental’ stage is important in determining what worker perceptions, information and management influences were acting at the time. The identification of essential and contributory factors during the ‘action replay’ stage identifies the present and absent factors that led to the damaging occurrence.

GMA argue that essential and contributory factors with high controllability must be identified in order to reduce damaging occurrences. However, the outcome depends on the extent that a worker’s particular duties are effectively managed. Effective management requires that the appropriate quantity and quality of information, willingness to use this information, skill and resources are present when a worker is going about his or her duties. Accordingly:

The more factual information influences the task activity, the more effectively personal damage will be reduced (1995, p. 12).

GMA has constructed a data-base using 3991 case histories. The occurrences are categorised by the type of energy involved in the damaging energy exchange. Gravitational, human and machine energy accounted for 87 per cent of cases in the data-base. The information describing each occurrence is used to determine the essential and contributory factors that typically characterise occurrences. An example of the essential and contributory factors during the ‘action replay’ stage of an occurrence involving gravitational energy is presented in Box B.6.

Box B.6 Gravitational energy

Damaging energy is considered in terms of the cues received by the individual (communication energy), the transitional energy which derives from the original release

of energy (control energy), and finally, the form of energy which produces the damage (damage energy). Factors identified during the 'action replay' stage for falls are grouped according to the three types of energy exchanges.

Communication energy is defined as low levels of energy which stimulate worker receptors, this leads to information detection, processing and decision-making. The communication energy factors identified for falls include: the appearance of floor surfaces, presence of contaminant, variability in grip, definition of stair nosings and rungs, location of hand rails and hand grips, existence of space, location of edge and balance on step ladder.

Control energy is described as energy input from one source (human, machine or environmental) which alters or controls the actions of another. In the case of falls, control energy factors are the coefficient of traction to floor, stair nosing and tread, hand grip, shoe heel, and grid mesh, existence of hand rail or grip, shape of hand rail or grip, securing system for ladders, edge railing system, work locating systems and fall arrest systems.

Damaging energy implies the energy exchanges that occur which go beyond the tolerable limits for either the human, machine or environment factors operating within the system at the time. For a fall, the factors affecting the damaging energy might include: the distance fallen or the direction of the fall, posture on landing, hardness of landing surface, shape and area of landing surface (for example, step edge, galvanised water pipe across trench, reinforcing bar or building rubble).

The contribution and controllability of each of these factors needs to be assessed in order to arrive at strategies for prevention.

Source: Geoff McDonald and Associates 1995, pp. 36-37.

Analysis of the data-base cases led GMA to the following conclusions:

- it is more important to change the behaviour of those higher up the management chain if safety outcomes are to be improved;
- lack of information is seen as more significant than lack of skills in many circumstances;
- managers at all levels require greater knowledge and skills in interpreting health and safety information and translating this in an understandable way to their workers;
- the workplace culture, including the way work is organised, can directly affect personal behaviour at work — particularly in high risk industries;
- better information on damaging occurrences is needed;
- although larger organisations can often rely on experience and history to predict future damaging occurrences and hence attempt to control them, smaller organisations are not likely to have the history or experience to do the same;
- there is a lack of recognition of the overwhelming importance of permanent damaging occurrences; and
- ‘causality’ needs to be analysed on a case-by-case basis and the results should be communicated widely.

The Commission specifically requested comment from GMA on how the following factors contributed to work-related injury and disease:

- workplace environment;
- worker behaviour;
- workforce skill;
- work organisation;
- gender, ethnicity, social mores and lifestyle; and
- occupational health and safety awareness and training.

Comments provided by GMA on these factors are discussed below.

Workplace environment

Both the physical and emotional environment are important to consider. A worker physically interacts with the physical environment and the emotional environment is influenced by the impact the physical environment has on the worker. Additionally, the emotional environment is also influenced by a worker, their interaction with other workers and the satisfaction (or otherwise) the worker derives from work.

The physical environment has a major impact on permanent damage occurrences, particularly in relation to gravitational energy, such as falls of persons. Working from a height is often a product of the work environment. For example, the need to use ladders and the way in which they are used are heavily influenced by the work environment. The controllability of the work environment is quite high — with even minor changes having the potential to positively impact on reducing damaging occurrences.

Worker behaviour

Worker behaviour is an essential factor of all damaging occurrences. The physical, mental, emotional and spiritual characteristics of a person determine behaviour. In general, however, it is more often the mental and emotional characteristics that are most obviously involved in damaging occurrences, with physical characteristics helping to determine how a person's body responds to their behaviour and ultimately interacts with physical energies.

Emotional factors are extremely important in determining behaviour — a person's 'feelings' can limit their capacity and reduce their performance. Importantly, the organisational climate interacts strongly with the emotional aspects of the worker. For example, the workforce tends to respond to the strength of feeling behind actions and words of their supervisors and managers and what is ultimately done. In an organisation that takes high safety risks, rather than expecting a worker to take greater individual safety precautions, the opposite has been observed — some workers will change their views and behaviour to be consistent with those of the workforce generally.

Anxiety and disharmonious social interactions at the workplace can also lead to damaging occurrences.

With regard to worker behaviour, GMA argued that too much emphasis has been applied in trying to change behaviour at the expense of changing the workplace environment. They state that:

Overall it is believed that historically too much reliance has been placed on behaviour control and too little in organising the work methods, environment and equipment to allow for the realities of human behaviour (1995, p. 121).

Often the more remote the behaviour from the damaging occurrence, the more damaging occurrences it influences. In this case, trying to change behaviour may be more effectively tackled initially at a broader level (for example, by government, union and employer bodies) rather than attempting more direct change. For example, on-the-job training may not be as effective as education in this situation as the latter can be applied more widely.

Workforce skill

According to GMA, 'lack of information is seen as more significant than lack of skills' (1995, p. 126). However, skill is considered important in many circumstances, such as vehicle and machine operation. Importantly, although having good skills can reduce damaging occurrences, risk still remains because skills are not always used.

GMA argue that the greatest need for improvement in skills is at all levels of management — in terms of providing the appropriate combination of factual information, willingness to use the information, skill and resources — because the majority of factors are at the control of management, rather than the worker.

Work organisation

Work organisation impacts significantly on the worker's physical, mental and emotional state. GMA comment that the worker's perception of their control over their work is a significant factor. This control is lost to some degree in machine paced and piece-rate work. Work organisation such as shift work and other work schedules can also significantly contribute to damaging workplace occurrences.

Gender, ethnicity, social morés and lifestyle

GMA suggest that damaging occurrences affecting women may not be as easily identified as those affecting men. This is because female workers often do not report their injury or illness. The lack of reporting:

... stems from sections of the medical profession, management and the community itself and derives in part from a willingness to see people as malingerers. While there are fraudulent claims and some malingering exists, the majority of cases are genuine. The number of genuine cases denied recognition is likely to exceed fraudulent and malingering cases by a significant margin (1995, p. 128).

Similarly, information regarding a damaging occurrence where a non-English speaking background worker is involved can sometimes be difficult — but this is essentially a communication problem.

Social morés are considered a strong determinant of behaviour. GMA argue that there is strong evidence to suggest that changing 'norms of behaviour' are more effectively done at a group, rather than at an individual level, because of the strength of consensus.

Lifestyle factors can also have a significant impact on work, but this also works in the opposite direction. Workplace injury and disease can affect a worker's life outside the workplace and add weight to the argument that when estimating

the true cost of work-related health problems, consideration should be given to the loss of lifestyle that results.

Occupational health and safety awareness and training

GMA argues that raising awareness will encourage the worker to use all their 'knowledge' — which will be a mixture of information, folklore, mythology, tradition and opinion. The result will be a 'broad and ineffective flurry of activity rather than specific directed activity' (1995, p. 128). Consequently, GMA argues that awareness-raising needs to be followed by the provision of relevant information that targets particular aspects of the work activity for it to be most effective.

Participants' views

Many inquiry participants highlighted particular causes and symptoms of poor workplace health and safety. These included work-related motor vehicle accidents (Roads and Traffic Authority), excessive noise (Deafness Forum of Australia; Victorian Deaf Society; National Acoustic Laboratories; Australian Tinnitus Association of Western Australia), personal health and fitness (Australian Sports Commission), drug use (Alcohol and Other Drugs Council of Australia), smoking (Australian Council on Smoking Health), stress (T. Oliver; A. Maxwell) and occupational violence (V. Bowie).

ATTACHMENT B1

HOUSEHOLD SURVEY

The Commission engaged the Australian Bureau of Statistics (ABS) to administer a household survey to determine the nature and extent of work-related health problems in the community. The survey was conducted as part of a broader household survey — the Population Survey Monitor (PSM).

The Population Survey Monitor

The PSM covers rural and urban areas across all States and Territories of Australia. All households within selected private dwellings are included in the survey. Those not included are all persons living in non-private dwellings and sparsely settled areas.

For each quarterly survey, an initial sample of 2700 private dwellings were chosen. The sample size is considered by the ABS to provide detailed information for Australia and relatively detailed data for capital city, urban, and rural areas for Australia.

The survey continued for four successive quarters. Results reported in the Commission's Draft Report were based on responses obtained from the first two quarters (April and August 1994). Responses from all four quarters (the addition of November 1994 and February 1995) have been included in this report.

The number of personal interviews for the four quarterly PSM surveys combined, by State and by age group, are listed in Table B1.1

From the sample of 9209 respondents, a total of 803 work-related health problems were identified. These problems are detailed in Table B1.2.

The survey questionnaire was designed by ABS experts in consultation with the Commission. Many questions were based on those asked in the 1989–90 National Health Survey. The Commission included a series of others based on specific needs.

Table B1.1 PSM interviews by State and age group, 1995

<i>State</i>	<i>Frequency</i>	<i>Age group</i>	<i>Frequency</i>
New South Wales	2 060	18-24	966
Victoria	1 976	25-34	1 988
Queensland	1 496	35-44	2 076
South Australia	1 131	45-54	1 518
Western Australia	1 213	55-64	1 066
Tasmania	633	65-74	1 010
Northern Territory	216	75 and over	585
Australian Capital Territory	484		
All	9 209	All	9 209

Source: Industry Commission.

Table B1.2 PSM respondents with work-related health problems

<i>Nature of incident resulting from work-related health problem</i>	<i>Confirmed health problem</i>	<i>Perceived health problem</i>	<i>Total</i>
Absent from work	100	44	144
Reduced duties	70	31	101
Reduced paid work	78	36	114
Changed job	77	22	99
Prevented from undertaking paid work	128	22	150
Still suffering health problem (65 yrs & over)	78	127	205

Source: Industry Commission

Data collection

Information was obtained in the PSM by face to face interviews with adult members of selected households. Interviewers for the PSM were obtained from the panel of ABS trained interviewers who have extensive experience in conducting household surveys.

Data processing

The ABS used a combination of clerical and computer-based systems to process the data obtained from the survey.

Estimation

Estimates obtained from the survey were derived using a complex ratio estimation procedure which ensures that the survey estimates conform to an independently estimated distribution of the total population by age, sex and labour force status (rather than to the age-sex-labour force status distribution within the sample itself). Note that estimates for persons over 65 years of age were derived from age, sex and area ratios.

The estimation procedure was designed to adjust estimates in such a way as to reduce the non-response bias by adjusting the weights of responding persons' records in each age-sex-labour force status (area) cell to compensate for under-enumeration in that cell.

Standard errors

The following table of standard errors is for person estimates derived from the data set collected on behalf of the Commission.

Table B1.2 Population Survey Monitor standard errors, 4 quarters (combined)

<i>Size of estimate</i>	<i>Standard error</i>	<i>Per cent</i>
(‘000)	(‘000)	
25	6	24.0
50	9	18.0
100	12	12.0
200	16	8.0
500	23	4.6

Source: Industry Commission.

Very small estimates are subject to high standard errors (relative to the size of the estimate). Estimates with relative standard errors of 25 per cent or less are considered sufficiently reliable for most purposes. Estimates subject to high relative standard errors, that is, greater than 25 per cent, should be used with caution.

As an example of how to interpret the PSM's results, consider an estimate of 100 000 persons. By referring to Table B1.2, an estimate of 100 000 has a standard error of 12 000. This means that if the survey were repeated 100 times, 95 of the resultant estimates would fall within the range 112 000 to 88 000.

Insert questionnaire

(page 1)

Insert questionnaire

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ATTACHMENT B2

SUPPLEMENTARY TABLES

Table B2.1 Incidence of work-related traumatic fatalities by age, Australia, 1982 to 1984

Age group	<i>Mean annual incidence rate^a</i>			
	<i>Workplace deaths</i>	<i>Workplace traffic deaths</i>	<i>Journey deaths</i>	<i>All</i>
15 to 19	2.46	0.87	2.07	5.40
20 to 24	3.89	1.64	1.93	7.45
25 to 34	4.36	2.03	1.28	7.67
35 to 44	4.57	1.95	0.86	7.38
45 to 54	5.12	2.49	1.21	8.83
55 to 59	6.80	2.01	1.40	10.20
60 to 64	7.09	1.92	1.92	10.92
65 to 69	20.51	*	*	24.05
70 and over	29.97	*	*	37.47

* Deaths were too few for a reliable estimation of the rates.

a Incidence rate per 100 000 employed persons in each stratum of the civilian labour force.

Notes: Workplace deaths are deaths that resulted from injury while working but which were not traffic-related. Workplace traffic deaths were deaths that resulted from traffic-related injuries on public roads while working. Journey deaths were deaths that resulted from injuries that were sustained while travelling to or from work.

Source: Harrison et al (1989), p. 120.

Table B2.2 Fatalities by industry division and selected industry groups, NDS 1991–92

<i>Industry</i>	<i>Males</i>			<i>Females</i>			<i>Persons</i>		
	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>
<i>Agriculture, Forestry, Fishing and Hunting</i>	40	0.35	0.19	..	..	..	43	0.29	0.17
Cereal grains, sheep, cattle and pigs	21	0.43	0.21	..	..	..	23	0.37	0.20
Forestry and logging	..	..	..	..	..	..	6	0.48	0.31
<i>Mining</i>	23	0.27	0.15	..	..	..	23	0.25	0.14
Coal	11	0.37	0.23	..	..	..	9	0.36	0.22
<i>Manufacturing</i>	77	0.10	0.06	..	..	..	81	0.08	0.05
Meat products	..	..	..	..	..	..	7	0.15	0.09
Structural metal products	..	..	..	..	..	..	6	0.17	0.10
<i>Electricity, Gas and Water Supply</i>	17	0.17	0.11	..	..	..	15	0.15	0.10
Electricity	11	0.22	0.15	..	..	..	11	0.19	0.13
<i>Construction</i>	45	0.17	0.10	..	..	..	48	0.15	0.09
Non-building construction	10	0.28	0.16	..	..	..	13	0.27	0.16
Other special trades	18	0.15	0.09	..	..	..	19	0.14	0.08
<i>Wholesale and Retail Trade</i>	63	0.09	0.06	..	..	..	65	0.05	0.04
Minerals, metals and chemicals wholesalers	7	0.30	0.16	..	..	..	6	0.22	0.13
Food, drink and tobacco wholesalers	7	0.24	0.14	..	..	..	9	0.15	0.10

Table B2.2 Fatalities by industry division and selected industry groups, NDS 1991–92 (cont.)

<i>Industry</i>	<i>Males</i>			<i>Females</i>			<i>Persons</i>		
	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>
<i>Transport and Storage</i>	74	0.30	0.17	..	..	..	74	0.24	0.14
Road freight transport	41	0.59	0.30	..	..	..	44	0.51	0.27
Services to water transport	7	0.62	0.39	..	..	..	8	0.56	0.35
<i>Communication</i>	..	..	..	..	..	..	..	..	..
<i>Finance, Property and Business Services</i>	26	0.07	0.04	..	..	..	27	0.04	0.02
Technical services	6	0.17	0.09	..	..	..	10	0.15	0.09
<i>Public Administration and Defence</i>	14	0.07	0.04	..	..	..	20	0.06	0.04
Government administration	13	0.07	0.05	..	..	..	16	0.05	0.04
<i>Community Services</i>	28	0.06	0.03	8	0.01	0.01	35	0.02	0.02
<i>Recreation, Personal and Other Services</i>	17	0.09	0.06	..	..	..	20	0.04	0.03
Sport and recreation	9	0.24	0.17	..	..	..	11	0.15	0.13
<i>All Industries</i>	434	0.12	0.07	30	0.01	0.01	464	0.07	0.05

Notes: Industry divisions and groups correspond to the Australian Standard Industry Classification.

Incidence rate is defined as the number of occurrences expressed as a rate per 1000 wage and salary earners employed.

Frequency rate is defined as the number of occurrences expressed as a rate per million hours worked by wage and salary earners employed.

.. Not applicable.

Source: Worksafe Australia, unpublished data.

Table B2.3 Fatalities by major occupation and selected minor occupations, NDS 1991–92

<i>Occupation</i>	<i>Males</i>			<i>Females</i>			<i>Persons</i>		
	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>
<i>Managers and Administrators</i>	23	0.06	0.03	..	..	..	24	0.05	0.03
Farmers and farm managers	6	0.31	0.14	..	..	..	6	0.29	0.13
<i>Professionals</i>	12	0.03	0.01	..	..	..	14	0.02	0.01
Building professionals and engineers	..	..	..	..	..	..	6	0.07	0.04
<i>Para-professionals</i>	7	0.05	0.03	..	..	..	12	0.03	0.02
<i>Tradespersons</i>	58	0.08	0.05	..	..	..	59	0.07	0.05
Metal fitting and machining tradespersons	10	0.09	0.05	..	..	..	8	0.10	0.06
Electrical and electronics tradespersons	10	0.10	0.06	..	..	..	11	0.10	0.06
Building tradespersons	12	0.08	0.05	..	..	..	10	0.08	0.05
Vehicle tradespersons	6	0.06	0.04	..	..	..	6	0.06	0.04
<i>Clerks</i>	8	0.04	0.02	..	..	..	8	0.01	0.01
<i>Salespersons and Personal Service Workers</i>	7	0.03	0.02	..	..	..	10	0.01	0.01
<i>Plant and Machine Operators and Drivers</i>	67	0.18	0.11	..	..	..	67	0.15	0.09
Road and rail transport drivers	39	0.24	0.14	..	..	..	39	0.22	0.13
Mobile plant operators (except transport)	17	0.21	0.13	..	..	..	18	0.21	0.13
Stationary plant operators	9	0.13	0.08	..	..	..	6	0.13	0.08

Table B2.3 Fatalities by major occupation and selected minor occupations, NDS 1991–92 (cont.)

<i>Occupation</i>	<i>Males</i>			<i>Females</i>			<i>Persons</i>		
	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>
<i>Labourers and Related Workers</i>	58	0.09	0.06	..	..	..	66	0.07	0.05
Trades assistants and factory hands	13	0.08	0.05	..	..	..	15	0.06	0.04
Agricultural labourers and related workers	14	0.18	0.11	..	..	..	17	0.16	0.10
Construction and mining labourers	13	0.15	0.09	..	..	..	15	0.16	0.10
Miscellaneous labourers and related workers	15	0.07	0.05	..	..	..	15	0.05	0.04
<i>All Occupations</i>	436	0.13	0.08	28	0.01	0.01	464	0.08	0.05

Notes: Major and minor occupation groups correspond to the Australian Standard Classification of Occupations.

Incidence rate is defined as the number of occurrences expressed as a rate per 1000 wage and salary earners employed.

Frequency rate is defined as the number of occurrences expressed as a rate per million hours worked by wage and salary earners employed.

.. Not applicable.

Source: Worksafe Australia, unpublished data.

Table B2.4 Persons taking time off work because of injury at work in the previous 12 months, NSW October 1993

<i>Time off work</i>	<i>Males</i>		<i>Females</i>		<i>Persons</i>	
	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
	(<i>'000</i>)		(<i>'000</i>)		(<i>'000</i>)	
None	51.1	34.0	32.6	40.3	83.7	36.2
Less than 1 week	36.6	24.3	25.3	31.3	61.9	26.8
1 week to less than 4 weeks	38.0	25.2	13.0	16.1	51.1	22.1
4 weeks to less than 3 months	14.6	9.7	6.5	8.0	21.1	9.1
3 months to less than 6 months	*4.3	*2.9	*2.2	*2.7	6.6	2.9
6 months or more	*5.8	*3.9	*1.1	*1.4	6.9	3.0
All	150.5	100.0	80.8	100.0	231.3	100.0

* Subject to sampling variability between 25 and 50 per cent.

Source: ABS 1994 (unpublished data).

Table B2.5 Employed persons: number of days off (fortnightly and yearly), PSM 1994–95
('000)

											<i>Number of days off work</i>		
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>12</i>	<i>14</i>	<i>1-14</i>
Confirmed													
Males	26.1	21.7	7.4	6.4	2.7	..	2.5	1.6	..	20.0	0.5	5.9	94.8
Females	19.5	7.2	5.9	4.3	5.4..	2.3	6.9	1.8	..	5.6	..	6.5	65.2
Persons	45.6	28.8	13.4	10.7	8.1	2.3	9.4	3.3	..	25.6	0.5	12.4	160.1
Perceived													
Males	14.2	1.7	1.9	..	1.1	2.4	..	..	..	..	..	0.6	21.9
Females	22.5	5.3	1.8	2.3	3.6	..	..	1.0	..	0.2	..	..	36.7
Persons	36.7	7.0	3.7	2.3	4.7	2.4	..	1.0	..	0.2	..	0.6	58.6
Confirmed and perceived													
Males	40.3	23.4	9.3	6.4	3.8	2.4	2.5	1.6	..	20.0	0.5	6.5	116.7
Females	42.0	12.5	7.7	6.6	9.0	2.3	6.9	2.8	..	5.8	..	6.5	101.9
Persons	82.3	35.9	17.0	13.0	12.8	4.7	9.4	4.4	..	25.8	0.5	13.0	218.6
Days off fortnightly													
lower bound	45.6	57.6	40.2	42.8	40.5	13.8	65.8	26.4	..	256.0	6.0	173.6	768.3
upper bound	82.3	71.8	51.0	52.0	64.0	28.2	65.8	35.2	..	258.0	6.0	182.0	896.3
Days off annually													
lower bound	1 185.6	1 497.6	1 045.2	1 112.8	1 053.0	358.8	1 710.8	686.4	..	6 656.0	156.0	4 513.6	19 975.8
upper bound	2 139.8	1 866.8	1 326.0	1 352.0	1 664.0	733.2	1 710.8	915.2	..	6 708.0	156.0	4 732.0	23 303.8

Notes: A 'confirmed' work-related health problem implies that a doctor or the worker's employer has established that the health problem is directly attributable to that persons work.

A 'perceived' work-related health problem implies that the worker has not been given an indication by his or her employer or doctor that their condition is work-related, however, the worker perceives it to be work-related.

Population estimates below 25 000 persons attract relative standard errors greater than 25 per cent.

.. Not applicable.

Source: Industry Commission.

Table B2.6 Working population with a work-related health problem: number of days of reduced duties (fortnightly and yearly), PSM 1994–95

('000)

	<i>Number of days that worker had to reduce normal work duties</i>												
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>	<i>14</i>	<i>1-14</i>
Confirmed													
Males	11.8	11.8	2.1	3.8	..	..	2.0	..	1.2	16.5	..	7.2	56.4
Females	11.1	1.7	2.4	2.3	5.2	3.6	3.1	..	..	4.3	1.6	7.7	43.0
Persons	22.9	13.5	4.5	6.1	5.2	3.6	5.1	..	1.2	20.8	1.6	14.9	99.4
Perceived													
Males	8.8	5.6	5.5	1.1	0.4	1.9	0.3	..	..	2.0	..	1.2	26.8
Females	0.8	3.4	..	0.7	4.0	..	..	0.5	..	3.5	..	..	12.9
Persons	9.6	9.0	5.5	1.8	4.4	1.9	0.3	0.5	..	5.5	..	1.2	39.7
Confirmed and perceived													
Males	20.6	17.4	7.6	4.9	0.4	1.9	2.3	..	1.2	18.5	..	8.4	83.2
Females	11.9	5.1	2.4	3.0	9.2	3.6	3.1	0.5	..	7.8	1.6	7.7	55.9
Persons	32.5	22.5	10.0	7.9	9.6	5.5	5.4	0.5	1.2	26.3	1.6	16.1	139.2
Days of reduced duties fortnightly													
lower bound	22.9	27.0	13.5	24.4	26.0	21.6	35.7	..	10.8	208.0	17.6	208.6	616.1
upper bound	32.5	45.0	30.0	31.6	48.0	33.0	37.8	4.0	10.8	263.0	17.6	225.4	778.7
Days of reduced duties annually													
lower bound	595.4	702.0	351.0	634.4	676.0	561.6	928.2	..	280.8	5 408.0	457.6	5 423.6	16 018.6
upper bound	845.0	1 170.0	780.0	821.6	1 248.0	858.0	982.8	104.0	280.8	6 838.0	457.6	5 860.4	20 246.2

Notes: See Table B2.5.

.. Not applicable.

Source: Industry Commission.

Table B2.7 Working population that had to reduce normal work duties performed because of a condition resulting from an accident at work: number of days of reduced duties (fortnightly and yearly), Australia, NHS 1989–90
('000)

	<i>Number of days that worker had to reduce normal work duties</i>											
	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>14</i>	<i>1-14</i>
Persons	7.7	9.9	5.5	*5.0	*5.0	**	*3.7	**	**	*2.3	12.7	56.6
Days of reduced duties fortnightly	7.7	19.8	16.5	*20.0	*25.0	**	25.9	**	**	*23.0	177.8	315.7
Days of reduced duties annually	200.2	514.8	429.0	*520.0	*650.0	**	673.4	**	**	*598.0	4622.8	8 208.2

* Subject to sampling variability between 25 and 50 per cent.

** Subject to sampling variability too high for most practical purposes.

Source: Derived from NHS 1989–90, unpublished data.

Table B2.8 Employed persons who have had to reduce the amount of paid work done or would like to do because of a long-term work-related health problem, PSM 1994–95
(‘000)

	<i>Males</i>		<i>Females</i>		<i>Persons</i>	
	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
	('000)		('000)		('000)	
Confirmed	63.5	1.5	38.6	1.2	102.1	1.4
Perceived	34.1	0.8	10.3	0.3	44.3	0.6
All	97.6	2.3	48.9	1.5	146.4	1.9

Notes: See Table B2.5.

Source: Industry Commission.

Table B2.9 Workers who have had to change jobs due to a long-term work-related health problem, PSM 1994–95

	<i>Males</i>		<i>Females</i>		<i>Persons</i>	
	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
	('000)		('000)		('000)	
Confirmed	57.5	1.3	43.3	1.3	100.8	1.3
Perceived	17.6	0.4	7.2	0.3	24.8	0.4
All	75.1	1.7	50.5	1.6	125.6	1.7

Notes: See Table B2.5.

Source: Industry Commission.

Table B2.10 Population not working due to a work-related health problem: length of time unable to work, PSM 1994–95

<i>Length of time not working</i>	<i>Males</i>		<i>Females</i>		<i>Persons</i>	
	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
	('000)		('000)		('000)	
Confirmed						
less than 1 year	11.9	10.8	9.6	17.9	21.5	13.1
1 to 5 years	55.0	49.9	31.8	59.4	86.8	53.0
more than 5 years	43.4	39.3	12.1	22.6	55.5	33.9
All	110.3	100.0	53.5	100.0	163.8	100.0
Perceived						
less than 1 year	3.5	17.5	1.5	16.9	5.0	17.3
1 to 5 years	10.1	50.5	3.5	39.3	13.6	47.1
more than 5 years	6.4	32.0	3.9	43.8	10.3	35.6
All	20.0	100.0	8.9	100.0	28.9	100.0
Confirmed and perceived						
less than 1 year	15.4	11.8	11.1	17.8	26.5	13.8
1 to 5 years	65.1	50.0	35.3	56.6	100.4	52.1
more than 5 years	49.8	38.2	16.0	25.6	65.8	34.1
All	130.3	100.0	62.4	100.0	^a 192.7	100.0

.. Not applicable.

a There were 8 000 'don't know' responses.

Notes: See Table B2.5.

Source: Industry Commission.

Table B2.11 Employed and non-employed persons suffering a work-related health problem, by weighted average income, PSM 1994–95

(\$'000)

	<i>Worker</i>	<i>Non-worker</i>
Weighted average income	30.2	7.6
Confirmed work-related health problem	28.4	9.5
Perceived work-related health problem	32.9	8.3

Notes: See Table B2.5.

Source: Industry Commission.

Table B2.12 Population over 65 years old suffering a work-related health problem, PSM 1994-95

	<i>Males</i>		<i>Females</i>		<i>Persons</i>	
	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
	(<i>'000</i>)		(<i>'000</i>)		(<i>'000</i>)	
Confirmed	90.7	11.3	22.3	2.2	113.0	6.3
Perceived	143.8	18.4	43.7	4.4	187.5	10.4
All	234.5	29.7	66.0	6.6	300.5	16.7

Notes: A 'confirmed' work-related health problem implies that a doctor or the worker's employer has established that the health problem directly attributable to that persons work.

A 'perceived' work-related health problem implies that the worker has not been given an indication by his or her employer or doctor that their condition is work-related, however, the worker perceives it to be work-related.

Population estimates less than 50 000 persons attract relative standard errors greater than 25 per cent.

Source: Industry Commission.

Table B2.13 Employed labour force: work-related health problems by firm size (number of employees), PSM 1994–95

	<i>Less than 5</i>		<i>5 to 9</i>		<i>10 to 19</i>		<i>20 to 99</i>		<i>100 or more</i>	
	<i>Number</i>	<i>Proportion</i>	<i>Number</i>	<i>Proportion</i>	<i>Number</i>	<i>Proportion</i>	<i>Number</i>	<i>Proportion</i>	<i>Number</i>	<i>Proportion</i>
	('000)	(per cent)	('000)	(per cent)	('000)	(per cent)	('000)	(per cent)	('000)	(per cent)
Confirmed										
Males	23.7	10.1	14.8	6.3	8.2	3.5	26.1	11.2	28.0	12.0
Females	18.8	8.0	3.8	1.6	13.7	5.9	14.0	6.0	26.6	11.4
Persons	42.5	18.1	18.	7.9	21.9	9.4	40.1	17.2	54.6	23.4
Perceived										
Males	4.1	1.8	3.5	1.5	2.5	1.1	6.2	2.7	9.8	4.2
Females	3.2	1.4	..	..	8.8	3.8	9.1	3.9	8.5	3.6
Persons	7.3	3.2	3.5	1.5	11.3	4.9	15.3	6.6	18.3	7.8
Confirmed and perceived										
Males	27.8	11.9	18.3	7.8	10.7	4.6	32.3	13.8	37.8	16.2
Females	22.0	9.4	3.8	1.6	22.5	9.6	23.1	9.9	35.1	15.0
Persons	49.8	21.3	22.1	9.4	33.2	14.2	55.4	23.7	72.9	31.2
Number of employees per firm size ^a	990.6	15.3	818.2	12.6	741.1	11.4	1715.5	26.5	2214.8	34.2

a Based on Australian Bureau of Statistics, unpublished data, March 1994.

Notes: A 'confirmed' work-related health problem implies that a doctor or the worker's employer has established that the health problem is directly attributable to that persons work.

A 'perceived' work-related health problem implies that the worker has not been given an indication by his or her employer or doctor that their condition is work-related, however, the worker perceives it to be work-related.

Population estimates below 50 000 persons attract relative standard errors greater than 25 per cent.

.. Not applicable.

Source: Industry Commission.

Table B2.14 Non-fatal workers' compensation claims by industry division and selected industry groups: number, incidence and frequency rates, Australia, NDS 1991–92

<i>Industry</i>	<i>Males</i>			<i>Females</i>			<i>Persons</i>		
	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>
	(‘000)			(‘000)			(‘000)		
<i>Agriculture, Forestry, Fishing and Hunting</i>	6.1	55.1	29.3	0.8	23.4	19.6	6.9	47.5	27.7
Services to agriculture	0.6	90.3	58.5	0.1	40.6	30.2	0.6	82.3	54.4
Forestry and logging	0.6	64.9	39.4	..	..	11.4	0.6	58.4	37.4
<i>Mining</i>	5.6	69.4	39.0	0.1	14.9	9.6	5.8	64.6	36.7
Coal mining	3.0	113.3	69.5	..	..	11.6	3.1	111.3	68.4
Mining and exploration services	0.6	137.7	64.8	..	..	14.6	0.6	112.8	57.9
<i>Manufacturing</i>	36.8	48.6	28.8	5.9	21.1	15.0	42.6	41.2	25.6
Meat products	4.7	135.5	84.7	0.7	54.6	38.5	5.4	112.6	72.7
Wood and wood products	2.2	59.1	35.3	0.1	21.6	25.1	2.3	54.5	34.6
Glass and glass products	0.7	84.7	52.2	..	..	18.7	0.7	79.0	49.5
Basic iron and steel	3.1	82.5	48.3	0.1	29.8	20.1	3.2	78.1	46.2
Other transport equipment	2.3	71.2	43.1	0.1	21.0	14.9	2.4	67.0	41.0
<i>Electricity, Gas and Water Supply</i>	3.8	41.3	27.0	0.1	7.9	5.8	3.9	37.0	24.5
<i>Construction</i>	15.8	58.5	34.3	0.3	8.6	7.5	16.1	53.1	32.3
Non-building construction	4.3	109.7	62.5	0.1	12.6	9.2	4.4	97.8	57.3
<i>Wholesale and Retail Trade</i>	14.5	20.8	12.8	5.2	8.7	7.9	19.7	15.2	11.0
Food, drink and tobacco wholesalers	1.5	40.7	23.2	0.5	20.7	16.0	2.0	33.3	21.0

Table B2.14 Non-fatal workers' compensation claims by industry division and selected industry groups: number, incidence and frequency rates, Australia, NDS 1991–92 (cont.)

<i>Industry</i>	<i>Males</i>			<i>Females</i>			<i>Persons</i>		
	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>
	(‘000)			(‘000)			(‘000)		
<i>Transport and Storage</i>	13.7	56.2	32.6	1.0	14.9	10.4	14.7	47.2	28.4
Rail transport	3.1	66.9	42.9	0.1	24.2	17.5	3.2	63.2	40.9
Services to water transport	1.6	111.9	70.2	..	27.5	15.9	1.7	104.8	65.3
Storage	1.1	95.6	58.3	0.1	26.4	19.7	1.2	78.8	50.3
<i>Communication</i>	2.3	24.7	16.3	0.6	17.0	13.1	2.9	22.5	15.5
<i>Finance, Property and Business Services</i>	4.4	12.5	7.2	2.6	6.8	5.0	7.0	9.5	6.2
Technical services	1.4	29.5	16.4	0.1	5.7	4.5	1.5	22.7	13.8
Plant hire and leasing	0.6	57.1	34.1	..	1.4	1.0	0.6	41.5	26.0
<i>Public Administration and Defence</i>	7.7	37.3	24.5	2.9	21.1	15.8	10.6	30.8	21.3
Defence	0.7	44.8	28.9	0.4	69.4	52.6	1.2	51.4	34.6
<i>Community Services</i>	11.7	24.7	15.0	16.3	18.1	14.1	28.0	20.4	14.5
Hospitals and nursing homes	2.7	33.6	21.5	8.6	29.6	24.2	11.3	30.5	23.5
<i>Recreation, Personal and Other Services</i>	5.3	25.2	16.4	3.8	13.4	12.2	9.1	18.4	14.4
Sport and recreation	1.7	49.5	34.8	0.5	15.7	17.2	2.2	33.1	28.2
<i>All</i>	128.2	35.7	21.5	39.7	14.3	11.4	167.9	26.4	17.8

Notes: See table B2.2.

There were a further 368 ‘Non-classifiable’ claims and 176 ‘Not stated’ claims.

.. Not applicable.

Source: Worksafe Australia, unpublished data.

Table B2.15 Non-fatal workers' compensation claims by major occupation and selected minor occupations: number, incidence and frequency rates, Australia, NDS 1991–92

<i>Occupation</i>	<i>Males</i>			<i>Females</i>			<i>Persons</i>		
	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>	<i>Number</i>	<i>Incidence</i>	<i>Frequency</i>
	(<i>'000</i>)			(<i>'000</i>)			(<i>'000</i>)		
<i>Managers and Administrators</i>	2.4	7.0	3.3	0.6	7.5	4.2	3.0	7.1	3.5
General managers	0.3	11.2	5.5	..	11.9	6.4	0.3	11.3	5.6
Farmers and farm managers	0.6	28.7	12.6	..	10.7	7.2	0.7	25.2	11.8
<i>Professionals</i>	1.5	3.3	1.8	1.5	4.2	2.8	3.1	3.7	2.2
Artists and related professionals	0.1	5.6	3.3	0.1	4.6	3.1	0.2	5.2	3.2
<i>Para-professionals</i>	3.5	18.4	11.5	2.8	14.4	11.4	6.3	16.4	11.4
Registered nurses	0.2	20.1	13.9	1.9	13.8	11.3	2.1	14.3	11.6
Miscellaneous para-prof.	1.8	28.7	17.9	0.6	18.8	13.7	2.5	25.2	16.6
<i>Tradespersons</i>	28.5	38.6	23.4	1.4	16.4	12.0	29.9	36.3	22.4
Metal fitting and machining tradespersons	4.9	48.2	28.7	0.1	56.4	37.6	4.9	48.3	28.8
Other metal tradespersons	4.8	58.0	34.6	..	20.3	13.6	4.8	57.4	34.3
Building tradespersons	5.3	40.3	24.7	..	39.2	24.0	5.4	40.3	24.7
Food tradespersons	2.7	40.0	22.6	0.7	27.8	21.2	3.4	36.7	22.3
Amenity Horticultural tradespersons	1.2	33.7	23.3	0.1	32.3	27.9	1.3	33.5	23.6
Miscellaneous tradespersons	2.6	39.4	23.8	0.3	7.2	5.1	2.9	27.2	17.5
<i>Clerks</i>	2.1	10.1	6.4	2.9	3.7	2.9	5.0	5.1	3.8
Stenographers and typists	..	11.4	7.4	0.5	2.3	1.7	0.6	2.5	1.8
Filing, storing and copying clerks	0.4	34.3	24.3	0.4	13.3	11.3	0.8	19.0	15.3

Table B2.15 Non-fatal workers' compensation claims by major occupation and selected minor occupations: number, incidence and frequency rates, Australia, NDS 1991–92 (cont.)

Occupation	Males			Females			Persons		
	Number	Incidence	Frequency	Number	Incidence	Frequency	Number	Incidence	Frequency
	('000)			('000)			('000)		
Receptionists, telephonists and messengers	0.6	56.5	38.6	0.5	3.4	2.7	1.1	7.4	5.8
<i>Salespersons and Personal Service Workers</i>	2.6	7.8	5.1	5.5	8.6	8.2	8.1	8.3	6.9
Sales assistants	1.1	8.4	6.1	2.0	6.9	6.9	3.1	7.4	6.6
Miscellaneous salespersons	0.6	10.9	8.7	0.8	7.9	8.2	1.4	8.9	8.4
Personal service workers	0.3	29.5	19.9	2.1	18.2	15.7	2.4	19.2	16.2
<i>Plant and Machine Operators and Drivers</i>	17.9	47.6	28.0	1.1	15.5	10.9	19.1	42.3	25.6
Road and rail transport drivers	7.6	45.2	25.9	0.3	24.9	23.4	7.8	44.0	25.9
Mobile plant operators (except transport)	4.6	54.2	32.5	..	..	72.3	4.7	54.5	32.7
Stationary plant operators	2.8	52.8	31.0	0.1	55.7	40.0	2.9	52.9	31.2
<i>Labourers and Related Workers</i>	32.1	50.2	34.3	10.4	29.0	27.9	42.4	42.6	32.5
Trades assistants and factory hands	11.2	66.3	42.9	2.7	31.1	22.7	13.8	54.5	36.7
Agricultural labourers and related workers	3.6	43.5	25.7	0.5	24.1	19.9	4.1	39.3	24.8
Construction and mining labourers	6.2	70.1	43.6	0.1	61.5	61.9	6.3	70.0	43.7
Miscellaneous labourers and related workers	9.6	39.2	29.5	4.2	32.5	33.7	13.7	36.9	30.7
<i>All</i>	128.2	38.9	23.3	39.7	15.3	12.4	167.9	28.5	19.3

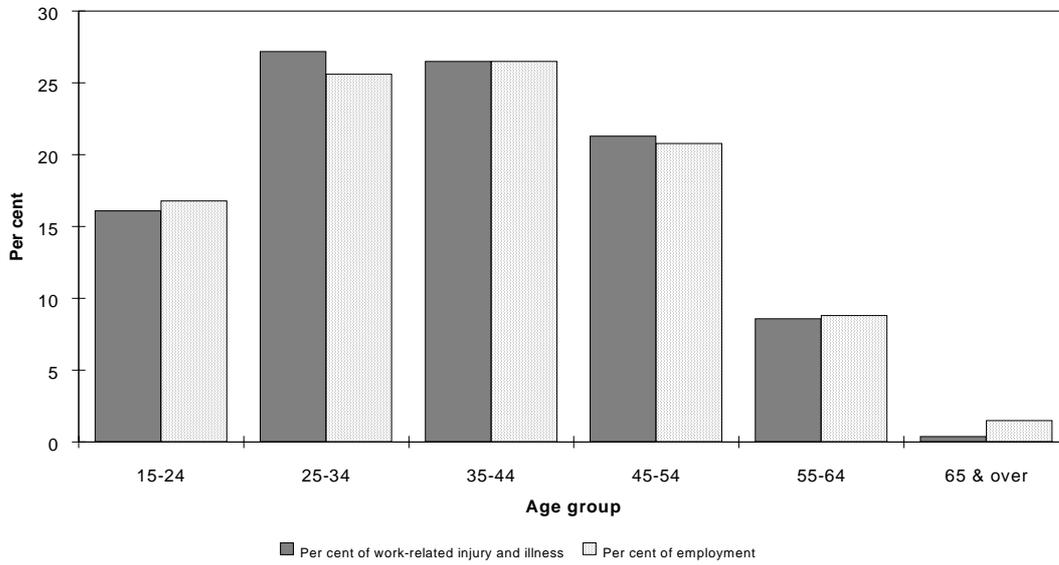
Notes: See Table B2.3.

.. Not applicable.

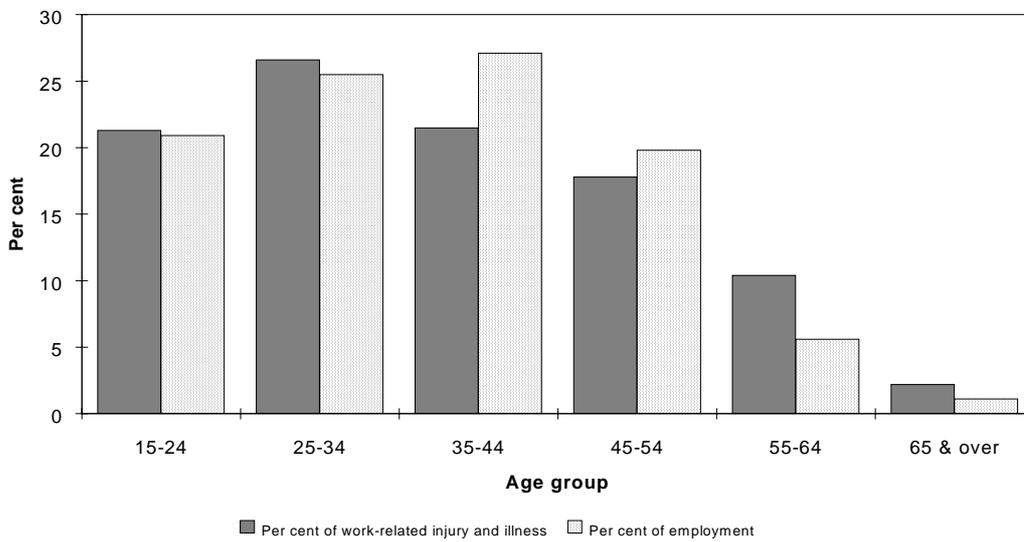
Source: Worksafe Australia, unpublished data.

Figure B2.1 Work-related injury and illness, by age group and proportion in workforce, NSW, October 1993

Males



Females



Notes: Based on ABS 1994 Cat. No. 6301.1, Table 2.1, p. 5.
 Relative standard errors greater than 25 per cent for persons 65 years and over.
 Source: Industry Commission.

Table B2.16 Working population absent due to a work-related health problem, by age, PSM 1994–95

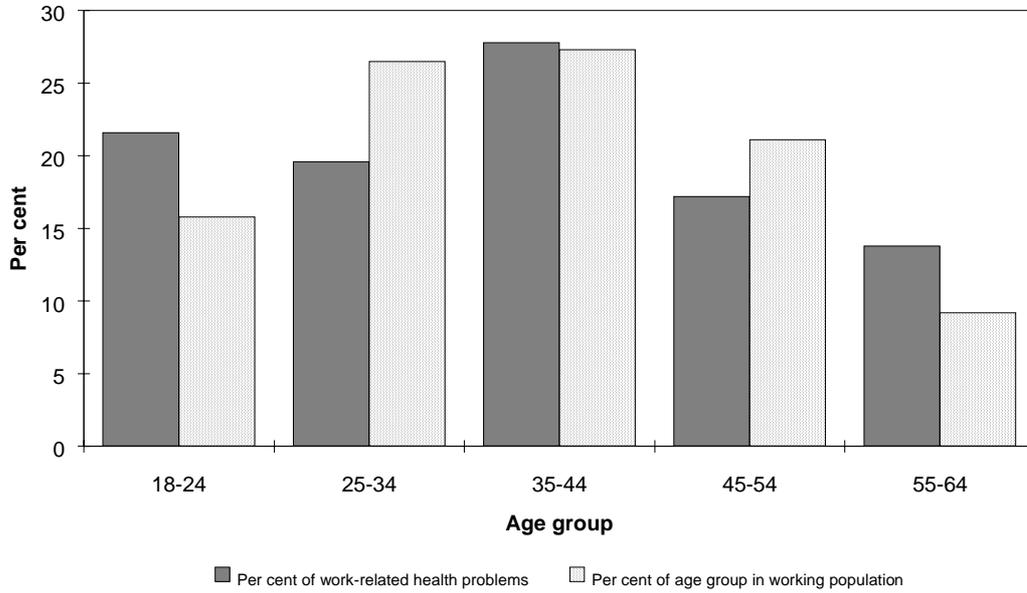
Age group (years)	<i>Males</i>		<i>Females</i>		<i>Persons</i>	
	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
	('000)		('000)		('000)	
Confirmed						
18 to 24	22.8	24.0	22.2	34.0	45.0	28.1
25 to 34	19.3	20.3	8.3	12.7	27.6	17.2
35 to 44	24.3	25.6	13.4	20.6	37.7	23.5
45 to 54	12.9	13.6	12.1	18.6	25.0	15.6
55 to 64	15.6	16.4	9.2	14.1	24.8	15.5
All	94.9	100.0	65.2	100.0	160.1	100.0
Perceived						
18 to 24	2.4	11.0	10.5	28.7	12.9	22.1
25 to 34	3.6	16.4	10.8	29.5	14.4	24.6
35 to 44	8.2	37.4	7.9	21.6	16.1	27.5
45 to 54	7.2	32.9	6.0	16.4	13.2	22.6
55 to 64	0.5	2.3	1.4	3.8	1.9	3.2
All	21.9	100.0	36.6	100.0	58.5	100.0
Confirmed and perceived						
18 to 24	25.2	21.6	32.7	32.1	57.9	26.5
25 to 34	22.9	19.6	19.1	18.8	42.0	19.2
35 to 44	32.5	27.8	21.3	20.9	53.8	24.6
45 to 54	20.1	17.2	18.1	17.8	38.2	17.5
55 to 64	16.1	13.8	10.6	10.4	26.7	12.2
All	116.8	100.0	101.8	100.0	218.6	100.0
Number in workforce						
18 to 24	671.2	15.8	604.9	19.2	1 276.1	17.3
25 to 34	1 124.2	26.5	811.9	25.8	1 936.1	26.2
35 to 44	1 158.0	27.3	881.9	28.0	2 040.0	27.6
45 to 54	893.9	21.1	667.3	21.2	1 561.2	21.1
55 to 64	390.9	9.2	181.5	5.8	572.5	7.8
All	4238.2	100.0	3147.5	100.0	7 385.8	100.0

Notes: See Table B2.5.

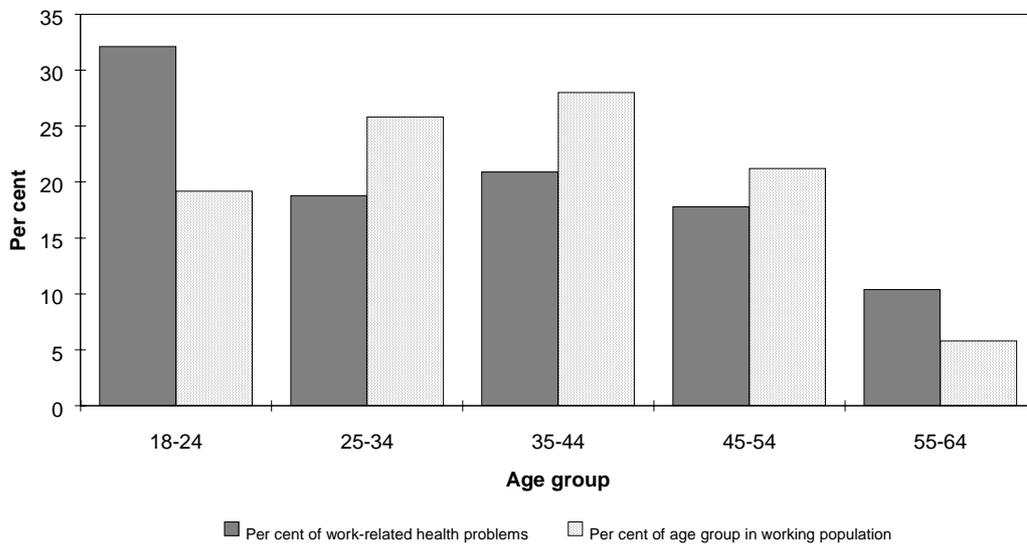
Source: Industry Commission.

Figure B2.2 Working population absent due to a work-related health problem, by age and proportion in workforce, PSM 1994

Males



Females



Source: Industry Commission.

Table B2.17 Employed labour force: time in job before work-related health problem occurred, PSM 1994–95

<i>Population type</i>	<i>Males</i>		<i>Females</i>		<i>Persons</i>	
	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
	(‘000)		(‘000)		(‘000)	
Confirmed						
less than 1 year	33.0	32.7	28.6	37.2	61.6	34.6
1 year or more	67.9	67.3	48.3	62.7	116.2	65.4
All	100.9	100.0	76.9	100.0	177.8	100.0
Perceived						
less than 1 year	8.6	32.8	12.2	43.7	20.8	38.4
1 year or more	17.6	67.2	15.7	56.3	33.3	61.6
All	26.2	100.0	27.9	100.0	54.1	100.0
Confirmed and perceived						
less than 1 year	41.6	32.7	40.8	38.9	82.4	35.5
1 year or more	85.5	67.3	64.0	61.1	149.5	64.5
All	127.1	100.0	104.8	100.0	231.9	100.0

Notes: A ‘confirmed’ work-related health problem implies that a doctor or the worker’s employer has established that the health problem is directly attributable to that person’s work.

A ‘perceived’ work-related health problem implies that the worker has not been given an indication by his or her employer or doctor that their condition is work-related, however, the worker perceives it to be work-related.

Population estimates under 50 000 persons attract relative standard errors greater than 25 per cent.

.. Not applicable.

Source: Industry Commission.

Table B2.18 Non-employed population: time in job before work-related health problem occurred, PSM 1994–95

<i>Population type</i>	<i>Males</i>		<i>Females</i>		<i>Persons</i>	
	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
	(‘000)		(‘000)		(‘000)	
Confirmed						
less than 1 year	14.5	12.1	5.8	11.2	20.3	11.8
1 year or more	105.7	87.9	45.8	88.8	151.5	88.2
All	120.2	100.0	51.6	100.0	171.8	100.0
Perceived						
less than 1 year	1.8	9.0	2.0	20.6	3.8	12.8
1 year or more	18.1	91.0	7.7	79.4	25.8	87.2
All	19.9	100.0	9.7	100.0	29.6	100.0
Confirmed and perceived						
less than 1 year	16.3	11.6	7.8	12.7	24.1	12.0
1 year or more	123.8	88.4	53.5	87.3	177.3	88.0
All	140.1	100.0	61.3	100.0	201.4	100.0

Notes: A ‘confirmed’ work-related health problem implies that a doctor or the worker’s employer has established that the health problem is directly attributable to that person’s work.

A ‘perceived’ work-related health problems implies that the worker has not been given an indication by his or her employer or doctor that their condition is work-related, however, the worker perceives it to be work-related.

Population estimates under 50 000 persons attract relative standard errors greater than 25 per cent.

.. not applicable.

Source: Industry Commission.

Table B2.19 Employed persons: number absent from work because of a work-related health problem, by country of birth, Australia, PSM 1994–95

	<i>Confirmed work-related health problem</i>		<i>Perceived work-related health problem</i>		<i>All</i>	
	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>	<i>Number</i>	<i>Per cent</i>
	(‘000)		(‘000)		(‘000)	
Males						
Aust-born	80.2	2.5	12.2	0.4	92.4	2.9
O’seas-born	14.6	1.3	9.7	0.9	24.3	2.2
Females						
Aust-born	54.4	2.2	29.3	1.2	83.7	3.4
O’seas-born	10.8	1.5	7.3	1.0	18.1	2.5
Persons						
Aust-born	134.6	2.4	41.5	0.7	176.1	3.1
O’seas-born	25.4	1.4	17.0	0.9	42.4	2.3

Notes: See Table B2.5

Source: Industry Commission.

C COST OF WORK-RELATED INJURY AND DISEASE

Work-related injury and disease impose costs on employers, workers and the community. The level of costs borne by each varies, depending on the severity of the work-related injury or disease and the level of workers' compensation payments.

The current debate about the cost of workplace incidents is focused on assessing the reliability of the direct to indirect cost ratio. Direct costs are those costs met by workers' compensation payments. The National Accounts estimate of the direct cost of workplace incidents for 1992–93 is \$4.83 billion (Worksafe Australia 1994d). Indirect costs, or non-compensated costs, are those costs not covered by workers' compensation. The indirect costs borne by employers, workers and the community are summarised in Table C.1. The identification and distribution of indirect costs for each group — by severity of workplace incident — are shown in Attachment C1.

Estimates of the ratio of direct to indirect costs range from 1:1 through to 1:7 (Andreoni 1986, Brody 1990, Heinrich 1950, HSE 1993, Klen 1989, Mangan 1993, Ore 1992, and Simonds and Grimaldi 1956). The overall cost of workplace incidents is usually imputed from this cost ratio. For example, if the ratio is 1:1 then the overall cost of work-related injuries and diseases would be calculated to be \$9.66 billion in 1992–93. If the ratio is 1:7 the overall cost would be \$38.64 billion.

The level and incidence of indirect costs varies according to the severity of workplace incidents, whether or not workers' compensation is received, and the extent to which compensation payments adequately cover the cost of work-related incidents. Very little empirical work has been undertaken on these relationships.

Furthermore, existing estimates of overall cost of work-related injuries and diseases which occur in a given year, include costs associated with injuries and diseases that occurred in previous years (Worksafe Australia 1994d). Thus, the cost estimate does not reflect the benefits of reducing workplace incidents, as it is affected by the costs of incidents in previous years.

Identifying the proportion of the costs borne by each party is critical to understanding the incentives on employers to provide a safe workplace and the community's interest in the level of safety provided. The extent to which the

Table C.1 Indirect costs borne by the employer, the worker and the community

<i>Indirect costs</i>	
Employer	Loss of productivity Consequential overtime and cost of over-employment Legal penalties Investigation of incidents and claims Rehabilitation Damage to a machine, tools, or other property or spoilage of material Replacement of equipment and other materials Employee turnover and training costs Cost of retraining Loss of goodwill and corporate image
Worker	Medical and rehabilitation Loss of income Loss of future earnings Travel to doctor(s) and the like Expenditures consequential to a new lifestyle Loss of leisure opportunities and general decline in the quality of life of the worker and his or her family Loss of self esteem Reduced social interaction and social status Cost to family members of caring for injured workers
Community	Health and medical Social welfare payments Inspection and investigation Rehabilitation Loss of human capital Community services Travel concessions for workers permanently incapacitated

Note: The definitions for these indirect costs are provided in Attachment C2.

Source: Industry Commission.

community bears costs is also significant, in terms of justifying intervention through the regulation of safety standards.

Given the lack of empirical studies focusing on these critical issues, the Commission has developed its own estimates of the costs of work-related injuries and diseases. The Commission has estimated the costs incurred in current and future years, as a result of workplace incidents that occur in any given year. This is called the *life time cost of a work-related incident*. The life time cost of workplace incidents provides a more immediate indicator of the

financial and economic benefits of reducing work-related incidents, and therefore is more useful in evaluating prevention programs

C.1 Commission's approach

Calculating the overall cost of work-related injury and disease involves five steps:

- identifying the levels of severity of workplace incidents;
- calculating the typical costs of an incident for each severity category;
- identifying the number of incidents that fall into each severity category;
- determining the total costs of incidents in each severity category; and
- determining the overall costs of all workplace incidents.

Identifying the levels of severity of workplace incidents

The costs associated with a work-related injury and disease depend on the severity of the workplace incident. The severity of workplace incidents can range from fatalities, to cases involving permanent disability, to injuries that result in a relatively short absence from work. The more severe the incident, the longer the recovery, the more intensive the medical treatment, and therefore the higher the costs incurred. Six mutually exclusive categories were chosen to depict the severity of workplace incidents (see Table C.2). Workplace incidents which did not involve absences from work were excluded from the calculation of total incident costs.

Calculating the typical costs of an incident for each severity category

The detailed methodology used to derive the typical cost for an incident, in each severity category, is set out in Attachment C2.

The typical cost of a workplace incident is based on the costs that an incident will impose in current and future years. Costs imposed in future years were discounted to the present period, to determine the typical cost for the incident. In using this method, a key determinant of the cost of an incident is the duration of absence from work. The longer workers are unable to work, the greater the loss of future earnings, the longer the reliance on social welfare assistance, and

Table C.2 Severity categories

<i>Severity category</i>	<i>Definition</i>
Less than five days off work	A minor work-related injury or illness, involving less than five days off work, where the worker is able to resume full duties. For example, sprains and strains.
Five days and more off work and return to work on full duties	A minor work-related injury or illness, involving five or more days off work, where the worker is able to resume full duties. For example, minor fractures, which do not result in permanent disability.
Five days and more off work and return to work on reduced duties	A work-related injury or disease, which results in the worker returning to work on reduced duties, within six months, and over-time resuming their usual work-load. For example, disorders of muscles, tendons and other soft tissues, which do not result in a permanent disability.
Invalided-out and return to work after a long period of absence to a lower income	A work-related injury or disease, which results in the worker becoming an invalid. For example, a hearing disability or a serious eye disorder. A decline in wages is assumed to occur on returning to the workforce, because the interruption to the work career results in human capital depreciation, attributed to loss of work experience and the loss of market-oriented knowledge. More significant wage declines will eventuate if capital specific to the pre-incident job is lost. This will be the case when the worker's original position has been filled, and alternative duties are delegated to the injured worker, or on separation from the employer.
Permanently incapacitated and do not return to work	A work-related injury or disease, which results in the individual affected being permanently unable to return to work. For example, traumatic amputation.
Fatality	A work-related injury or disease, which results in death.

Source: Industry Commission.

therefore the larger the typical cost. Information on the duration of incidents of different severity was obtained from a number of sources (see Attachment C2).

The typical cost of a workplace incident varies depending on whether or not compensation is received.¹ The cost of compensated incidents is based on the cost of workers' compensation and an estimate of non-compensated costs.

Non-compensated costs include loss of future earnings if benefits received are less than pre-injury earnings, or if benefits cease after a certain period. To determine the non-compensated period, the Commission compared the number

¹ There are three groups who do not receive compensation: those who are not eligible; those who do not apply and those whose claims for compensation are rejected. The Commission has excluded the latter group in its estimate of the number of workers affected, on the assumption that rejected claims are not work related.

of lost working days revealed by the Population Survey Monitor (PSM) with the total number of days for which compensation was received (see Attachment C2). The cost of workers' compensation is based on data provided by the WorkCover Corporation (South Australia). The WorkCover Corporation was the only workers' compensation authority able to meet the Commission's data needs.

For incidents where no compensation is received, the key determinants of costs are the wage, age and incident severity profile of injured workers. Workers who do not receive compensation include those who are not eligible, such as the self employed, and those who are eligible but do not claim, for example, for fear of dismissal. Data on the profile of workers receiving compensation was obtained from the WorkCover Corporation (South Australia).

It was assumed that those who are not eligible for compensation exhibit a similar age, wage and incident severity profile as those receiving compensation. This assumption is supported by comments made by the Department of Occupational Health, Safety and Welfare in Western Australia:

... it is fair to say that the injury and disease profile for self-employed persons is probably not going to be all that different to those in the same industry who are in the workers' compensation system. They are having to address those consequences through different means — personal accident insurance and income substitution insurance — and they might tolerate a degree of injury and keep working that would not be tolerated within the compensation system, but the profile is likely to be similar ... (transcript, p. 2288).

The Commission assumed that workers who are eligible for compensation but do not claim also had the same age, wage and incident severity profile as those receiving compensation. It is apparent from the results the ABS survey into workplace incidents in NSW, that many workers did not seek compensation because their injury or illness was minor (ABS 1993b). The Commission has taken this into account by excluding workplace incidents which did not result in days off work, and by placing minor incidents in the low severity categories. It has been assumed that the medical and rehabilitation costs for non-compensated incidents are the same as for compensated incidents, for incidents of a given severity.

In light of the differences in the cost of compensated and non-compensated incidents, the typical cost of an injury or disease of given severity is a weighted average of the cost of compensated and non-compensated incidents.

A lower and upper bound estimate of the typical cost of incidents in each severity category was calculated. The range reflected differences in the value of social welfare benefits that could be received by workers, depending on their circumstances.

Differences in the level of workers' compensation benefits between jurisdictions mainly affect the share of typical costs borne by employers, workers and the community. In jurisdictions where benefit levels are low, workers bear a higher share of the costs associated with the work-related injury and disease.

Similarly, certain costs incurred by the worker may ultimately be borne by the community. For example, pharmaceutical costs incurred by the worker may be partly subsidised by the community via the Pharmaceutical Benefits Scheme (PBS). Where this occurs, the typical cost per workplace incident is not significantly affected — costs are merely transferred between the two parties.

Identifying the number of incidents that fall into each severity category

The total number of workplace incidents which occurred in 1992–93 for Australia, was derived from two sources: the ABS survey into workplace incidents which occurred in NSW; and data from Worksafe Australia.

The number of non-fatal incidents was based on the findings of the ABS survey (ABS 1993b). This survey indicates that work-related incidents in NSW affect approximately eight per cent of the total NSW working population.² It was assumed that the number of work-related incidents in Australia, for 1992–93, was eight per cent of the total Australian working population.

The survey also provided a breakdown of the number of incidents in each severity category for NSW. The numbers in each severity category were then expressed as a percentage of total work-related incidents. Incidents where the duration of absence was not known could not be categorised and therefore had to be excluded. Incidents where workers reported no effect on work duties were also excluded because these incidents do not impose significant costs. As a result the percentage of incidents in each severity category does not sum to 100 (see Table C.3).

Information from the NSW survey was used to derive the number of workplace incidents in each severity category for Australia (see Table C.3). To determine

² Of the eight per cent of the total NSW working population that suffered a work-related incident, 3.5 per cent received compensation and 4.5 per cent were not compensated. Of those who received compensation, five per cent of workers reported no effect on work duties and five per cent did not indicate the duration of absence. Hence ten per cent of all compensated incidents are not included in the severity categories. Of those who do not receive compensation, 50 per cent reported no effect on work duties and 14 per cent did not indicate the duration of absence. Thus 64 per cent of all incidents not compensated are not included in the severity categories.

the number of incidents in each severity category for Australia, the percentage of injuries and diseases in each severity category was multiplied by eight per cent of the total Australian working population. A key assumption was that the proportion of workplace incidents for each severity category in NSW, was representative of the proportion of incidents for each severity category in Australia.

The number of compensated fatal incidents was based on Worksafe Australia's estimates. Using this number, the proportion of compensated fatal incidents was estimated to be 0.16 per cent of all compensated workplace incidents. There is considerable uncertainty about the number of non-compensated work-related fatalities. The Commission assumed that the number of non-compensated work-related fatalities was 0.08 per cent of all non-compensated workplace incidents, which comes to 269 incidents (see Table C.3). This is likely to be an underestimate of the number of non-compensated fatalities, as other studies have estimated that between 650 and 2200 cancer fatalities annually are work-related.

Determining the total cost of incidents in each severity category

The Commission's study reveals information about the indicative cost of a workplace incident, the overall cost of workplace incidents, and the ratio of direct to indirect costs.

Determining the overall cost of workplace incidents

The overall cost of work-related injuries and diseases, was determined by summing the total cost estimates for each severity category.³ Not all the costs could be quantified because of data limitations. Hence the overall cost estimates are very conservative.

C.2 Main findings

Indicative cost per workplace incident

The indicative cost of a workplace incident is estimated to be between \$26 000 and \$28 000 (see Table C.4). The cost of workplace incidents rises with the

³ A lower and upper bound of the overall cost was derived. The lower limit is the summation of the lower bound total cost estimates in each severity category. Similarly, the upper bound was derived summing the upper limit costs in each category.

severity of the incident, and the length of time the worker is unable to work. For example, the cost of an incident involving less than five days off work is up to \$1 000, whereas the cost of an incident that results in the person being permanently incapacitated is almost \$600 000.

The costs borne by workers and the community rise particularly sharply with the severity of the incident. For instance, for a work-related incident which involves less than five days off work, the cost borne by the worker and the community is up to \$10 and \$100 respectively (see Table C.4). For workplace incidents which result in the worker being permanently incapacitated, the cost incurred by the worker and the community is up to \$131 000 and \$240 000 respectively. The typical *dollar* cost associated with a fatality appears to be less than the costs associated with permanent incapacity. This is because the employer bears lower costs, because they do not have to hold a job open for the worker, and the community bears lower costs because the duration on subsidised medical services and social welfare assistance is less. However the families of deceased workers incur a higher cost in terms of loss of future earnings.

Overall cost of workplace incidents

The Commission estimates that the overall cost of work-related injuries and diseases which occurred in 1992–93, to be \$20 billion. Given certain qualifications, the overall cost of workplace incidents represents approximately 5 per cent of GDP.⁴

⁴ The overall cost of work place incidents includes some costs which are likely to be incurred in the future. GDP is an estimate of the nation's output at a given point in time. Thus comparison between the two estimates may not be valid, as they are estimated for different time frames. However workplace incidents which occurred prior to 1992–93 continue to impose costs. The costs imposed in 1992–93 are the costs of workplace incidents which occurred in 1992–93, plus the outlays on work-related incidents which occurred prior to 1992–93. Given this qualification, it may be possible to express the overall cost of work related deaths, injuries and diseases in terms of GDP.

Table C.3 Number of workplace incidents for each severity category, 1992–93, Australia

	< 5 days off	5 or more days off work and return to work on:			Permanently ^a incapacitated	Latency period for fatalities:	
		Full duties	Reduced duties	Lower income ^b		Short	Long ^c
Compensated per cent ^d	32	28	18	7	5	0 ^e	0 ^f
number	85 499	77 162	48 984	19 973	13 315	283	141
Not compensated per cent ^g	15	13	9	3	2	0 ^h	0 ⁱ
number	52 022	46 269	29 372	10 763	5 980	179	90
Total per cent ^j	22	20	13	5	3	0 ^k	0 ^l
number	137 521	123 432	78 356	30 736	19 295	462	231

- a The number of incidents for the permanently incapacitated category was derived from those respondents who indicated that they were permanently unable to resume all work duties.
- b The number of incidents for the lower income category was derived from those respondents who indicated that they were permanently unable to resume some work duties.
- c According to Worksafe Australia, workers' compensation records indicate that fatalities resulting from occupational illnesses and diseases represent roughly one-third of all compensated work-related fatalities (Worksafe Australia 1994d, p. viii). These proportions were assumed to be similar for fatal incidents not compensated.
- d The proportion of workers affected expressed in terms of the total number of compensated incidents. This row does not add to 100 per cent because incidents which did not involve absences from work or where the duration of absence was not known, could not be categorised.
- e Approximately 0.10 per cent.
- f Approximately 0.05 per cent.
- g The proportion of workers affected expressed in terms of the total number of non-compensated incidents. This row does not add to 100 per cent because incidents which did not involve absences from work or where the duration of absence was not known, could not be categorised.
- h Approximately 0.05 per cent.
- i Approximately 0.03 per cent.
- j These figures differ from those in Chapter 2, Table 2.3 which only covered incidents of at least one day off work. The figures in Table C.3 cover all incidents including those that did not involve time off work.
- k Approximately 0.08 per cent.
- l Approximately 0.04 per cent.

Notes: Percentages are rounded to the nearest 0.1 decimal.

The number of workers affected for each severity category for Australia was derived by multiplying the employment figure for Australia with the percentage of workers affected per severity category.

Source: Industry Commission.

Table C.4 Typical cost for workplace incidents that occurred in 1992–93, by severity, Australia
(\$ per incident)

	< 5 days off work	5 or more days off work and return to work on:			Permanently incapacitated	Fatality ^a	Average
		Full duties	Reduced duties	Lower income			
All^b							
Lower	950	8 390	25 300	143 540	571 560	425 560	26 490
Upper	1 000	8 640	31 070	148 950	598 380	446 900	28 220
Employer^c							
Lower	890	7 740	22 420	62 980	227 500	70 100	11 150
Upper	900	7 740	26 290	62 980	227 500	133 130	11 650
Worker							
Lower	10	260	1 150	68 430	125 680	246 730	7 490
Upper	10	280	1 850	71 190	131 310	207 950	7 720
Community							
Lower	50	390	1 730	12 140	218 380	108 730	7 850
Upper	100	620	2 940	14 790	239 560	105 820	8 860

a For the fatality category, the lower limit represents the typical costs for traumatic work-related injuries or diseases, and the upper limit represents the costs for fatalities which occur after a long duration.

b All costs take into account direct costs (workers' compensation payments), and indirect costs.

c Employer costs take into account their direct and indirect costs.

Notes: Costs are rounded to the nearest \$10. Due to rounding, the sum of the typical costs borne by the three parties, for a given level of severity, may not equal the respective typical cost per workplace incident. Typical cost estimates were derived based on data received from the WorkCover Corporation (SA) for 1992–93 and the Commission's survey.

Source: Industry Commission.

A lower level of workplace incidents would improve living standards in three ways.

- First, the resources currently consumed in dealing with the consequences of workplace incidents could be redeployed. For example, there would be less need for medical services, and therefore medical resources could be redirected to other activities. This could lead to an increase in living standards due to a change in the composition of GDP.
- Second, if released resources were redeployed into more productive uses, then the overall level of GDP would increase. The magnitude of this potential increase is discussed in more detail in Appendix R.

- Third, an improvement in the quality of life is likely to be attained, as the level of pain and suffering, and disruption to lifestyle associated with workplace incidents is reduced.

The breakdown of the total cost of all workplace incidents by severity category is presented in Table C.5. Severe incidents, such as those where workers are permanently incapacitated or return to work on lower income, contribute significantly to the overall cost of workplace incidents. While less workers are affected by serious incidents, the costs of these incidents are so high, that they account for the bulk of overall costs.

Direct to indirect costs

The Commission estimates that the ratio of direct to indirect costs of work-related injury and disease is about 1:2. That is, for every \$1 of direct

Table C.5 Overall cost of workplace incidents which occurred in 1992–93, Australia

(in \$ millions)

	<i>< 5 days off work</i>	<i>5 or more days off work and return to work on:</i>			<i>Permanently incapacitated</i>	<i>Fatality</i>	<i>Overall cost</i>
		<i>Full duties</i>	<i>Reduced duties</i>	<i>Lower income</i>			
All							
Lower	130	1 032	1 963	4 397	11 017	299	18 909
Upper	136	1 063	2 415	4 563	11 535	299	20 082
Employer							
Lower	122	952	1 737	1 920	4 379	63	9 172
Upper	122	952	2 040	1 920	4 379	63	9 476
Worker							
Lower	1	32	90	2 103	2 425	162	4 813
Upper	1	35	145	2 188	2 534	162	5 064
Community							
Lower	7	48	136	373	4 214	75	4 924
Upper	13	76	230	455	4 622	75	5 543

Note: Costs are in current dollar terms and rounded to the nearest one million.

Due to rounding, the sum of the total costs borne by the three parties may not equal the overall cost.

Source: Industry Commission.

costs, the indirect costs are expected to be about \$2. This is based on a level of direct costs, estimated using SA workers' compensation benefit structures, of \$7 billion for Australia. Given that the estimated total cost of injuries and diseases is \$20 billion, the estimated level of indirect costs is \$13 billion.

While the overall cost of workplace incidents is not affected by the level of workers' compensation benefits, the ratio of direct to indirect costs is significantly affected by benefit levels. Where workers' compensation payments do not adequately cover all costs associated with workplace incidents, higher indirect costs are incurred by the worker and usually the community.

The Commission's estimate of the ratio of direct to indirect costs is based on the level of workers' compensation benefits in South Australia. South Australian benefits are significantly higher than benefits in other jurisdictions (see Table C.6).

Table C.6 Average compensation payments for workplace incidents reported in 1992–93 (\$)

	<i>< 5 days off work</i>	<i>5 or more days off work but not permanently incapacitated</i>	<i>Permanently incapacitated</i>	<i>Fatality</i>
Victoria	2 472 ^a	7 641	12 926	58 643
South Australia	367	9 850	119 782	107 545
Western Australia	571	5 449	7 467	49 056

a For the less than five days off work category, in Victoria, workers' compensation records are based on less than six days off work, hence the average compensation payment in Victoria, is expected to be higher than the payments made in other jurisdictions.

Note: Not all jurisdictions were able to provide an estimate of the outstanding liability, therefore for consistency purposes only payments made for the period up to and including November 1994 were included.

Source: Industry Commission.

To gain a more indicative estimate of the ratio of direct to indirect costs in other jurisdictions, the Commission used the estimate of direct costs in the National Accounts. The National Accounts estimate of direct costs (\$4.83 billion) raises the indirect costs to roughly \$15 billion (see Box C.1). This gives a ratio of direct to indirect costs of 1:3.

C.3 Distribution of the costs between employers, workers and the community

In order to develop prevention policies to minimise the cost of workplace incidents, policy analysts should examine the relative burden of the costs imposed on the employer, the worker and the community.

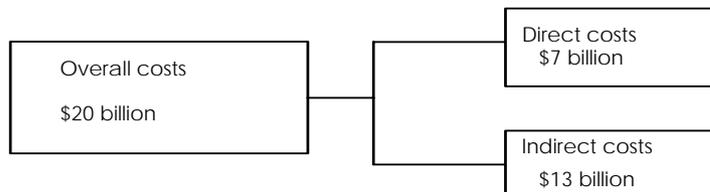
The distribution of costs between the employer, worker and the community is highly sensitive to the level of workers' compensation payments received. Estimates of the incidence of costs based on National Accounts estimates of direct costs (workers' compensation) are more likely to reflect who bears the costs in jurisdictions other than South Australia. According to the National Accounts, the level of direct costs is \$5 billion. Of the \$15 billion in indirect costs, the Commission estimated the indirect costs borne by the employer in terms of lost productivity and the like, to be \$2 billion. Therefore the remaining \$13 billion of indirect costs are borne by workers and the community. A breakdown of the *overall costs* for all work-related injuries and diseases based on the National Accounts is presented in Table C.7.

A breakdown of the *average cost per workplace incident* is given in Table C.8. Estimates of the breakdown of average costs based on the National Accounts estimate of workers' compensation costs and the Commission's estimate using South Australian benefit levels, are given. The cost breakdown by *workplace incident* is different from the breakdown based on the *overall costs of all workplace incidents* because the former includes incidents that did not involve days off work (but may still impose costs). These incidents were excluded from the calculation of overall costs of all workplace incidents.

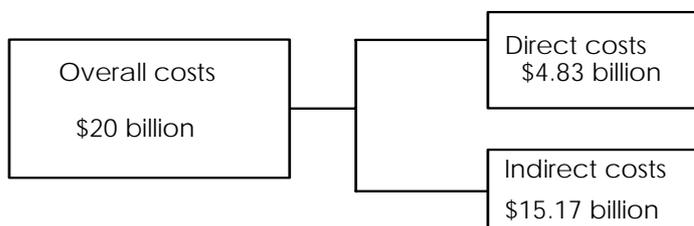
A breakdown of the cost per *workplace incident by severity* (expressed as a ratio) is given in Table C.9. These cost ratios are based on South Australian benefit levels. As the degree of severity of workplace incidents rises, the proportion of costs borne by the worker and the community increases. For example, where a workplace incident results in death after a short duration, the cost incurred by the worker (and his or her family) is three times that incurred by the employer. Similarly, the cost incurred by the community is greater than the cost incurred by the employer.

Box C.1 Relationship between direct and indirect costs

The overall cost of workplace injuries and diseases for Australia, is estimated to be \$20 billion, for workplace incidents which occurred in 1992–93. The direct costs, estimated using South Australian workers compensation benefit structures, is expected to be \$7 billion for Australia. Therefore, the indirect costs are \$13 billion.



The Commission recognises that workers’ compensation payments for similar workplace incidents differ across jurisdictions. Workers’ compensation payments are significantly higher in South Australia, relative to other jurisdictions (see Table C.6). Thus, the \$7 billion estimate overestimates the direct cost component. A far more reliable estimate is derived from the National Accounts which estimates the direct costs for Australia to be \$4.83 billion, for 1992–93. The indirect costs are consequently, expected to increase by \$2.17 billion. The variation in direct costs does not affect the overall costs. Indirect costs merely increase, when workers’ compensation payments do not adequately cover all costs associated with a workplace incident.



Source: Industry Commission.

In the following discussion, comments about the *breakdown* of costs are based on the National Accounts estimate of the average cost *per workplace incident* (Table C.8). However, it is not possible to disaggregate the National Accounts estimate to determine how the cost breakdown varies with the severity of injuries. For this reason, comments about how the incidence of costs differs for injuries and illnesses of different *severity* are based on the cost per workplace incident derived from the South Australian workers’ compensation data (see Table C.9).

Table C.7 Overall costs for work-related injuries and diseases which occurred in 1992–93, Australia
(in \$ billions)

	<i>National Accounts basis</i>		<i>South Australian basis^a</i>	
	<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Costs</i>				
Overall cost	19	20	19	20
Direct costs	5	5	7	7
Indirect costs	14	15	12	13
<i>Overall cost per:</i>				
Employer	7	7	9	9
Worker	6	6	5	5
Community	6	7	5	6

a This involved estimating the overall costs both direct and indirect using South Australian benefit structures. Workers' compensation payments in South Australia is higher than most jurisdictions, hence producing a higher overall direct cost estimate and by implication higher overall cost estimate for the employer.

Note: Costs are rounded to the nearest billion.

Due to rounding, the sum of the overall costs borne by the three parties may not equal the overall cost.

Source: Industry Commission.

Table C.8: Average cost per workplace incident which occurred in 1992–93, Australia (\$ per work-related injury or disease)

	<i>National Accounts basis</i>		<i>South Australian basis^a</i>	
	<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Costs</i>				
Average cost	26 000	28 000	26 000	28 000
Direct cost	4 000	4 000	8 000	8 000
Indirect cost	22 000	24 000	19 000	21 000
<i>Average cost per:</i>				
Employer	8 000	8 000	11 000	12 000
Worker	9 000	9 000	7 000	8 000
Community	10 000	11 000	8 000	9 000

a This involved estimating the costs both direct and indirect using South Australian benefit structures. Workers' compensation payments in South Australia is higher than most jurisdictions, hence producing a higher direct cost estimate and by implication higher cost estimate for the employer.

Note: Costs are rounded to the nearest thousand.

Due to rounding, the sum of the average costs borne by the three parties may not equal the average cost per workplace incident.

Source: Industry Commission.

Share of costs borne by the employer

The employer is expected to incur only about 30 per cent of the average cost per workplace incident which occurred in 1992–93 (see Table C.10). The implication is that the financial incentives for the employer to reduce the cost of injury and disease is weak, since about 70 per cent of the costs are borne by the worker and the community.

As workplace incidents become more severe, the proportion of the costs borne by the employer, progressively declines. Hence financial incentives for employers to prevent injuries are inadequate particularly for serious incidents. However, employers bear most of the costs of less severe workplace incidents indicating that they have stronger incentives to prevent these incidents.

The low share of costs borne by employers for severe workplace incidents provides a strong rationale for regulation.

Share of costs borne by the worker

The worker is expected to incur about 30 per cent of the average cost per workplace incident which occurred during 1992–93 (see Table C.11). The proportion of costs borne by the worker depends on whether or not all injured workers were able to receive social welfare payments, in the absence of compensation or when compensation ceases. The Commission assumed that all injured workers who were unable to work, received social welfare assistance when workers' compensation benefits ceased.

Given that for more severe workplace incidents, workers bear up to 50 per cent of the costs, it may be possible to raise workers' compensation benefits for certain work-related incidents, without necessarily creating incentives for workers to behave opportunistically, leading to moral hazard problems (see Table C.9).

Share of costs borne by the community

The community incurred approximately 40 per cent of the average cost per workplace incident which occurred in 1992–93 (see Table C.12). Hence the community bears a higher proportion of the cost of an average workplace incident than the employer. Consequently, the employer may lack the financial incentives to minimise workplace incidents, since a large proportion of the costs are externalised.

Table C.9 Cost ratios per workplace incident which occurred in 1992–93, by severity

	< 5 days off work	5 or more days off work and return to work on:			Permanently incapacitated	Fatality ^a
		Full duties	Reduced duties	Lower income		
Direct to indirect costs						
Lower	1 : 3.2	1 : 2.6	1 : 1.3	1 : 1.7	1 : 1.7	1 : 5.5
Upper	1 : 3.4	1 : 2.8	1 : 1.8	1 : 1.8	1 : 1.8	1 : 3.9
Total costs to employer costs						
Lower	1 : 0.9	1 : 0.9	1 : 0.9	1 : 0.4	1 : 0.4	1 : 0.2
Upper	1 : 0.9	1 : 0.9	1 : 0.9	1 : 0.4	1 : 0.4	1 : 0.3
Total costs to worker costs						
Lower	1 : 0.0	1 : 0.0	1 : 0.1	1 : 0.5	1 : 0.2	1 : 0.6
Upper	1 : 0.0	1 : 0.0	1 : 0.1	1 : 0.5	1 : 0.2	1 : 0.5
Total costs to community costs						
Lower	1 : 0.1	1 : 0.1	1 : 0.1	1 : 0.1	1 : 0.4	1 : 0.3
Upper	1 : 0.1	1 : 0.1	1 : 0.1	1 : 0.1	1 : 0.4	1 : 0.2
Employer to worker costs						
Lower	1 : 0.0	1 : 0.0	1 : 0.1	1 : 1.1	1 : 0.6	1 : 3.5
Upper	1 : 0.0	1 : 0.0	1 : 0.1	1 : 1.1	1 : 0.6	1 : 1.6
Employer to community costs						
Lower	1 : 0.1	1 : 0.1	1 : 0.1	1 : 0.2	1 : 1.0	1 : 1.6
Upper	1 : 0.1	1 : 0.1	1 : 0.1	1 : 0.2	1 : 1.1	1 : 0.8

a For the fatality category, the lower limit represents the typical costs for workplace incidents which resulted in immediate death. The upper limit represents the typical costs for fatalities which occur after a long duration of illness.

Notes: Ratios are rounded to the nearest 0.1 decimal.

Due to rounding, the sum of the proportion of the cost per workplace incident, borne by the three parties may not equal 1.

Cost ratios are derived based on the typical cost estimates.

Source: Industry Commission.

Table C.10 Ratio of the average cost per incident to the employer's cost

	<i>Lower</i>	<i>Upper</i>
National Accounts basis	1 : 0.3	1 : 0.3
South Australian basis	1 : 0.4	1 : 0.4

Notes: Ratios are rounded to the nearest 0.1 decimal.
Cost ratios are derived based on the typical cost estimates.

Source: Industry Commission.

Table C.11 Ratio of the average cost per incident to the worker's cost

	<i>Lower</i>	<i>Upper</i>
National Accounts basis	1 : 0.3	1 : 0.3
South Australian basis	1 : 0.3	1 : 0.3

Notes: Ratios are rounded to the nearest 0.1 decimal.
Cost ratios are derived based on the typical cost estimates.

Source: Industry Commission.

Table C.12 Ratio of the average cost per incident to the community's cost

	<i>Lower</i>	<i>Upper</i>
National Accounts basis	1 : 0.4	1 : 0.4
South Australian basis	1 : 0.3	1 : 0.3

Notes: Ratios are rounded to the nearest 0.1 decimal.
Cost ratios are derived based on the typical cost estimates.

Source: Industry Commission.

The share of costs borne by the community increases with the severity of the incident. This indicates that regulation is particularly important in the prevention of serious incidents such as fatal diseases and permanent disablements.

Comparison of costs borne by the employer and the worker

For an average incident that occurred during 1992–93, for every \$1 borne by the employer, the worker bears roughly \$1.10 (see Table C.13). Thus, a higher proportion of the cost of a workplace incident is borne by the worker (see Table C.13).

Table C.13 Ratio of the employer's cost per incident to the worker's cost

	<i>Lower</i>	<i>Upper</i>
National Accounts basis	1 : 1.1	1 : 1.1
South Australian basis	1 : 0.6	1 : 0.7

Notes: Ratios are rounded to the nearest 0.1 decimal.
Cost ratios are derived based on the typical cost estimates.

Source: Industry Commission.

Employees have less control over the management of workplace safety than employers. The role for regulation, therefore, is to ensure that an adequate level of safety is provided in the workplace and workers are empowered, so that they are able to resolve workplace health and safety issues with management.

Comparison of costs borne by the employer and the community

For an average incident that occurred during 1992–93, the costs borne by the community are 30–40 per cent higher than the costs borne by the employer (see Table C.14). The more severe the workplace incident, the greater the share of costs borne by the community relative to the employer (see Table C.9). Since the community is bearing a significant share of the costs of workplace incidents, it has a strong interest to ensure that workers are not exposed to hazards that result in long-term incapacitation.

Table C.14 Ratio of the employer's cost to the community's costs

	<i>Lower</i>	<i>Upper</i>
National Accounts basis	1 : 1.3	1 : 1.4
South Australian basis	1 : 0.7	1 : 0.8

Notes: Ratios are rounded to the nearest 0.1 decimal.
Cost ratios are derived based on the typical cost estimates.

Source: Industry Commission.

C.4 Costs of work-related injury and disease by State

The total costs of work-related incidents for 1992–93 varies from \$6.3 billion in NSW to about \$200 million in the Northern Territory (see Table C.15). These are the total costs of injuries that *occurred* in that State, which may be different from the total costs *incurred* by that State. The two estimates will be different if the costs incurred by the Commonwealth as a result of injuries in that State are

greater than the contribution made by taxpayers in that State to cover those costs.

The ratio of direct to indirect costs varied from a high of 7:1 in Queensland to a low of 2:1 in Victoria and ACT (see Table C.15). Direct costs are workers' compensation, and a State breakdown is given in the National Accounts (1992–93). The indirect costs were derived by subtracting direct costs from total costs (see section C.2). The results indicate that workers' compensation covered a very small share of the total costs of work-related incidents in Queensland, but a significant share in Victoria and the ACT. As there have been significant changes in workers' compensation benefits since 1992–93, the ratio of direct to indirect costs in each State will have changed significantly since then.

The Commission estimated the cost of workplace injuries and diseases that occurred in each State by multiplying the total Australia-wide costs of injuries and diseases, by the share of the Australian working population in that State. This method assumes that the share of the working population injured each year is the same in each State, and that the mix of injuries in each State is the same.

It was necessary to make these assumptions because there was no State-specific data on the overall level of incidents or the breakdown of incidents by severity, covering both compensated and non-compensated injuries. As a result of these assumptions, differences in costs between States are driven purely by the size of the working population in each State.

Table C.15 The cost of work-related injuries and diseases by State, 1992-93

<i>State/Territory</i>	<i>Lower estimate (\$ million)</i>	<i>Upper estimate (\$ million)</i>	<i>indirect:direct cost ratio^a</i>
NSW	6 300	6 693	3.4 : 1
Vic	4 812	5 109	1.9 : 1
Qld	3 323	3 531	7.4 : 1
WA	1 832	1 946	5.1 : 1
SA	1 710	1 828	2.5 : 1
Tas	472	501	4.7 : 1
ACT	365	388	2.0 : 1
NT	188	200	3.5 : 1

a The indirect:direct cost ratio is based on the upper estimate of direct and indirect costs.

Source: Industry Commission.

C.5 Costs to government budgets of work-related injury and disease

The costs to Commonwealth and State government budgets of work-related injury and disease are given in Table C.16. The cost to the Commonwealth budget is in the order of \$3500 million, most of which comes from the social security budget. The equivalent cost to State and Territory budgets collectively is \$710 million, most of which comes from the health budgets.

The cost of work-related injury and disease to Government budgets was estimated based on the community cost component of total work-related injury and disease costs. Community costs include health and medical costs, social security, rehabilitation, public transport travel concessions, loss of human capital and OHS and workers' compensation investigation costs following incidents and the lodging of a claim.

Loss of human capital was excluded from the estimation of budget costs because it is not a direct financial outlay, and therefore it is difficult to allocate to particular budgets. This explains the difference between the estimated total cost of workplace incidents to Commonwealth and State budgets, \$3–3.5 billion, and the estimated overall community costs, \$5–5.5 billion.

Of the community costs that could be estimated by the Commission, health was the only one borne by both levels of government. The Commission assumed that 62 per cent of total health and medical costs were borne by the Commonwealth, and 38 per cent were borne by the States and Territories. This was based on an estimate by the Australian Institute of Health and Welfare (1994, p. 285).

The costs borne collectively by State Governments were multiplied by the share of the Australian working population in each State, to determine individual State budget costs.

C.6 Breakdown of costs incurred by employers

The direct and indirect costs incurred by employers for incidents of different severity are shown in Table C.18. On average, for every \$100 in workers' compensation paid by employers, there is an additional \$35 of extra costs incurred by employers as a result of workplace injury. The less severe is an injury, the larger is the share of indirect costs in the costs borne by employers.

Table C.16 Cost to Commonwealth and State budgets of workplace incidents,

(\$ million)^a

<i>Jurisdiction</i>	<i>Health & medical</i>	<i>Social security</i>	<i>Rehabilitation</i>	<i>Inspection & investigation</i>	<i>Travel</i>	<i>Total</i>
C'wealth	680	1950	357	0	0	3500
States and Territories	267	0	0	110	180	710

a Based on the lower estimates of total injury costs. All estimates rounded to the nearest million dollars.
Source: Industry Commission.

Table C.17 Direct and indirect costs incurred by employers

(\$ millions)^a

	<i>< 5 days off work</i>	<i>5 or more days off work and return to work on:</i>			<i>Permanent incapacity</i>	<i>Fatality</i>	<i>Overall cost</i>
		<i>Full duties</i>	<i>Reduced duties</i>	<i>Lower income</i>			
Direct	31	285	866	1 627	4 156	52	7 018
Indirect	91	667	1 174	293	223	11	2 458
Direct:	1 : 2.9	1 : 2.3	1 : 1.3	1 : 0.2	1 : 0.1	1 : 0.2	1 : 0.35
Indirect							

a Based on the upper estimate of costs incurred by employers.
Source: Industry Commission.

For example for injuries where workers return to work on full duties, employers incur about \$230 in indirect costs, for every \$100 in workers' compensation costs. This reflects the fact that many less serious injuries are not compensated, and that less serious but frequent incidents cause costly disruptions to production which reduce productivity and inflate overtime costs.

The indirect costs incurred by employers need to be distinguished from the total indirect costs of workplace injury discussed in sections C.2 and C.3, which included costs incurred by workers and the community.

The direct costs incurred by employers only cover workers' compensation, and are based on the 1992–93 South Australian benefits structure. The indirect costs incurred by employers include loss of productivity, consequential overtime and over-employment and investigation costs. The definitions and methods of estimating these items are given in Attachment C2. As South Australian benefit levels were higher than in other states, it is likely that the Commission's estimates overstate the level of direct costs in most jurisdictions.

ATTACHMENT C1

IDENTIFICATION AND DISTRIBUTION OF INDIRECT COSTS FOR EACH SEVERITY CATEGORY

Table C1.1 Indirect costs borne by the employer, the worker and the community on behalf of the economy

	< 5 days off work	5 or more days off work and return to work on:			Permanently Incapacitated	Fatality
		Full duties	Reduced duties	Lower income		
<i>Employer</i>						
Loss of productivity	a	a	a	a	a	a
Consequential overtime and cost of over-employment	a	a	a	a	a	a
Investigation		b	b	b	b	b
Damage to a machine, tools, or other property or spoilage of material		c	c	c	c	c
Replacement of equipment and other materials		c	c	c	c	c
Legal penalties			c	c	c	c
Employee turnover and training costs			c	c	c	c
Cost of retraining			c	c	c	c
Loss of goodwill and corporate image				c	c	c
<i>Worker</i>						
Medical and rehabilitation costs	a	a	a	a	a	a
Travel	c	c	c	c	c	c
Loss of income				a	a	a
Loss of future earnings				a	a	

Table C1.1 Indirect costs borne by the employer, individual, and the community on behalf of the economy (cont.)

	< 5 days off work	5 or more days off work and return to work on:			Permanently Incapacitated	Fatality
		Full duties	Reduced duties	Lower income		
Expenditures consequential to a new lifestyle				c	c	c
Loss of leisure opportunities and general decline in the quality of life of the worker and family				c	c	c
Loss of self esteem				c	c	c
Reduced social interaction and social status				c	c	c
Losses due to family members nursing worker full time				c	c	c
<i>Community</i>						
Health and medical	a	a	a	a	a	a
Social welfare payments	a	a	a	a	a	a
Inspection and investigation		b	b	b	b	b
Rehabilitation			b	b	b	b
Loss of human capital				b	b	b
Community services				c	c	c
Travel					a	

a Estimated for each category of injury and disease.

b Estimated in aggregate for all injuries and diseases

c Not estimable.

Source: Industry Commission.

ATTACHMENT C2

DEFINITIONS, METHOD AND ASSUMPTIONS

While it is exceedingly difficult to quantify all aspects of the indirect costs of workplace incidents, the Commission has endeavoured to estimate where possible, the indirect costs imposed on the employer, individual, and community, to assist prevention agencies develop appropriate policies to minimise the cost of workplace incidents.

The cost estimates developed in this study employ the best data available for developing national cost estimates. Nonetheless several qualifications are in order. Several known costs were not quantified because data was not available. The Commission recognises that employers incur costs other than loss of productivity, overtime and investigation costs. A study was commissioned to estimate the costs borne by the employer, however employers surveyed were unable to provide information on the costs of workplace incidents.

Furthermore, no attempt is made to value the services of family members and friends who care for the individual affected. This informal care cost is likely to be significant, but there is no reliable data from which to make estimates. Following a workplace incident, the individual affected may need to be institutionalised in residential or intermediate care facilities, however it was not possible to capture this cost. Therefore the Commission believes that the cost estimates derived in this study are in the main conservative, and not biased against any particular party.

Certain cost elements are accurately estimated as a whole, but many assumptions were necessary for age, gender, and cause distributions. For example, the total national expenditure on rehabilitation is known, but the age-, gender- and cause-breakdowns were not readily available. Similarly, the number and cost of inspections is known, but details on investigation costs per severity category were not available.

The methodology for estimating the cost of workplace incidents, together with the assumptions incorporated, is presented in Tables C2.1 to C2.3.

Table C2.1 Employer costs

Cost items

*Loss of productivity**Definition*

The hours not worked yet paid for by the employer.

Estimation

Loss of productivity was derived using the average daily earnings multiplied by the duration per severity category, plus on costs, which is roughly 25.4 per cent of total labour costs^a.

Assumptions

- Average wages is used as an indicator of an individual's marginal productivity. However, since labour markets are not competitive and the price of labour is set by industrial courts, it is possible that the daily wage rate will overstate the value of output. Therefore, the shadow price of labour should be determined. The shadow price of labour reflects the market value of labour output, in the absence of intervention in the labour market. In order to estimate the shadow price of labour, data is required on the optimal size of the labour force, together with the employment opportunities for the excess workers, which is currently not available. Hence, the Commission has sought to use average wages as an indicator of productivity, despite the fact that for some individuals their average wage may overstate their marginal productivity, and for other individuals it may understate their marginal productivity.
- For the less than five days off work and full duties categories, and for fatalities involving a short latency period, the loss of productivity is based on the average duration of absence.
- For the reduced duties category, loss of productivity is incurred for the period the individual is both absent and on reduced duties, assuming the same wage is paid. Based on the PSM survey, 28 per cent of the total duration of a workplace incident is spent on reduced duties. The individual's productivity is assumed to decline by 25 per cent during the reduced duties period. Where no compensation is received, the individual is assumed to be replaced after 20 days. Upon returning to work, the individual is assumed to accept a lower wage, in return for reduced duties. Thus, the employer is not expected to incur a productivity loss during the reduced duties period.
- For lower income and permanently incapacitated categories, the Commission assumed that the individual affected is replaced after 40 days. In those workplaces where the worker is replaced after a few days, the Commission's loss of productivity estimate may overestimate the costs borne by the employer. However, for some cases involving work-related illness or disease, there is a long latency period involved. In these cases, the employer may incur productivity losses over several years, and hence 40 days may underestimate the productivity loss. Furthermore hiring new staff to replace injured workers costs the employer in terms of recruitment, training and the decline in output that inevitably occurs during the time it takes for the new worker to familiarise his or herself with the work. Therefore, loss of productivity based on 40 days is expected to provide a fairly conservative estimate of the cost to the employer.
- For fatalities involving a long latency period, where compensation is received, the individual is assumed to be replaced after 100 working days. Therefore loss of productivity is based on 100 days. Where no compensation is received, the individual is assumed to continue working prior to death. The individual's productivity however, is assumed to decline by 50 per cent during the period of illness.

Table C2.1 Employer costs (cont.)

*Cost items**Consequential overtime and cost of over-employment**Definition*

Consequential overtime is the proportion of overtime which is solely related to workplace injuries or diseases. The cost of over-employment is the wage of workers that would not be required if there were no work-related injuries and other unplanned absences. It is important to separate overstaffing due to workplace injuries from over-employment due to other factors.

Estimation

Average wage cost per severity category multiplied by 1.5.

Assumptions

- Empirical studies on the cost of workplace incidents, estimate overtime costs as being roughly 1.5 to 2 times the average wage cost (Oxenburgh 1991). While some workplaces may not require staff to work overtime to compensate for absenteeism, this may be due to over-employment — that is, employment of more staff than would be required if there were no injuries and other unplanned absences. Over-employment is a serious additional cost, particularly in periods of low business activity.
- For the less than five days off work and full duties categories, and for fatalities involving a short latency period, the overtime cost is based on the average duration of absence.
- For the reduced duties category, overtime costs are expected to be incurred while the individual is both absent from work and on reduced duties. Based on the PSM survey, 28 per cent of the total duration of a workplace incident is spent on reduced duties.
- For lower income and permanently incapacitated categories, the person is assumed to be replaced after 40 days and therefore overtime costs is based on 40 days.
- For fatalities involving a long latency period, where compensation is received, the individual is assumed to be replaced after 100 working days. Therefore overtime costs is based on 100 days. Where no compensation is received, the individual is assumed to continue working prior to death. The individual's productivity however, is assumed to decline by 50 per cent during the period of illness.

*Investigation**Definition*

Costs associated with conducting an investigation into the incident, and the administrative costs of collecting and reporting workplace incidents.

Estimation

Derived from South Australian workers' compensation costs relating to conducting investigations expenditures for 1992–93.

Assumptions

- Since the Commission was unable to obtain data on the workplace's investigation costs, it was assumed that the investigation costs incurred by the OHS agency into determining the validity of a claim for compensation is roughly similar to the investigation costs incurred by the workplace.
- Where no compensation is sought, the employer was not expected to incur investigation costs, as the incident is not expected to be reported.

Table C2.1 Employer costs (cont.)

<i>Cost items</i>
<p><i>Legal penalties</i></p> <p><i>Definition</i> Penalties such as fines imposed on the employer either by government or the court system, resulting from workplace incidents.</p> <p><i>Estimation</i> For each severity category multiply the average number of legal penalties by the average cost per penalty. Lack of reliable data resulted in the Commission not being able to quantify this cost.</p>
<p><i>Damage to a machine, tools, or other property or spoilage of material</i></p> <p><i>Definition</i> Damages which are not covered by the employer's insurance policy or costs not claimed by the business.</p> <p><i>Estimation</i> Lack of reliable data, resulted in the Commission not being able to quantify this cost.</p>
<p><i>Replacement of equipment and other materials</i></p> <p><i>Definition</i> Costs relating to the purchase of equipment and materials, following a workplace incident, which are not covered by insurance.</p> <p><i>Estimation</i> Lack of reliable data resulted in the Commission not being able to quantify this cost.</p>
<p><i>Employee turnover and training costs</i></p> <p><i>Definition</i> Losses incurred in losing trained, experienced workers and the cost of recruiting and training new staff.</p> <p><i>Estimation</i> Lack of reliable data resulted in the Commission not being able to quantify this cost.</p>
<p><i>Cost of retraining</i></p> <p><i>Definition</i> The cost of training workers who return to work and require training in order to perform their tasks.</p> <p><i>Estimation</i> Lack of reliable data resulted in the Commission not being able to quantify this cost.</p>
<p><i>Loss of goodwill and corporate image</i></p> <p><i>Definition</i> Poor perception of the company by its clients, employees, unions, and suppliers following a workplace incident which has an adverse impact on the organisation's profitability.</p> <p><i>Estimation</i> Lack of reliable data resulted in the Commission not being able to quantify this cost.</p>

a ABS 1993c, p. 1.
Source: Industry Commission.

Table C2.2 Individual costs

*Cost items**Health and medical costs**Definition*

Expenditure on out-patient treatment, hospitalisation or home care, prosthetic appliances, psychotherapy and the like, not compensated via workers' compensation payments or government assistance.

Estimation

The difference between medical costs incurred less any medical payments covered by workers' compensation, less costs subsidised by the government.

Assumptions

- The Commission has assumed that the medical costs borne by those that do not apply for compensation is between 50 per cent and 100 per cent of the average medical and rehabilitation costs covered by workers' compensation payments.
- The Commission has taken into account the potential for medical services to be bulk-billed. It has been assumed that approximately 65 per cent of medical services are bulk billed (Department of Human Services and Health 1993, p.19).
- Where individuals do not receive compensation, rehabilitation costs are expected to be borne by the individuals for the less severe workplace incidents — less than five days off, full duties and reduced duties severity categories. For the more severe workplace incidents, it is assumed that the individuals affected rely on the Commonwealth Rehabilitation Service (CRS).

*Loss of income**Definition*

Loss of income is expected to be incurred where the individual's earnings following the work-related injury or disease are less than his or her pre-incident earnings. Earnings following the incident may comprise workers' compensation payments relating for loss of earnings, and social welfare assistance.

Estimation

The Commission identified the social welfare programs that individuals affected may rely on for assistance, together with the average benefits paid per program. The loss of income is the difference between the individual's pre-incident earnings less workers' compensation for income lost and social welfare payments received.

Assumptions

- Where compensation is received, the Commission estimated the average income compensation payable, taking into account both the payments made plus the expected payments.
- Where the individual does not apply for compensation, the Commission has assumed that the person is entitled to and takes ten days sick leave on full pay. During the remaining period of incapacitation, the individual is expected to receive social welfare assistance.
- It is assumed that in the non-compensated duration of the injury or disease, the individual receives social welfare payments.

Table C2.2 Individual costs (cont.)

Cost items

*Loss of future earnings**Definition*

Where the work-related injury or disease prevents the normal development of an individual's career and results in the person being employed in a lower paid job, permanently incapacitated or premature death.

Estimation

The difference between expected future earnings in the absence of a work-related injury or disease and expected future income following the workplace incident. Loss of future earnings was estimated by discounting the future income lost to its present value.

Assumptions

- For the lower income, permanently incapacitated and fatality severity categories, loss of future earnings is expected to occur.
- The individual's productivity is assumed to increase by two per cent each year, had the incident not occurred.
- The retirement age is assumed to be 65 and a discount rate of ten per cent was applied.
- For the lower income category, it was assumed that due to the incident the individual's productivity on re-entering the workforce fell to 0.5 per cent and their earnings is expected to be \$10 lower than the average daily earnings prior to the injury or disease.
- For the permanently incapacitated category, since the individual does not return to work, a comparison was made between the discounted present value of future earnings had the incident not occurred, with the discounted present value of social welfare assistance, less any compensation payments for permanent disability.
- For a fatality involving a long latency period, where no compensation was involved, the productivity of the individual is assumed to decline to 0.5 per cent during the duration of illness or disease.

*Pain and suffering**Definition*

Trauma both physical and psychological borne by the individual affected, following the workplace incident.

Estimation

Pain and suffering borne by the individual affected was estimated by using South Australian workers' compensation payments for pain and suffering as a proxy of the average payments.

Assumptions

- For the less than five days off, full duties and reduced duties severity categories, no pain and suffering costs are assumed to be incurred.
- It is assumed that where compensation is received, the pain and suffering payments adequately compensate the individual affected.
- For individuals not compensated, the pain and suffering costs are assumed to be between 50 per cent and 100 per cent of the compensation payments for pain and suffering.

Table C2.2 Individual costs (cont.)

<i>Cost items</i>
<hr/>
<i>Travel</i>
<i>Definition</i>
Travel to doctor(s), rehabilitation centres, solicitors and the like.
<i>Estimation</i>
Travel costs for the duration of the incident was estimated by using South Australian workers' compensation payments for travel costs as a proxy of the average travel expenditures.
<i>Assumptions</i>
<ul style="list-style-type: none"> • It is assumed that where compensation is received, the travel payments adequately compensate the individual affected. • For individuals not compensated, travel costs are assumed to be between 50 per cent and 100 per cent of the compensation payments for travel expenses.
<i>Expenditure consequential to a new lifestyle</i>
<i>Definition</i>
Goods and services purchased solely because of the incident such as modifications to the individual's motor vehicle, higher heating costs and the like.
<i>Estimation</i>
Lack of reliable data resulted in the Commission not being able to quantify this cost.
<i>Loss of leisure opportunities and general decline in the quality of life of the worker and family</i>
<i>Definition</i>
Reduction in social activity following the workplace incident.
<i>Estimation</i>
Lack of reliable data resulted in the Commission not being able to quantify this cost.
<i>Reduced social interaction and social status</i>
<i>Definition</i>
Depending on the severity of the incident, the individual affected may be forced change his or her lifestyle resulting in lower social interaction and a diminished social status.
<i>Estimation</i>
These costs are very difficult to quantify, since it varies depending on the life style of the individual affected. Lack of reliable data resulted in the Commission not being able to quantify this cost.
<i>Losses due to family members nursing worker full time</i>
<i>Definition</i>
Subsequent losses in cases where members of the family have to leave their job, or give up leisure in order to care for the injured person.
<i>Estimation</i>
Lack of reliable data resulted in the Commission not being able to quantify this cost.

Source: Industry Commission.

Table C2.3 Community costs

Cost items

*Health and medical**Definition*

Costs borne by the government through the provision of subsidised hospital, medical and pharmaceutical services.

Estimation

Average medical cost per severity category after taking into account the potential for individuals to bulk bill their medical costs. Average medical costs is based on South Australian workers' compensation payments for medical expenses.

Assumptions

- Injured persons are expected to recover some of their medical costs via Medicare, especially if they do not apply for compensation, or where the compensation payments for medical expenses does not cover all medical costs.
- The Commission was unable to isolate the portion of the hospital and pharmaceutical expenses relating to work-related incidents.

*Inspection and investigation**Definition*

Costs incurred by the agency responsible for conducting inspections and investigations into workplace incidents. Investigation costs include costs associated with ensuring the claim for compensation is legitimate.

Estimation

Inspection and investigation costs were derived from South Australian data. The cost per inspection was derived by dividing the total costs for inspections, by the number of inspections for that year. The investigations cost were obtained from the South Australian workers' compensation records.

Assumptions

- Since employers are not fully experienced rated, the community is expected to incur a portion of the inspection and investigation costs.
- Inspections are assumed to occur only in cases where the work-related injury and disease results in the individual being invalided-out, permanently incapacitated, or where a fatality is involved. The inspections costs are assumed to be roughly similar for these severity categories, since the Commission was unable to obtain data on the variation in costs depending on the severity of the workplace incident.
- Investigation costs based on South Australian workers' compensation records are assumed to be representative of the typical costs for Australia.
- Where the individual does not apply for compensation, no inspection or investigations costs are expected to be incurred.

Table C2.3 Community costs (cont.)

*Cost items**Rehabilitation**Definition*

Expenditure on vocational education and training, special treatments and prosthetic appliances. A fraction of these costs may be reimbursed by the insurer, enterprise or by the injured worker, however the Government subsidises a large part of the general organisational costs of the registered establishments that deal with rehabilitation of injured workers.

Estimation

Total cost of rehabilitation divided by the number of recipients, to determine the average cost per recipient.

Assumptions

- For the lower income, permanently incapacitated and fatalities occurring after a long latency period categories, rehabilitation costs are expected to be incurred.
- Individuals that do not apply for compensation are expected to rely solely on Commonwealth funded rehabilitation, CRS.
- Those who receive compensation are assumed to rely on the CRS between half way through the non-compensated duration or for the whole non-compensated period.

*Social welfare payments**Definition*

Sickness and social welfare payments borne by the government via its income security programs for people with disabilities and those unemployed. In instances where workers' compensation is not provided or is inadequate, social security payments often replace compensation payments as a major source of income.

Estimation

The total cost of operating each program divided by the average number of recipients per program to determine the average cost per recipient.

Assumptions

- Where compensation is received, for the less than five days off work, full duties and reduced duties severity categories, no social welfare payments are claimed. For the more severe workplace incidents, once the compensation payments cease, the individuals affected are assumed to apply for and receive social welfare payments.
- Where no compensation is received, individuals are expected to rely on social welfare payments as their major source of income.

*Loss of human capital**Definition*

The loss of the GDP, following the premature death of productive individuals, or where individuals affected are permanently incapacitated.

Table C2.3 Community costs (cont.)

Cost items

Estimation

The human capital approach was used to determine the loss of human capital borne by the community. Individual's were valued according to the average output or GDP lost, following a premature death or where the individual is permanently incapacitated. This estimate was then discounted to determine the present value of the future labour output lost, taking into account the productivity gains that would have accrued over the duration of his or her employment, had the incident not occurred.

Assumptions

- Loss of output per person is the same, regardless of whether or not the incident results in the individual being permanently incapacitated or killed.
- The loss of output per individual may vary depending on the person's age, experience, productivity, relative demand for their skills and therefore the opportunity cost of the labour lost. Due to lack of data on these issues, it was assumed the loss of output per person to be roughly similar.
- The Commission recognises that for some individuals affected, the opportunity cost of their labour lost may be close to zero, especially in periods of high unemployment, indicating that there may be no loss of output borne by the community. However, where an individual is mortally wounded or permanently incapacitated their consumption patterns are affected, furthermore, since the individuals affected tend to be from the lower income groups, using the Keynesian approach the marginal propensity to consume among lower income individuals is higher, thus the lower consumption following the workplace incident, results in lower expenditure, adversely impacting on investment and therefore further consumption via the multiplier effect, which ultimately has an adverse impact on GDP.

*Community services**Definition*

Provision of services to assist individuals either temporarily and permanently incapacitated following a workplace incident, such as injured worker health centres, meals-on-vehicles and the like.

Estimation

- Lack of reliable data, resulted in the Commission not being able to quantify this cost.

*Travel**Definition*

Travel costs met by the community, via travel concession, and other allowance offered to individuals permanently incapacitated.

Estimation

Travel costs for the duration of the incident was estimated by using South Australian workers' compensation payments for travel costs as a proxy of the average travel expenditures.

Assumptions

- Where the individual is permanently incapacitated, in the non-compensated duration of the injury or disease, he or she is assumed to incur travel costs, of which 50 per cent is borne by the community.
-

Source: Industry Commission.

Table C2.4 Average payments and the associated costs of operating certain social security programs
(\$ per individual)

<i>Government program</i>	<i>Eligibility</i>	<i>Payment per recipient</i>	<i>Cost per recipient</i>
Disability support pension	Paid to those unable to work owing to a substantial physical, intellectual or psychiatric impairment or who are permanently blind.	7 442 pa	7 641 pa
Sickness allowance	Paid to those temporarily incapacitated for work owing to illness or injury, generally for no more than 52 weeks, after a seven day waiting period.	161 pw	8 977 pa
Mobility allowance	Paid to people with disabilities who are in voluntary employment or training, or are looking for work, but because of their disability are unable to use public transport.	25 pw	1 129 pa
Job search allowance	Paid to those looking for work, during their first year of unemployment, after a seven day waiting period.	153 pw	8 081 pa
Newstart allowance	Paid to those who are unemployed for twelve months or more.	175 pw	8 349 pa
CRS	A rehabilitation service for people with disabilities.	..	3 350 pa

pa Per annum.

pw Per week.

CRS Commonwealth Rehabilitation Service.

Notes: The annual total costs and payments, were obtained from the Department of Social Security. The total costs incurred per program was divided by the annual average number of recipients, to determine the average cost per program, for each recipient. Similarly the total payments made per program, was divided by the annual average number of recipients to determine the payments made per program, for each recipient (Department of Social Security 1993, Annual Report 1992–93, pp. 99–124, 255–272).

.. Not applicable.

Source: Industry Commission.

Duration of Workplace Incidents

The average duration of a work-related injury or disease was used to derive the typical cost per work-related incident, per severity category. The duration of the work-related injury or disease includes the compensated duration, if compensation is received, and the non-compensated duration. The duration for cases that were compensated and not compensated is shown in Tables C2.5 and 2.6.

The duration of workplace incidents was derived from several sources:

- for minor non-fatal workplace incidents (the less than five days off, full duties and reduced duties categories), the duration was based on data received from the WorkCover Corporation (South Australia);
- for more severe non-fatal incidents (the lower income and permanently incapacitated categories), the expected duration was based on the Commission's survey (PSM survey);
- for fatalities involving a short latency period (traumatic incidents), duration was based on the Occupational Health and Safety Authority's (Victoria) estimate (now the Health and Safety Organisation); and
- for fatal incidents occurring after a long latency period, the duration was estimated using the data from the Department of Occupational Health, Safety and Welfare (Western Australia).

Discounting

Discounting converts a stream of future earnings into its present value. The discount rate has been adjusted for expected changes in productivity, as it is assumed that a worker's productivity is expected to increase over the duration of their employment. Economists' agree that a comparison of streams of earnings over varying time spans should employ the process of discounting, however there is no agreement on the appropriate discount rate to be used. The discount rate employed however, has a significant impact on the estimate of future earnings derived — the higher the discount rate, the lower the present value of a given money stream. With a high rate of discount, earnings far into the future yield a relatively small present value. Conversely, lowering the discount rate, increases the present value of these future earnings.

Table C2.5 For individuals who received compensation, the average duration of their absence from work for incidents which occurred in 1992–93, Australia
(days)

	< 5 days off	5 or more days off work and return to work on:			Permanently incapacitated	Fatality	
		Full duties	Reduced duties	Lower income		Short latency	Long latency
Total duration							
Lower	2 ^a	22 ^b	77 ^c	643 ^d	1 893 ^e	12 ^f	428 ^g
Upper	2	22	110	643	1 893	12	428
Compensated duration ^h							
Lower	2	22	77	471	775	12	225
Upper	2	22	110	471	775	12	225
Non-compensated duration ⁱ							
Lower	-	-	-	172	1 117	-	203
Upper	-	-	-	172	1 117	-	203

a Lower and upper limit were based on the PSM survey.

b Lower and upper limit were based on South Australian workers' compensation records for the 1992–93 period.

c Lower limit was based on the PSM survey and the upper limit was based on SA workers' compensation records for the 1992–93 period. Based on the PSM survey, the Commission estimated the duration on reduced duties to be 28 per cent of the total duration.

d Lower and upper limit were based on the PSM survey.

e Lower and upper limit were based on the PSM survey.

f Lower and upper limit were based on South Australian workers' compensation records for the 1992–93 period.

g Industry Commission estimate.

h The compensated duration was the days off work for which the individual received workers' compensation. Claims within the fifth and sixth severity categories, may be still receiving compensation, therefore the Commission estimated the outstanding compensated duration. The outstanding compensated duration was assumed to be 62 per cent of the total compensated duration. This estimate was derived based on information from the SA WorkCover Corporation. For fatalities occurring after a long latency period, the compensated duration was based on WA claims data for the financial period 1992–93, the non-compensated duration was assumed to be between 27 per cent and 59 per cent of the total duration.

i The non-compensated duration was the difference between the total duration and the compensated duration.

Note: SA = South Australia, ABS = Australian Bureau of Statistics and PSM = Population survey monitor. Lower limit represents the minimum duration and the upper limit represents the maximum duration.

Source: Industry Commission.

Table C2.6 For individuals who did not receive compensation, the average duration of their absence from work for incidents which occurred in 1992–93, Australia (days)

	< 5 days off	5 or more days off work and return to work on:			Permanently incapacitated	Fatality	
		Full duties	Reduced duties	Lower income		Short latency	Long latency
Total Duration							
Lower	2 ^a	22 ^b	77 ^c	643 ^d	1 893 ^e	12 ^f	..
Upper	2	22	110	643	1 893	12	..
Compensated duration ^h							
Lower	2	10	10	10	10	10	..
Upper	2	10	10	10	10	10	..
Non-compensated duration ⁱ							
Lower	-	12	67	633	1 883	2	..
Upper	-	12	100	633	1 883	2	..

a Lower and upper limit were based on the PSM survey.

b Lower and upper limit were based on South Australian workers' compensation records for the 1992–93 period.

c Lower limit was based on the PSM survey and the upper limit was based on South Australian workers' compensation records for the 1992–93 period. Based on the PSM survey, the Commission estimated the duration on reduced duties to be 28 per cent of the total duration.

d Lower and upper limit were based on the PSM survey.

e Lower and upper limit were based on the PSM survey.

f Lower and upper limit were based on South Australian workers' compensation records for the 1992–93 period.

g Industry Commission estimate.

h Individuals who do not receive workers compensation are still eligible for sick leave. Individuals were assumed to be entitled to ten days sick leave on full pay.

i The non-compensated duration is the difference between the total duration and the compensated duration. For fatalities occurring after a long latency period, individuals affected were assumed to continue working prior to death.

.. Not applicable.

Note: ABS = Australian Bureau of Statistics and PSM = Population survey monitor.

Lower limit represents the minimum duration and the upper limit represents the maximum duration.

Source: Industry Commission.

For an individual aged 35, earning \$23 400 per year, applying an effective discount rate of ten per cent (discount rate 13 per cent less productivity three per cent), produces a net present value of future earnings of roughly \$222 350 (see Table C2.7). However if a per cent per cent effective discount

rate is used (discount rate seven per cent less productivity three per cent), the net present value of future earnings is significantly higher (\$408 801 approximately).

Given the fairly significant variations in the value of future earnings, depending on the discount rate applied, the Commission has assumed a discount rate of ten per cent with a productivity rate of two per cent per year. These two rates applied are intermediate in the range of discount rates and productivity rates currently employed in empirical studies estimating the cost of workplace incidents (Miller *et al* 1987).

Table C2.7 Present value of future earnings for a salary of \$23 400

Discount rate per cent	Productivity per cent	Age at injury or disease		
		35	40	45
7	2.5	385 195	351 181	308 584
7	3.0	408 801	369 791	322 143
7	3.5	434 613	389 869	336 569
10	2.5	279 115	264 153	242 383
10	3.0	293 350	\$ 276 196	251 852
10	3.5	308 781	289 112	261 889
13	2.5	213 307	206 713	195 567
13	3.0	222 350	214 792	202 332
13	3.5	232 068	223 405	209 475

Source: Industry Commission.

ATTACHMENT C3

TYPICAL COST ESTIMATES FOR EACH SEVERITY CATEGORY

Typical costs vary depending on whether or not compensation is received (see Tables C3.1 to C3.6). Furthermore, as the severity of work-related injuries and disease rise, higher typical costs are incurred. Where compensation is received, lower costs are borne by the worker and the community. Where no compensation is received, costs are predominantly borne by the worker and the community.

However, for more severe work-related injuries and diseases, regardless of whether or not compensation is received, costs are primarily borne by the individual affected and the community.

The compensation category in Tables C3.1 to C3.6 represent the typical cost per workplace incident, for individuals who receive workers' compensation, and the no compensation category represents the typical costs per workplace incident, for individuals who do not receive compensation.

Table C3.1 Typical costs for the less than five days off work category

	<i>Compensation</i>		<i>No compensation</i>	
	<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Costs (\$)</i>				
All	1 050	1 050	770	890
Direct	370	370	..	..
Indirect	690	690	770	890
Employer	1 030	1 030	650	650
Individual	0	0	10	20
Community	20	20	110	230
<i>Ratios</i>				
Direct to indirect costs	1 : 1.9	1 : 1.9	..	..
Total costs to employer costs	1 : 1.0	1 : 1.0	1 : 0.8	1 : 0.7
Total costs to individual costs	1 : 0.0	1 : 0.0	1 : 0.0	1 : 0.0
Total costs to community costs	1 : 0.0	1 : 0.0	1 : 0.2	1 : 0.3

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.
Costs are rounded to the nearest \$10. Ratios are rounded to the nearest 0.1 decimal.

.. Not applicable.

Source: Industry Commission.

Table C3.2 Typical costs for the full duties category

	<i>Compensation</i>		<i>No compensation</i>	
	<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Costs (\$)</i>				
All	9 190	9 190	6 960	7 630
Direct	3 690	3 690	..	..
Indirect	5 510	5 510	6 960	7 630
Employer	9 120	9 120	5 360	5 360
Individual	0	0	690	750
Community	70	70	910	1 530
<i>Ratios</i>				
Direct to indirect costs	1 : 1.5	1 : 1.5	..	..
Total costs to employer costs	1 : 1.0	1 : 1.0	1 : 0.8	1 : 0.7
Total costs to individual costs	1 : 0.0	1 : 0.0	1 : 0.1	1 : 0.1
Total costs to community costs	1 : 0.0	1 : 0.0	1 : 0.1	1 : 0.2

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.
 Costs are rounded to the nearest \$10. Ratios are rounded to the nearest 0.1 decimal.
 .. Not applicable.
 Source: Industry Commission.

Table C3.3 Typical costs for reduced duties category

	<i>Compensation</i>		<i>No compensation</i>	
	<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Costs (\$)</i>				
All	33 310	39 500	11 290	16 360
Direct	17 690	17 690	..	..
Indirect	15 620	21 810	11 290	16 360
Employer	32 650	38 840	4 690	4 690
Individual	0	0	3 070	4 920
Community	660	660	3 520	6 740
<i>Ratios</i>				
Direct to indirect costs	1 : 0.9	1 : 1.2	..	..
Total costs to employer costs	1 : 1.0	1 : 1.0	1 : 0.4	1 : 0.3
Total costs to individual costs	1 : 0.0	1 : 0.0	1 : 0.3	1 : 0.3
Total costs to community costs	1 : 0.0	1 : 0.0	1 : 0.3	1 : 0.4

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.
 Costs are rounded to the nearest \$10. Ratios are rounded to the nearest 0.1 decimal.
 .. Not applicable.
 Source: Industry Commission.

Table C3.4 Typical costs for the lower income category

	<i>Compensation</i>		<i>No compensation</i>	
	<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Costs (\$)</i>				
All	151 340	153 030	127 650	139 940
Direct	81 480	81 480	..	..
Indirect	69 860	71 550	127 650	139 940
Employer	91 510	91 510	8 590	8 590
Individual	53 460	53 740	96 220	103 570
Community	6 370	7 780	22 840	27 790
<i>Ratios</i>				
Direct to indirect costs	1 : 0.9	1 : 0.9	..	..
Total costs to employer costs	1 : 0.6	1 : 0.6	1 : 0.1	1 : 0.1
Total costs to individual costs	1 : 0.4	1 : 0.4	1 : 0.8	1 : 0.7
Total costs to community costs	1 : 0.0	1 : 0.1	1 : 0.2	1 : 0.2

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.
Costs are rounded to the nearest \$10. Ratios are rounded to the nearest 0.1 decimal.

.. Not applicable.

Source: Industry Commission.

Table C3.5 Typical costs for the permanently incapacitated category

	<i>Compensation</i>		<i>No compensation</i>	
	<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Costs (\$)</i>				
All	635 860	652 200	426 560	476 710
Direct	312 120	312 120	..	..
Indirect	323 730	340 070	426 560	476 710
Employer	324 230	324 230	10 290	10 290
Individual	99 360	99 360	184 280	202 470
Community	212 270	228 610	231 980	263 940
<i>Ratios</i>				
Direct to indirect costs	1 : 1.0	1 : 1.1	..	..
Total costs to employer costs	1 : 0.5	1 : 0.5	1 : 0.0	1 : 0.0
Total costs to individual costs	1 : 0.2	1 : 0.2	1 : 0.4	1 : 0.4
Total costs to community costs	1 : 0.3	1 : 0.4	1 : 0.5	1 : 0.6

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.
Costs are rounded to the nearest \$10. Ratios are rounded to the nearest 0.1 decimal.

.. Not applicable.

Source: Industry Commission.

Table C3.6 Typical costs for the fatality category

	<i>Compensation</i>		<i>No compensation</i>	
	<i>Short latency</i>	<i>Long latency</i>	<i>Short latency</i>	<i>Long latency</i>
<i>Costs (\$)</i>				
All	449 120	471 480	387 250	405 090
Direct	107 550	150 560	..	..
Indirect	341 580	320 910	387 250	405 090
Employer	111 800	179 880	3 160	56 310
Individual	228 160	186 870	276 050	241 240
Community	109 160	104 730	108 040	107 540
<i>Ratios</i>				
Direct to indirect costs	1 : 3.2	1 : 2.1	..	..
Total costs to employer costs	1 : 0.3	1 : 0.4	1 : 0.0	1 : 0.1
Total costs to individual costs	1 : 0.5	1 : 0.4	1 : 0.7	1 : 0.6
Total costs to community costs	1 : 0.2	1 : 0.2	1 : 0.3	1 : 0.3

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.
 Costs are rounded to the nearest \$10. Ratios are rounded to the nearest 0.1 decimal.

.. Not applicable.

Source: Industry Commission.

ATTACHMENT C4

INPUTS DERIVED IN THE PROCESS OF ESTIMATING THE TYPICAL COSTS

The inputs derived in estimating the typical costs for each severity category are presented in Table C4.1 to C4.7. The compensation category represents the typical cost per workplace incident, for individuals who receive workers' compensation. The no compensation category represents the indicative typical costs per workplace incident, for individuals who do not receive compensation.

Table C4.1 Less than 5 days off work category

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Employer</i>						
Loss of productivity	Based on the Commission's survey.	\$/injury	306	306	306	306
Wage cost		\$/day	121	121	121	121
On-costs		\$/day	41	41	41	41
Days lost		days	2	2	2	2
Consequential overtime	Based on the Commission's survey.		342	342	342	342
Overtime cost		\$/day	181	181	181	181
Days lost		days	2	2	2	2
Investigation		\$/injury	19	19	-	-
<i>Individual</i>						
Health and medical		\$/injury	-	-	6	12
Cost where bulk billed		\$/injury	-	-	0	0
Cases bulk billed	Individuals affected times the proportion who bulk bill. ^a	No	-	-	33 866	33 866
Cost where not bulk billed	The individual was expected to have incurred 15 per cent of the total cost.	\$/injury	-	-	18	36
Cases not bulk billed	Individuals affected times the proportion who do not bulk bill.	No	-	-	18 156	18 156
Travel		\$/injury	-	-	3	5

Table C4.1 Less than 5 days off work category (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Community</i>						
Health and medical		\$/injury	-	-	113	226
Cost where bulk billed		\$/injury	-	-	119	238
Number bulk billed	No of individuals affected times the proportion who bulk bill.	No	-	-	33 866	33 866
Cost where not bulk billed	The community incurs 85 per cent of the total cost.	\$/injury	-	-	101	202
Number not bulk billed	No of individuals affected times the proportion who do not bulk bill.	No	-	-	18 156	18 156
Inspection and investigation		\$/injury	19	19	-	-
Investigation cost		\$/injury	19	19	-	-

\$/injury Average cost per injury or disease

a 65 per cent of medical services are bulk billed. (Department of Human Services and Health 1993, p. 19).

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.

South Australian claims data relate to workplace incidents reported in 1992–93. Where compensated, and the claims are still open, estimates were derived for the duration of the claim, that is the payments made up to November 1994, plus an estimate of the expected outstanding liability.

Estimates were rounded to the nearest \$1.

Source: Industry Commission.

Table C4.2 Full Duties category

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Employer</i>						
Loss of productivity		\$/injury	2 528	2 528	2 528	2 528
Wage cost		\$/day	88	88	88	88
On-costs		\$/day	30	30	30	30
Days lost		days	22	22	22	22
Consequential overtime		\$/injury	2 829	2 829	2 829	2 829
Overtime cost		\$/day	131	131	131	131
Days lost		days	22	22	22	22
Investigation		\$/injury	74	74	-	-

Table C4.2 Full Duties category (cont)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Individual</i>						
Health and medical		\$/injury	-	-	34	68
Cost where bulk billed		\$/injury	-	-	0	0
Cases bulk billed	Individuals affected times the proportion who bulk bill. ^a	No	-	-	30 121	30 121
Cost where not bulk billed	The individual was expected to have incurred 15 per cent of the total cost.	\$/injury	-	-	97	194
Cases not bulk billed	Individuals affected times the proportion who do not bulk bill.	No	-	-	16 148	16 148
Loss of income		\$/injury	-	-	638	638
Wages		\$/day	-	-	88	88
Non-compensated duration ^b	Unpaid days absent from work.	days	-	-	12	12
Social welfare payments ^c		\$/week	-	-	161	161
Travel		\$/injury	-	-	23	45
<i>Community</i>						
Health and medical		\$/injury	-	-	614	1 227
Cost where bulk-billed		\$/injury	-	-	648	1 295
Cases bulk billed	Individuals affected times the proportion who bulk bill.	No	-	-	30 121	30 121
Cost where not bulk billed	The community incurs 85 per cent of the total cost.	\$/injury	-	-	550	1 101
Cases not bulk billed	Individuals affected times the proportion who do not bulk bill.	No	-	-	16 148	16 148
Social welfare payments		\$/injury	-	-	299	299
Cost per program		\$/day	-	-	26	26
Non-compensated duration	Unpaid days absent from work.	days	-	-	12	12
Inspection and investigation		\$/injury	74	74		

Table C4.2 Full Duties category (cont)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
Investigation cost		\$/injury	74	74	-	-

\$/injury Average cost per injury or disease

a 65 per cent of medical services are bulk billed (Department of Human Services and Health 1993, p. 19).

b Individuals who do not receive compensation, are assumed to be entitled to 10 days paid sick leave.

c The individuals affected were assumed to receive a Sickness allowance payment (see Table C.26).

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.

South Australian claims data relate to workplace incidents reported in the 1992–93 period. Where compensated, and the claims are still open, estimates were derived for the duration of the claim, that is the payments made up to November 1994, plus an estimate of the expected outstanding liability.

Estimates were rounded to the nearest \$1.

Source: Industry Commission.

Table C4.3 Reduced duties category

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Employer</i>						
Loss of productivity ^a	Loss of productivity for the days lost, plus productivity losses incurred while the individual is on reduced duties.	\$/injury	6 750	9 671	2 214	2 214
Wage cost		\$/day	83	83	83	83
On-costs		\$/day	28	28	562	562
Days lost		days	55	79	20	20
Duration on reduced duties		days	22	31	-	-
Consequential overtime	Overtime costs incurred for the days lost, plus overtime costs while the individual is on reduced duties.	\$/injury	7 554	10 822	2 478	2 478
Overtime cost		\$/day	124	124	124	124
Days lost		days	55	79	20	20
Duration on reduced duties		days	22	31	-	-
Investigation		\$/injury	658	658	-	-

Table C4.3 Reduced duties category (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Individual</i>						
Health and medical		\$/injury			136	273
Cost where bulk billed	Individuals affected times the proportion who bulk bill ^b .	\$/injury	-	-	0	0
Cases bulk billed		No	-	-	19 121	19 121
Cost where not bulk billed	The individual was expected to have incurred 15 per cent of the total cost.	\$/injury	-	-	390	781
Cases not bulk billed	Individuals affected times the proportion who do not bulk bill.	No	-	-	10 251	10 251
Loss of income	Loss of income while absent from work after deducting social welfare payments plus loss of income due to lower wages received during the reduced duties period.	\$/injury	-	-	2 737	4 250
Wages prior to the incident		\$/day	-	-	83	83
Wages while on reduced duties	While on reduced duties, the individual was expected to undertake 75 per cent of their usual duties, therefore their wage was expected to be 25 per cent lower than the pre-incident wage.	\$/day	-	-	62	62
Non-compensated duration ^c	Unpaid days absent from work.	days	-	-	46	70
Duration on lower wages		days	-	-	22	31
Social welfare payments ^d		\$/week	-	-	153	161
Travel		\$/injury	-	-	201	402
<i>Community</i>						
Health and medical		\$/injury	-	-	2 467	4 933
Cost where bulk billed		\$/injury	-	-	2 603	5 206

Table C4.3 Reduced duties category (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
Cases bulk billed	Individuals affected times the proportion who bulk bill.	No	-	-	19 121	19 121
Cost where not bulk billed	The community incurs 85 per cent of the total cost.	\$/injury	-	-	1 101	2 213
Cases not bulk billed	Individuals affected times the proportion who do not bulk bill.	No	-	-	10 251	10 251
Social welfare payments		\$/injury	-	-	1 052	1 809
Cost per program		\$/day	-	-	23	26
Non-compensated duration	Unpaid days absent from work.	days	-	-	46	70
Inspection and investigation		\$/injury	658	658	-	-
Investigation cost		\$/injury	658	658	-	-

\$/injury Average cost per injury or disease

- a According to the Commission's survey, duration on reduced duties was roughly, 28 per cent of the total duration. Since individuals return to reduced duties, their productivity was expected to be lower, the Commission assumed the individual's post-incident productivity to be 75 per cent of their pre-incident productivity.
- b 65 per cent of medical services are bulk billed (Department of Human Services and Health 1993, p. 19).
- c Individuals who do not receive compensation, are assumed to be entitled to 10 days paid sick leave.
- d For the lower limit, individuals affected were assumed to receive a Sickness allowance payment. For the upper limit Jobsearch allowance applied.

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.

South Australian claims data relate to workplace incidents reported in the 1992-93 period. Where compensated, and the claims are still open, estimates were derived for the duration of the claim, that is the payments made up to November 1994, plus an estimate of the expected outstanding liability.

Estimates were rounded to the nearest \$1.

Source: Industry Commission.

Table C4.4 Lower income category

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Employer</i>						
Loss of productivity		\$/injury	4 054	4 054	4 054	4 054
Wage cost		\$/day	76	76	76	76
On-costs		\$/day	26	26	26	26
Days lost		days	40	40	40	40
Consequential overtime		\$/injury	4 536	4 536	4 536	4 536
Overtime cost		\$/day	113	113	113	113
Days lost		days	40	40	40	40
Investigation		\$/injury	1 439	1 439	-	-
<i>Individual</i>						
Health and medical		\$/injury	7	14	297	302
Cost where bulk-billed		\$/injury	0	0	0	0
Number of individuals bulk-billed	Individuals affected times the proportion who bulk bill. ^a	No	13 003	13 003	7 007	7 007
Cost where not bulk-billed		\$/injury	20	41	851	866
Number of individuals not bulk-billed	The individual was expected to have incurred 15 per cent of the total cost.	No	6 971	6 971	3 756	3 756
Loss of income		\$/injury	7 446	7 719	26 392	28 749
Wages prior to incident		\$/day	76	76	76	76
Non-compensated duration ^b	Unpaid days absent from work.	days	172	172	633	633
Social welfare payments ^c		\$/week	161	153	see Table C2.4	see Table C2.4
Travel		\$/injury	-	-	503	1 005
Pain and suffering		\$/injury	-	-	4 484	8 968
Loss of future earnings		\$/injury	46 008	46 008	64 541	64 541
Compensation payment for permanent disability		\$/injury	18 533	18 533	-	-

Table C4.4 Lower income category (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
Average wage prior to incident		\$/pa	19 656	19 656	19 656	19 656
Average wage following the incident		\$/pa	15 756	15 756	15 756	15 756
Retirement age		years	65	65	65	65
Average age prior to incident		years	42	42	42	42
Average age following the incident		years	44	44	44	44
Discount rate		Per cent	10	10	10	10
Productivity rate prior to incident		Per cent	2	2	2	2
Productivity rate following the incident		Per cent	0.5	0.5	0.5	0.5
<i>Community</i>						
Health and medical		\$/injury	128	257	5 376	5 472
Cost where bulk-billed		\$/injury	135	271	5 673	5 774
Number of individuals bulk-billed		No	12 982	12 982	6 996	6 996
Cost where not bulk-billed		\$/injury	115	230	4 822	4 908
Number of individuals not bulk-billed		No	6 971	6 971	3 756	3 756
Social welfare payments		\$/injury	3 961	4 458	14 558	16 505
Cost per program		\$/day	23	26	see Table C2.4	see Table C2.4
Non-compensated duration	Unpaid days absent from work.	days	172	172	633	633
Inspection and investigation		\$/injury	1 492	1 492	-	-
Inspection cost		\$/injury	52	52	-	-
Investigation cost		\$/injury	1 439	1 439	-	-

Table C4.4 Lower income category (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
Rehabilitation		\$/injury	789	1 577	2 905	5 810
Rehabilitation cost		\$/day	9	9	9	9
Duration of rehabilitation		days	86	172	317	633

\$/injury Average cost per injury or disease

a 65 per cent of medical services are bulk billed (Department of Human Services and Health 1993, p. 19).

b Individuals who do not receive compensation, are assumed to be entitled to 10 days paid sick leave.

c Where compensation is received, during the non-compensated duration, individuals are assumed to receive assistance from the government. For the lower limit, individuals affected were assumed to receive Sickness allowance payments, and for the upper limit Jobsearch allowance payments where taken into account. Where no compensation is received, the individual is assumed to rely on sickness allowance for the first 52 weeks and then on a Newstart allowance for the remaining duration for the lower limit. For the upper limit once Sickness allowance payments expire, the individual receives a disability pension.

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.

South Australian claims data relate to workplace incidents reported in the 1992–93 period. Where compensated, and the claims are still open, estimates were derived for the duration of the claim, that is the payments made up to November 1994, plus an estimate of the expected outstanding liability.

Estimates were rounded to the nearest \$1.

Source: Industry Commission.

Table C4.5 Permanently incapacitated category

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Employer</i>						
Loss of productivity		\$/injury	4 858	4 858	4 858	4 858
Productivity loss		\$/day	91	91	91	91
On-costs		\$/day	31	31	31	31
Days lost		days	40	40	40	40
<i>Consequential overtime</i>						
Overtime cost		\$/day	136	136	136	136
Days lost		days	40	40	40	40
Investigation		\$/injury	1 811	1 811	-	-

Table C4.5 Permanently incapacitated category (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Individual</i>						
Health and medical		\$/injury	1 286	1 286	2 132	2 923
Medical costs for the initial years	For cases not compensated assume the medical costs for the initial years are between 50 per cent to 100 per cent of the medical costs for cases compensated.	\$/injury	-	-	15 127	30 254
Age when the incident occurred		years	46	46	46	46
Age at which compensation ceases		years	49	49	46	46
Discounted present value of medical costs		\$/injury	24 575	24 575	24 575	24 575
Reduced life expectancy		years	70	70	70	70
Discount rate		per cent	10	10	10	10
Inflation rate		per cent	1	1	1	1
Cost where bulk-billed		\$/injury	0	0	0	0
Number of individuals bulk-billed	Individuals affected times the proportion who bulk bill. ^a	No	8 668	8 668	3 893	3 893
Cost where not bulk-billed		\$/injury	3 686	3 686	6 108	8 377
Number of individuals not bulk billed	The individual was expected to have incurred 15 per cent of the total cost.	No	4 647	4 647	2 087	2 087
Travel	For incidents not compensated assume the travel costs for the initial years are between 50 per cent to 100 per cent of the travel costs for cases compensated.	\$/injury	7 372	7 372	8 312	8 946
Travel costs for the initial years		\$/injury	-	-	1 269	2 538
Age when the incident occurred		years	46	46	46	46

Table C4.5 Permanently incapacitated category (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			Lower	Upper	Lower	Upper
Age at which compensation ceases		years	49	49	46	46
Discounted present value of travel costs		\$/injury	14 745	14 745	15 354	15 354
Reduced life expectancy		years	70	70	70	70
Discount rate		per cent	10	10	10	10
Inflation rate		per cent	1	1	1	1
Pain and suffering		\$/injury	-	-	16 765	33 530
Loss of future earnings		\$/injury	90 698	90 698	157 074	157 074
Compensation payment for permanent disability		\$/injury	69 294	69 294	-	-
Discounted present value of future earnings		\$/injury	230 620	230 620	230 620	230 620
Discounted present value of welfare payments		\$/injury	70 628	70 628	73 547	73 547
Average wage		\$/pa	23 556	23 556	23 556	23 556
Average social welfare payment	Disability support pension	\$/pa	7 472	7 472	7 472	7 472
Reduced life expectancy		years	70	70	70	70
Age at which social welfare payments commence ^b		years	49	49	46	46
Retirement age		years	65	65	65	65
Average age		years	46	46	46	46
Discount rate		per cent	10	10	10	10
Productivity rate		per cent	2	2	2	2
Inflation rate		per cent	1	1	1	1
<i>Community</i>						
Health and medical		\$/injury	23 288	23 288	38 586	52 921
Cost where bulk-billed		\$/injury	24 575	24 575	40 717	55 844
Number of individuals bulk-billed		No	8 668	8 668	3 893	3 893

Table C4.5 Permanently incapacitated category (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
Cost where not bulk-billed		\$/injury	20 889	20 889	34 610	47 468
Number of individuals not bulk-billed		No	4 647	4 647	2 087	2 087
Social welfare payments	This is the discounted present value of welfare payments.	\$/injury	65 040	65 040	69 722	69 722
Average cost per program	Disability support pension	\$/pa	7 644	7 644	7 644	7 644
Average age		years	46	46	46	46
Age at which social welfare payments commence		years	49	49	46	46
Age at which disability pension ceases		years	65	65	65	65
Reduced life expectancy		years	70	70	70	70
Discount rate		per cent	10	10	10	10
Inflation rate		per cent	1	1	1	1
Inspection and investigation		\$/injury	1 864	1 864	-	-
Inspection cost		\$/injury	52	52	-	-
Investigation cost		\$/injury	1 811	1 811	-	-
Rehabilitation	Discounted present value of future rehabilitation costs.	\$/injury	15 832	31 663	16 486	32 972
Average cost		\$/pa	3 350	3 350	3 350	3 350
Average age when the incident occurred		years	46	46	46	46
Age at which government funded rehabilitation occurs	Assume either half way through the non-compensated duration or for the whole non-compensated period.	years	60	49	58	46
Reduced life expectancy		years	70	70	70	70
Discount rate		per cent	10	10	10	10
Inflation rate		per cent	1	1	1	1

Table C4.5 Permanently incapacitated category (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
Loss of human capital		\$/injury	98 875	99 383	98 875	99 383
Annual GDP lost		\$/injury	10 151	10 099	10 151	10 099
Retirement age		years	65	65	65	65
Age at which the incident occurred		years	46	46	46	46
Discount rate		per cent	10	10	10	10
Productivity rate		per cent	2	2	2	2
Travel	The community is expected to bear half the travel costs in terms of travel concessions.	\$/injury	7 372	7 372	8 312	8 946

\$/injury Average cost per injury or disease

a 65 per cent of medical services are bulk billed (Department of Human Services and Health 1993, p. 19).

b Once compensation ceases, workers are assumed to receive a disability support pension, until retirement. Where no compensation is received, individuals are assumed to rely on a disability support pension from the age at which the individual was incapacitated until retirement.

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.

South Australian claims data relate to workplace incidents reported in the 1992–93 period. Where compensated, and the claims are still open, estimates were derived for the duration of the claim, that is the payments made up to November 1994, plus an estimate of the expected outstanding liability.

Estimates were rounded to the nearest \$1.

Source: Industry Commission

Table C4.6 Fatality – short latency

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Employer</i>						
Loss of productivity		\$/injury	1 490	1 490	1 490	1 490
Productivity loss		\$/day	93	93	93	93
On-costs		\$/day	32	32	32	32
Days lost		days	12	12	12	12
Consequential overtime		\$/injury	1 667	1 667	1 667	1 667
Overtime cost		\$/day	139	139	139	139
Days lost		days	12	12	12	12
Investigation		\$/injury	1 101	1 101	-	-

Table C4.6 Fatality – short latency (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Individual</i>						
Health and medical		\$/injury	0	0	1 552	1 552
Funeral expenses		\$/injury	0	0	1 550	1 550
Cost where bulk-billed		\$/injury	0	0	0	0
Number of individuals bulk-billed	Individuals affected times the proportion who bulk bill. ^a	No	0	0	117	117
Cost where not bulk-billed		\$/injury	0	0	3	7
Number of individuals not bulk-billed	The individual was expected to have incurred 15 per cent of the total cost.	No	0	0	62	62
Travel		\$/injury	-	-	47	47
Pain and suffering		\$/injury	-	-	17 625	17 625
Loss of future earnings		\$/injury	228 155	228 155	256 829	256 829
Compensation payment for permanent disability		\$/injury	8 824	8 824	0	0
Retirement age		years	65	65	65	65
Average wage prior to incident		\$/pa	24 076	24 076	24 076	24 076
Average age prior to incident		years	41	41	41	41
Discount rate		per cent	10	10	10	10
Productivity rate		per cent	2	2	2	2
<i>Community</i>						
Health and medical		\$/injury	-	-	32	32
Cost where bulk-billed		\$/day	-	-	23	45
Number of individuals bulk-billed		No			117	117
Cost where not bulk-billed		\$/day	-	-	19	38
Number of individuals not bulk-billed		No			62	62

Table C4.6 Fatality – short latency (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
Inspection and investigation		\$/injury	1 153	1 153	-	-
Inspection cost		\$/injury	52	52	-	-
Investigation cost		\$/injury	1 101	1 101	-	-
Loss of human capital		\$/injury	108 010	108 010	108 010	108 010
Annual GDP lost		\$/injury	10 151	10 099	10 151	10 099
Retirement age		years	65	65	65	65
Average age prior to incident		years	41	41	41	41
Discount rate		per cent	10	10	10	10
Productivity rate		per cent	2	2	2	2

\$/injury Average cost per injury or disease

a 65 per cent of medical services are bulk billed (Department of Human Services and Health 1993, p. 19).

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.

South Australian claims data relate to workplace incidents reported in the 1992–93 period. Where compensated, and the claims are still open, estimates were derived for the duration of the claim, that is the payments made up to November 1994, plus an estimate of the expected outstanding liability.

Estimates were rounded to the nearest \$1.

Source: Industry Commission.

Table C4.7 Fatality – long latency

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
<i>Employer</i>						
Loss of productivity		\$/injury	12 413	12 413	26 573	26 573
Productivity loss		\$/day	93	93	93	93
On-costs		\$/day	32	32	32	32
Days lost		days	100	100	214	214
Consequential overtime		\$/injury	13 890	13 890	29 735	29 735
Overtime cost		\$/day	139	139	139	139
Days lost		days	100	100	214	214
Investigation		\$/injury	3 011	3 011	-	-
<i>Individual</i>						
Health and medical		\$/injury	64	64	2 307	2 307
Funeral expenses		\$/injury	-	-	1 550	1 550
Cost where bulk-billed		\$/injury	0	0	0	0

Table C4.7 Fatality – long latency (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			<i>Lower</i>	<i>Upper</i>	<i>Lower</i>	<i>Upper</i>
Number of individuals bulk-billed	Individuals affected times the proportion who bulk bill. ^a	No	92	92	58	58
Cost where not bulk-billed		\$/injury	122	245	2 124	2 216
Number of individuals not bulk-billed	The individual was expected to have incurred 15 per cent of the total cost.	No	49	49	31	31
Loss of income		\$/injury	12 257	12 257	-	-
Average wage		day	93	93	93	93
Non-compensated duration ^b	Unpaid days absent from work.	days	203	203	0	0
Social welfare payments ^c		\$/week	161	161	0	0
Travel		\$/injury	-	-	4 517	4 517
Pain and suffering		\$/injury	-	-	11 292	11 292
Loss of future earnings		\$/injury	174 552	174 552	223 120	223 120
Payment for permanent disability		\$/injury	48 568	48 568	-	-
Retirement age			65	65	65	65
Average wage prior to incident		\$/pa	24 076	24 076	24 076	24 076
Average age prior to incident		years	43	43	43	43
Discount rate		per cent	10	10	10	10
Productivity rate		per cent	0.5	0.5	0.5	0.5
<i>Community</i>						
Health and medical		\$/injury	1 159	1 159	13 711	13 711
Cost where bulk-billed		\$/injury	816	1 631	14 162	14 774
Number of individuals bulk-billed		No	92	92	58	58
Cost where not bulk-billed		\$/injury	693	1 387	12 038	12 558

Table C4.7 Fatality – long latency (cont.)

<i>Costs</i>	<i>Explanatory notes</i>	<i>Unit</i>	<i>Compensation</i>		<i>No compensation</i>	
			Lower	Upper	Lower	Upper
Number of individuals not bulk-billed		No	49	49	31	31
Social welfare payments		\$/injury	5 270	5 270	0	0
Cost per program		\$/day	26	26	-	-
Non-compensated duration	Unpaid days absent from work.	days	203	203	-	-
Inspection and investigation		\$/injury	3 064	3 064	-	-
Inspection cost		\$/injury	52	52	-	-
Investigation cost		\$/injury	3 011	3 011	-	-
Rehabilitation		\$/injury	1 398	1 398	-	-
Rehabilitation cost		\$/day	9	9	-	-
Duration of rehabilitation		days	102	203	-	-
Loss of human capital		\$/injury	93 834	93 834	93 834	93 834
Annual GDP lost		\$/injury	10 151	10 099	10 151	10 099
Retirement age		years	65	65	65	65
Average age prior to incident		years	43	43	43	43
Discount rate		per cent	10	10	10	10
Productivity rate		per cent	0.5	0.5	0.5	0.5

\$/injury Average cost per injury or disease.

a 65 per cent of medical services are bulk billed (Department of Human Services and Health 1993, p. 19).

b Individuals who do not receive compensation, are assumed to be entitled to 10 days paid sick leave.

c Where compensation is received, during the non-compensated duration, the individual was assumed to receive a Sickness allowance payment. Where no compensation is received, the individual is assumed to continue working prior to death, therefore no social welfare services are relied on.

Notes: See Attachment C2, for the methodology used to derive the typical cost estimates.

South Australian claims data relate to workplace incidents reported in the 1992–93 period. Where compensated, and the claims are still open, estimates were derived for the duration of the claim, that is the payments made up to November 1994, plus an estimate of the expected outstanding liability.

Estimates were rounded to the nearest \$1.

Source: Industry Commission.

ATTACHMENT C5**MOST PREVALENT AND MOST EXPENSIVE WORK-RELATED INJURIES AND DISEASES**

Cost estimates were derived for the most prevalent cases and most expensive injuries and diseases.⁵ The most frequently occurring and most costly cases are subset's of all workplace injuries and diseases. The purpose of estimating the costs for the most prevalent cases and the most expensive injuries and diseases, is to determine the level of costs, by severity, and the distribution of the costs between the employer, individual and the community.

Furthermore, comparison between the most frequently occurring and most costly injuries and diseases, will indicate whether the cost of workplace injuries and diseases is driven-up by the most prevalent or most expensive cases.

The robustness of the indicative cost estimates can also be gauged, by examining whether the costs estimates for the most frequently occurring and most costly injuries and diseases, are of a similar magnitude and exhibit similar incidence characteristics, as the estimates derived for all workplace injuries and diseases.

Commission's approach

In calculating the overall cost for the most prevalent and costly work-related injuries and diseases, the Commission applied the same five step procedure it used for estimating the costs for all workplace injuries and diseases.

Step 1 Identifying the levels of severity of workplace injuries and diseases

The same severity categories were used.

Step 2 Calculating the typical costs for each severity category

The methodology and assumptions used to derive the typical costs for all workplace injuries and diseases, was applied in estimating the typical costs for the most prevalent and most costly cases.

⁵ The most frequently occurring and most costly incidents are interdependent. That is, workplace injuries, illnesses and diseases included in deriving the most prevalent incidents, may also be part of the most expensive incidents estimates.

Step 3 *Identifying the number of injuries and diseases that fall into each severity category*

For the most prevalent cases and the expensive cases, the Commission assumed that the injuries and diseases recorded in each severity category, based on South Australian claims data, are representative of the types of workplace injuries and diseases which occurred in Australia, during 1992–93. The five most prevalent and most expensive injuries and diseases for Australia, are presented in Tables C5.1 and C5.2, respectively.

For the most prevalent and costly cases, the number of workplace injuries and diseases where compensation was received, was derived from South Australian claims data. South Australian workers' compensation records for the 1992–93 period indicated, that the most prevalent and most expensive injuries and diseases represented roughly 70 per cent and 60 per cent of all compensated claims in South Australia. It was assumed that the percentage of claims compensated for Australia to be of a similar proportion. For workplace injuries and diseases not compensated, the proportion of individuals affected was assumed to be half of the proportion of individuals compensated.

Step 4 *Determining the total cost estimates, by severity*

The methodology used to derive the total cost for all workplace injuries and diseases, by severity, was applied in estimating the total costs for the most prevalent and costly cases.

Step 5 *Determining the overall cost*

The methodology used to derive the overall cost for all workplace injuries and diseases, was applied in estimating the overall cost for the most prevalent and costly cases.

Table C5.1 Five most prevalent work-related injuries and diseases

< 5 days off work	5 or more days off work and return to work on:			Permanently incapacitated	Fatality
	Full duties	Reduced duties	Lower income		
Sprains and strains	Sprains and strains	Sprains and strains	Sprains and strains	Sprains and strains	Intracranial injury
Open wound	Open wound	Mental disorders	Deafness	Fractures	Multiple injuries
Contusion and crushing	Fractures	Disorders of muscle and tendons	Open wound	Ischaemic heart disease	Ischaemic heart disease
Foreign body	Contusion and crushing	Fractures	Fractures	Traumatic amputation	Open wound
Disorders of muscle and tendons	Disorders of muscle and tendons	Contusion and crushing	Disorders of muscle and tendons	Contusion and crushing	Superficial injury

Note: The classification is based on the National Data Set: Nature of Injury and Disease classification.

Source: Based on claims data for the 1992–93 period from WorkCover Corporation (SA).

Table C5.2 Five most expensive work-related injuries and diseases

< 5 days off work	5 or more days off work and return to work on:			Permanently incapacitated	Fatality
	Full duties	Reduced duties	Lower income		
Deafness	Mental disorders	Mental disorders	Dorsopathies	Fractures	Uncoded
Other & unspecified injuries	Fractures	Dorsopathies	Sprains and strains	Ischaemic heart disease	Other heart disease
Disorders of muscle and tendons	Disorders of muscle and tendons	Sprains and strains	Fractures	Contusion and crushing	Superficial injury
Sprains and strains	Sprains and strains	Disorders of muscle and tendons	Disorders of muscle and tendons	Traumatic amputation	Ischaemic heart disease
Contusion and crushing	Contusion and crushing	Fractures	Other and unspecified injuries	Sprains and strains	Open wound

Note: The classification is based on the National Data Set: Nature of Injury and Disease classification.

Source: Based on claims data for the 1992–93 period from WorkCover Corporation (SA).

Typical costs per workplace incident

For the most prevalent and costly work-related injuries and diseases, the typical cost estimates were highly sensitive of the degree of severity of the work-related incident.

Most prevalent injuries and diseases

The typical costs for the most prevalent cases exhibit a similar trend, as observed for the typical costs for all workplace injuries and diseases (compare Tables C.4 and C5.3). The distribution in costs between the parties, depending on severity, is also similar, with the employer incurring lower costs, for more severe injuries and diseases.

Table C5.3 Typical costs — most prevalent injuries & diseases, Australia

(\$ per incident)

	< 5 days off work	5 or more days off work and return to work on:			Permanently incapacitated	Fatality ^a	Average
		Full duties	Reduced duties	Lower income			
All^b							
Lower	930	8 240	36 880	197 830	563 270	442 980	36 510
Upper	930	8 240	36 990	200 550	582 740	443 870	37 370
Employer^c							
Lower	860	7 710	33 580	90 250	272 940	94 840	18 740
Upper	860	7 710	33 580	90 250	272 940	164 560	18 740
Individual							
Lower	10	150	1 200	90 810	89 250	241 160	8 910
Upper	10	150	1 250	91 630	90 060	172 780	8 960
Community							
Lower	70	380	2 110	16 780	201 090	106 980	8 870
Upper	70	380	2 160	18 670	219 740	106 520	9 670

a For the fatality category, the lower limit represents the typical costs for traumatic work-related injuries or diseases, and the upper limit represents the costs for fatalities which occur after a long duration.

b All costs take into account direct costs (workers' compensation payments), and indirect costs.

c Employer costs take into account their direct and indirect costs.

Notes: Costs are rounded to the nearest \$10. Due to rounding, the sum of the typical costs borne by the three parties, for a given level of severity, may not equal the respective typical cost per workplace incident. Estimates were derived based on data from the WorkCover Corporation (SA) and the PSM survey.

Source: Industry Commission.

The higher average cost estimate derived for the most prevalent injuries and diseases, relative to the average cost estimates for all workplace injuries and diseases, is primarily due to the higher costs borne by the employer for the most prevalent cases.

Most expensive injuries and diseases

The costs for the most expensive injuries and diseases trend upwards, as severity rises (see Table C5.4). The typical cost estimates derived for the most costly injuries and diseases are higher than the costs determined for all workplace injuries and diseases, because the most expensive cases are based on the five most costly workplace injuries and diseases, hence producing higher typical cost estimates.

Table C5.4 Typical cost — most costly injuries and diseases, Australia
(\$ per incident)

	<i>< 5 days off work</i>	<i>5 or more days off work and return to work on:</i>			<i>Permanently incapacitated</i>	<i>Fatality^a</i>	<i>Average</i>
		<i>Full duties</i>	<i>Reduced duties</i>	<i>Lower income</i>			
All^b							
Lower	1 080	8 440	58 790	182 570	602 810	454 810	39 100
Upper	1 120	8 590	60 010	186 620	625 220	534 220	40 220
Employer^c							
Lower	1 030	8 030	55 740	100 870	272 940	134 890	21 770
Upper	1 030	8 030	55 740	100 870	272 940	221 760	21 770
Individual							
Lower	10	150	1 110	63 100	118 650	222 240	8 050
Upper	10	160	1 240	64 960	122 290	187 370	8 150
Community							
Lower	50	260	1 940	18 610	211 230	97 680	9 290
Upper	80	390	3 030	20 800	230 000	125 090	10 300

a For the fatality category, the lower limit represents the typical costs for traumatic work-related injuries or diseases, and the upper limit represents the costs for fatalities which occur after a long duration.

b All costs take into account direct costs (workers' compensation payments), and indirect costs.

c Employer costs take into account workers' compensation payments and indirect costs.

Notes: Costs are rounded to the nearest \$10. Due to rounding, the sum of the typical costs borne by the three parties, for a given level of severity, may not equal the respective typical cost per workplace incident. Estimates were derived based on data from the WorkCover Corporation (SA) and the PSM survey.

Source: Industry Commission.

Although the magnitudes between the typical costs for all workplace injuries and diseases and the most expensive cases differ, the distribution of the costs between the parties are roughly similar, with the employer bearing a lower proportion of the cost for more severe injuries and diseases (see Tables C.4 and C5.4).

Overall cost of work-related injuries and diseases

In terms of the overall cost of all work-related injuries and diseases, the most prevalent cases and the most expensive cases represent roughly 70 per cent and 60 per cent respectively (see Tables C.5 and C5.5 and C5.6). Hence, the most frequently occurring injuries and diseases, are more influential in determining the size of the overall cost for all workplace injuries and diseases.

Most prevalent injuries and diseases

Since the most prevalent cases is a subset of all workplace injuries and diseases, the total cost estimates, for the former are less than those derived for the latter (see Tables C.5 and C5.5). By implication, in dollar terms, lower costs are borne by each party, for the most prevalent injuries and diseases.

Most expensive injuries and diseases

The most expensive cases are a subset of all workplace injuries and diseases, therefore even though the typical costs for the former were higher than the latter, the lower number of most costly injuries and diseases, results in lower total cost estimates being derived.

Although in dollar terms, the total costs for the most expensive cases is significantly lower, than the total cost estimates derived for all workplace injuries and diseases, in proportion terms, the relative burden imposed on the respective parties is roughly similar (see Tables C.5 and C5.6).

Table C5.5 Overall costs — most prevalent injuries & diseases,
Australia

(in millions)

	<i>< 5 days off work</i>	<i>5 or more days off work and return to work on:</i>			<i>Permanently incapacitated</i>	<i>Fatality</i>	<i>Overall cost</i>
		<i>Full duties</i>	<i>Reduced duties</i>	<i>Lower income</i>			
All							
Lower	74	588	1 673	3 586	6 741	178	12 839
Upper	74	589	1 679	3 649	7 014	178	13 182
Employer							
Lower	68	550	1 522	1 629	3 168	46	6 985
Upper	68	550	1 522	1 629	3 168	46	6 985
Individual							
Lower	1	10	55	1 654	1 153	88	2 961
Upper	1	11	59	1 683	1 208	88	3 047
Community							
Lower	5	27	96	303	2 420	42	2 893
Upper	5	27	98	337	2 638	42	3 148

Note: Costs are in current dollar terms and rounded to the nearest one million.

Due to rounding, the sum of the total cost estimates per severity category may not equal the overall cost estimate.

Source: Industry Commission.

Table C5.6 Overall costs — most expensive injuries & diseases,
Australia

(in millions)

	<i>< 5 days off work</i>	<i>5 or more days off work and return to work on:</i>			<i>Permanently incapacitated</i>	<i>Fatality</i>	<i>Overall cost</i>
		<i>Full duties</i>	<i>Reduced duties</i>	<i>Lower income</i>			
All							
Lower	70	489	2 163	2 675	5 680	155	11 233
Upper	72	498	2 208	2 734	5 891	155	11 559
Employer							
Lower	66	466	2 051	1 478	2 572	53	6 685
Upper	66	466	2 051	1 478	2 572	53	6 685
Individual							
Lower	1	9	41	924	1 118	68	2 160
Upper	1	9	46	952	1 152	68	2 227
Community							
Lower	3	15	71	273	1 990	34	2 387
Upper	5	23	111	305	2 167	34	2 646

Note: Costs are in current dollar terms and rounded to the nearest one million.

Due to rounding, the sum of the total cost estimates per severity category may not equal the overall cost estimate.

Source: Industry Commission.

D COMPLIANCE COSTS

Most businesses incur costs in complying with workplace health and safety legislation. But little is known about the extent of these costs. Estimates of compliance costs are required if governments are to promote, from a economy-wide perspective, efficient usage of compliance resources.

Some of the problems in measuring compliance costs and some estimates of compliance costs are discussed in this appendix.

D.1 Prevention costs

Prevention of work-related injury is often a costly activity. Some of the actions by business that may represent costs include: plant upgrade, salary for safety officers, inspections of tools and equipment, safety meetings, orientation sessions, site inspections, health programs, personal protective equipment, and clothing and miscellaneous supplies.

The cost of prevention depends on several factors. Many risks can be managed relatively costlessly by putting in place management systems that systematically address the main hazards in a workplace. A system that involves regular checks of exposure levels to dangerous substances is one example.

Others require significant investments in new plant and equipment and in retrofitting or replacing existing plant and equipment. The investment required to continually meet new plant standards can be very large. For example, as stated by the Department of Industrial Relations:

The BIE noise study, conducted under contract for Worksafe, pointed to very much larger costs of meeting requirements through accelerated purchases of new equipment (sub. 396, p. 16).

QBE Workers' Compensation Insurance (NSW) Limited stated that the costs of prevention depend on:

- the perceived risk of the situation;
- the type of energy involved in the potential risk situation;
- the flexibility of the working environment;
- the resources, that is, finance, people and plant available to the organisation;
- the co-operation between management, employees and union representatives;
- market place availability of preventative mechanisms; and

- the support of the legislature and the authority who is responsible for workplace health and safety (sub. 115, p. 7).

Workers' Compensation Development Australia suggested that the costs of prevention for the chemical company Du Pont's 120 000 employees worldwide totalled around \$9 million in 1987:

... [this investment in job safety programs] saved the company about \$150 million in 1987, or the equivalent of about \$2 billion in product sales. Many companies would be increasingly supportive of developing or improving their safety programs if they could make such budget savings (sub. 21, p. 10).

D.2 Compliance costs

Compliance costs are the costs a business would avoid if it were not required to meet workplace health and safety legislation. For example, the cost of installing machine guards to comply with a workplace health and safety requirement could have been avoided and are unambiguously a compliance cost. The cost of personal protective equipment, such as hearing muffs, required to reduce noise exposure is another example.

However, estimating the costs of compliance for most businesses is difficult. The breakdown of costs and identifying the costs of programs conducted by business is generally not available. The absence of this information and reliable statistical data hinders evaluations of prevention programs conducted by business and governments.

There are several features that make compliance costs difficult to measure:

- workplace safety is produced in conjunction with other business activities;
- the extent of compliance in industry;
- legislation in other areas that has workplace health and safety consequences;
- the nature of OHS legislation; and
- biases in estimation.

These are discussed below.

Joint product

Safety is often produced or achieved in conjunction with many other business activities, that is, it is a *joint product*. Indeed, employers may invest in safety for reasons other than meeting workplace health and safety legislation. For example, employers' may invest in safety to lower their workers' compensation

premium, to improve productivity of the workforce, to retain employees by ensuring they are satisfied, or because they want to improve the integrity of their operations.

This means that for any investment an employer makes, it is difficult to attribute expenditure to enhance safety imposed by legislation, as distinct from investments made voluntarily for business reasons. This has implications for measuring compliance costs.

In estimating compliance costs, the distinction between those costs a business incurs with and without OHS minimum standards is often not clearly drawn. Some estimates of compliance costs ignore this distinction and reflect the full cost of measures related to the standard rather than the marginal difference caused by the standard. The Victorian Trades Hall Council argued:

... full cost of plant upgrading, which may be essential for economic competitiveness, environmental standards, or other reasons is [often] falsely attributed as a cost of ... occupational health and safety requirements (sub. 187, p. 12).

One example of the significance of this distinction is made by Viscusi (1985) in relation to the Cotton Dust regulation in the United States. Viscusi cited 1983 estimates that suggest that the industry would spend about \$US599 million on equipment by the time full compliance with the cotton dust standard is achieved. However, after investigating the incremental difference caused by the standard, Viscusi found that most of the investments had been undertaken in order to increase productivity, not solely to comply with OHS requirements. Viscusi estimated that capital costs that specifically relate to the standard would amount to only \$US246 million.

Extent of compliance in industry

To measure compliance costs incurred by enterprises, assumptions are required about the extent of compliance in industry. This is because compliance costs may vary considerably depending on the number of businesses that meet a specific workplace health and safety requirement.

One assumption often used is 100 per cent compliance. For example, the economic impact assessment of the National Standard for Plant assumed:

For the purpose of the analysis, all employers are assumed to comply where required in order to meet any obligations under the National Standard for Plant (WorkSafe 1994j, p. 39).

However, compliance is not always 100 per cent.

Practicability

The *reasonably practicable* qualification on the duty of care means that the requirements of the law vary with the circumstances of each workplace. The Queensland Code of Practice for Plant contains a succinct explanation:

[It] means that the degree of risk in a particular activity or environment can be balanced against the:

- time;
- trouble; and
- cost

of taking measures to control the risk.

If the measures are so disproportionate to the risk that it would be unreasonable for the people concerned to have to incur them to control the risk, they are not obliged to do so (Queensland Government 1993).

However, because the practicability qualification allows employers the flexibility of only having to choose the prevention measures that are reasonably practicable, it is extremely difficult to estimate the impact that a particular OHS requirement has on industry. Several participants agreed. For example, the Victorian Trades Hall Council argued:

It is arguably impossible to cost a requirement that is subject to practicability (sub. 187, p. 13).

Non-workplace health and safety legislation

Compliance costs are often imposed by non-OHS legislation. For example, a requirement in building legislation for fire sprinklers imposes costs on businesses that could be attributed to workplace health and safety regulation, because it leads to an improvement in safety.

Nature of workplace health and safety legislation

The nature of the relevant OHS legislation affects the cost of compliance. For example, compliance costs differ from general duty of care legislation, to requirements that prescribe outputs, to exposure requirements, to requirements that prescribe inputs.

The cost of product-type compliance is often easier to estimate than process-type compliance. For example, it is easier to estimate the cost of complying with prescriptive requirements associated with boilers, than estimating the costs of hazard identification.

Biases

There is a great deal of uncertainty about the costs of compliance. Hence, estimates cannot be measured objectively and are sometimes subject to the biases and prejudices of estimators. Some participants, such as Worksafe Australia, argued that employers have an incentive to over-estimate the costs of compliance because they usually do not want tighter regulations (sub. 50).

However, other participants felt that unions and regulators often under-estimate costs in order to push for tighter regulations. The Chamber of Manufactures of NSW stated:

Compliance costs are still not fully understood and often not accepted by Government. The aim to enshrine a principle often overwhelms objectivity. This leads to ... understating the cost of compliance in the regulatory process (sub. 90, p. 10).

These inherent biases imply that it may be difficult to get objective estimates of the costs of compliance.

D.3 Current data

Compliance costs are difficult to measure for the reasons mentioned in the foregoing discussion.

Their complexity means that estimation of compliance costs is often not a high priority for employers. Employers have difficulties distinguishing between the specific cost of workplace health and safety activities and general costs incurred by the business. Several relatively large and well resourced enterprises surveyed by the Commission, were generally unaware of the costs that relate to specific health and safety requirements. Furthermore they do not know the cost of implementing their own workplace health and safety programs and systems.

The Commission engaged Deloitte Touche Tomatsu to investigate the costs and extent of compliance with OHS legislation. This study found that generally employers were not able to quantify the cost of compliance. Deloitte Touche Tomatsu found, in relation to manual handling regulation,

that:

... employers did not generally identify the cost of specific activities such as assessing and controlling the risks associated with a particular task. ...

Even in circumstances where manual handling risk has been reduced through significant expenditure on equipment, such expenditure has not been separately identified as an OHS expense. ...

No employer was able to provide us with an accurate estimate of the costs incurred through the implementation of manual handling regulation and/or code of practice (1995, p. 32).

Notwithstanding these problems, several participants believe there is considerable value in estimating the compliance costs and that sensible and adequate estimates can be achieved. Oxenburgh argued:

... the point I wish to make very clearly is that such an investigation [of compliance costs] can be done and can put occupational health and safety [requirements] and the codes [of practice] into a favourable economic light (sub. 32, p. 4).

Regulatory impact statements and economic impact assessments

Some information on compliance costs is available from Regulatory Impact Statements (RIS) and Economic Impact Assessments (EIA). Broadly, these statements outline the impact of regulations in the economy.

An example is the economic impact assessment into the National Standard for the Control of Major Hazard Facilities. This standard applies to about 144–180 major hazard facilities in Australia. In a survey of five facilities the average initial cost of complying with the standard was estimated at \$354 000, ranging from \$49 000 to \$1.15 million. This excludes the costs of actual risk reduction activities but includes the cost of activities such as risk assessment, developing safety management systems, conducting safety reports and so on. The average estimated cost of maintaining compliance with the national standard for five years is \$200 600, ranging from \$15 000 to \$725 000, excluding the costs of actual risk reduction activities.

The total costs estimated to comply with the national standard, existing regulations and company policies, for the facilities surveyed, averaged at \$5.727 million. This compared to costs of meeting current legislation which was estimated to be \$5.043 million. The additional compliance costs imposed by the national standard was estimated to be 11.4 per cent of existing costs (see NOHSC 1994a).

Another example is research by Oxenburgh (1993) into the economic impact of the manual handling code of practice. Oxenburgh found the cost to implement

the code would have been \$831 million, with annual costs of about \$245 million.

When costing compliance it is often useful to have a range of estimates based on different scenarios such as the stringency of the workplace health and safety requirements and the level of compliance. For example, the development of the United States Occupational Safety and Health Authority (OSHA) Carcinogen Policy produced a range of cost estimates based on how tight the carcinogen requirement was to be set. The compliance cost would be \$US83 billion if the OSHA set loose requirements for 38 substances, \$US296 billion for moderate requirements for 1970 substances, and \$US526 billion for moderate requirements for 2415 substances and prohibitive cost levels for any stringent requirements, regardless of which number of substances is regulated (Viscusi 1983).

Most estimates of compliance costs are calculated at the time of promulgation of individual regulations, rather than after requirements have been met by industry. Estimates of compliance costs should be made both before and after new requirements are promulgated. This enables regulators to reassess initial estimates and revise regulations where appropriate. Oxenburgh argued:

A similar investigation [of compliance costs] should be made some time after the implementation of a new regulation. This would verify the methodology and accuracy of the first investigation and add to the confidence regarding costs and benefits on the implementation of new regulations. It would also identify where changes are required to the regulations, for example to reduce costs or increase effectiveness (sub. 32, p. 4).

Other assessments of costs of compliance

The Metal Trades Industry Association (MTIA)(1993, p. 23) estimated the costs in complying with workplace health and safety requirements to be between 0.14-0.17 per cent of total sales for 1991–1992. Total manufacturing turnover, in Australia, for 1991–1992 amounted to \$168 billion (ABS 1995b). Assuming the above ratio holds for the entire manufacturing industry, this implies that compliance costs for manufacturing is about \$235–285 million. However, MTIA suggest their estimates are likely to understate the full cost of complying with occupational health and safety requirements.

Estimates from the United States suggest that the aggregate compliance costs to industry of business legislation amount to 15 times administrative expenditures undertaken for these purposes. Given that the administrative expenditures associated with enforcement and regulation of minimum OHS requirements is about \$70 million, this implies that cost of complying with health and safety

requirements in Australia could cost about \$1 billion annually, assuming a similar ratio is applicable to health and safety legislation in Australia.

Paper burden costs of regulations

Paper burden costs are the costs, to those regulated, of furnishing the regulators with appropriate information and paperwork. These costs have been estimated to be double the cost of funding the agencies that administer the regulations.

In Queensland, businesses are required to register with the Department of Employment, Vocational Education, Training and Industrial Relations. Some businesses are also required to keep statistics on their health and safety record. However, it is unlikely that employers have a significant OHS paper burden in Australia.

D.4 Costs of requirements that prescribe inputs and outputs

The compliance costs associated with a type of workplace health and safety requirement will ultimately depend on the suitability of the requirement to all businesses within an industry. Thus, the type of requirements adopted — those that prescribe inputs or outputs — affect the level of compliance costs. The prescription of inputs is usually referred to as a prescriptive requirement and the prescription of outputs is usually referred to as a performance-based requirement.

Output-based requirements provide a more flexible approach that can be applied more practicably to all businesses than the rigid, prescriptive input approach. Output-based requirements generally entail lower compliance costs because they encourage innovation among businesses to undertake the least costly means of compliance. Viscusi argued:

The cost savings do not stem solely from the fact that business people have greater technical expertise than government ... though this may be a pertinent factor. The greatest gains from this discretion arise from the wide variations in technologies of different vintage and type. Although one compliance approach may be most efficient in many contexts, uniform risk reduction technologies will seldom be optimal in all situations (1983, p. 131).

Most participants supported this view. The Victorian Employers Chamber of Commerce and Industry (VECCI) stated:

With prescriptive [input] based legislation compliance costs are extremely high as the employer is likely to pay more attention to the administration and procedural requirements of the regulation rather than the actual hazards (sub. 97, p. 5).

It is argued that workplace health and safety requirements that prescribe inputs provide instructions to employers on how to comply. To the extent that this occurs, search costs associated with evaluating alternative performance-based measures will be reduced, thereby lowering compliance costs. However, performance requirements are not inherently incompatible with efforts to provide information about alternative methods of compliance. Furthermore, the Commission is encouraging businesses to adopt industry-level codes of practice which provide information on compliance.

In estimating the cost savings of output-based requirements, Amcor commented:

At this time there is insufficient performance [output] based requirements to constitute a 'trend' therefore, it is too early to make a meaningful assessment of impact on compliance costs or adequacy of performance measures (sub 182, p. 13).

D.5 Policy implications

Workplace health and safety agencies are imposing regulation without adequate understanding of the costs of that regulation. Requirements imposed on industry could cost millions of dollars annually. These resources could have been spent on new products and created employment for Australians. Therefore, from an economy-wide perspective it is important to determine the impact of workplace health and safety regulations on the economy.

To undertake this task, accurate compliance cost data is required. To achieve an accurate measure of compliance costs, it would be necessary to examine workplaces, on a case-by-case basis. Compliance cost data would also assist industries in evaluating the cost-effectiveness of their own workplace health and safety programs.

E REGULATION FORMATION AND BENEFIT AND COST COMPARISONS

Occupational health and safety regulation aims to reduce work-related injury and disease by changing workplaces and work practices. Benefit–cost analysis is a method of identifying and quantifying the benefits and costs of proposed regulations. Its use adds transparency to the process of formulating occupational health and safety regulation.

This appendix describes current regulatory practices and discusses the contribution timely benefit–cost analysis can make to occupational health and safety regulation formation. It sets out a four step procedure for conducting benefit–cost analyses and discusses cost–benefit and cost–effectiveness analysis. The four step procedure should not only improve the benefit–cost analysis, but more importantly, the process of formulating occupational health and safety regulation. This procedure is illustrated by reorganising an existing benefit–cost analysis into the four steps.

E.1 Current regulatory assessment practices

The Victorian, New South Wales and Tasmanian Governments require comparison of the benefits and costs of most regulations in regulatory impact statements (RISs) to ensure that occupational health and safety regulation is effectively achieving its objectives. For example, Victoria’s *Subordinate Legislation Act (1962)* states:

A regulatory impact statement shall include the following matters: ...

3. An assessment of the financial and social costs and benefits of each alternative including resource allocation, administration and compliance costs and benefits and where the costs and benefits can not be assessed solely in financial terms an outline of the social costs and benefits.

Queensland’s Parliamentary Committee for Electoral and Administrative Review has recommended similar provision for subordinate legislation be made, although an administrative requirement for assessment of the impact of ‘significant’ regulations already exists. The South Australian Government recently amended its *Occupational Health, Safety and Welfare Act 1986* to require its Advisory Committee to ‘consider whether an industry impact statement should be prepared’. There are no statutory requirements for explicitly comparing costs and benefits of regulations in Western Australia, the Northern Territory or the Australian Capital Territory. The subordinate

legislation of Victoria, New South Wales and Tasmania also requires that alternatives to a proposed regulation be evaluated and that RISs be made available for public comment before any regulation is enacted.

To smooth the move to national uniformity of OHS regulation and to satisfy these State requirements, Worksafe has provided economic impact analyses (EIAs) of national standards since 1992. Since 1992, Victoria, New South Wales and Tasmania have generally gained an exemption from their State requirement by substituting the national EIA for their own analysis.¹

In April 1995, the Council of Australian Governments agreed to the 'Guidelines and Principles for National Standard Setting and Regulatory Action' for Ministerial Councils and standard setting bodies, developed by the Commonwealth – State Committee on Regulatory Reform (see COAG 1995). The Guidelines require bodies such as National Occupational Health and Safety Commission (NOHSC) to conduct a Regulatory Impact Statement for each new or amended standard. This appendix outlines an approach to assessing benefits and costs of OHS regulation which is consistent with the Guidelines.

E.2 The contribution of benefit–cost analysis to the development of OHS regulation

Most organisations support systematic analysis of the benefits and costs of OHS regulations, but oppose economic considerations being the sole focus of decision-making. The Australian Chamber of Commerce and Industry commented:

... any responsible government must take regard of the economic impact or consequences of any new initiative they wish to introduce. To this effect, OHS regulation should not be treated any differently. An economic impact analysis, however, will not and can not provide the ultimate answer on the introduction of a regulatory regime. It is one tool in the consideration of appropriateness of the proposal (sub. 133, p. 34).

Similarly, the Victorian Trades Hall Council supports the analysis of benefits and costs of proposed regulations in principle and disagrees with a sole focus on

¹ An exception is the national standard for plant. The Health and Safety Organisation of Victoria (HSO) (formerly the Occupational Health and Safety Authority of Victoria) has recently conducted a RIS into plant because the national EIA did not meet Victorian requirements. The national EIA was not made available for public comment and did not consider alternatives to the proposed standard.

monetary effects:

The determination of the costs and benefits to the community arising from law-making activity by government, conceptually at least, is commendable and indicative of responsible government ... From this concept however, has spawned practices, principles and outcomes that are far from commendable, and indeed are irresponsible in the injustice that is perpetrated against the community. By allowing community impact to degenerate into quantified cost–benefit assessments, governments have failed to serve the community effectively or honestly (sub. 187, p. 12).

OHS agencies appear to use informal benefit–cost analysis to rule out extreme proposals in the preliminary assessment stage. However, there is little evidence that systematic benefit–cost analysis contributes to evaluating most policy proposals beyond this stage. This is principally because comprehensive analyses are conducted too late to inform decision makers. For example, national standards are negotiated by many parties over a period of years and valuable data are collected during this process. However, the benefits and costs of a proposed standard and any alternatives are not systematically evaluated until after these parties ‘hammer out’ standards.

Benefit–cost analysis undertaken concurrently with exploring regulatory options can contribute to better development of OHS standards by informing policy-makers and the public of the benefits and costs of various regulatory options.

Benefit–cost analysis of alternative policy responses to an identified problem can establish that the most effective response is chosen. Although analysing alternative regulations involves more effort than analysing just one, it provides policy-makers with valuable additional information about the impacts of their decisions. Often, this will not be much more costly than analysing just one regulation. For example, the same survey could be used to estimate the costs of different exposure levels.

These analyses should incorporate all economic and social effects of any proposed regulation, and quantify as many of these as possible. Policy-makers can then weigh up all the quantified and non-quantified effects in making their decision.

E.3 A model for developing OHS regulation

In the case of OHS regulation, the assessment process involves identifying and quantifying key relationships in the following four steps:

- the effect of regulation on workplace risks;
- the effect of workplace risks on health outcomes (injury and disease);
- the social and economic values of these health outcomes; and

- the effect of regulation on employers and governments, such as compliance and administration costs.

Without understanding these relationships, regulations might be chosen that impose costs on society in compliance, enforcement and administration that exceed the benefits.

Regulations have distributional effects by generating transfers between groups and individuals that have zero net effect on the economy. The groups that receive the benefits of any proposed regulation and those who bear the costs should be identified in the analysis.

Step 1: The effect of a proposed regulation on the likelihood of injury or disease

The first relationship that should be estimated is the change in the likelihood of workplace injury and disease due to the regulation. For some regulations, this is a scientific connection, or dose-response relationship. For example, the effect of a reduction in asbestos fibres per millilitre of air will decrease the risk of exposed workers contracting mesothelioma.

Only the incremental effects of the regulation should be counted. Any existing trend in injury and disease must be accounted for, and only the change from this should be attributed to any regulation.

Estimates of the effect of chemicals, hazards, and production processes on health and safety can vary due to differing populations being sampled, scientific methods, locations and other factors. In addition, the links between exposure to some hazardous substances and workplace injury or disease are difficult to identify.

When there is uncertainty about this relationship, the usual approach is to present the expected value of the change in the likelihood of injury or disease due to the regulation. This is a weighted average of the best estimates, with the weights being estimates of how likely it is that any particular estimate is correct. An alternative is to use the best estimate, as well as plausible lower and upper bounds. For example, the benefit–cost analysis of proposed noise regulations (BIE 1991) used a range of benefit–cost estimates where there was some doubt about the correctness of information. This approach enables policy-makers to take into account the variability of estimates when choosing regulations.

Nichols and Zeckhauser (1986) warn that using the largest possible likelihood estimates, rather than the best estimate and plausible bounds, can lead to some low level risks being over-regulated and more severe risks tolerated. For example, applying the highest estimate of the likelihood of sustaining a back

injury, say from a study of manual labour, and applying this to office workers will overstate the problem and the effectiveness of any OHS regulation addressing back injuries in offices.

The extent of compliance affects the actual change that a regulation will generate in workplaces. Although it can be difficult to estimate non-compliance with a new regulation in advance, expected compliance levels should be identified in a benefit–cost analysis for the policy-maker.

Step 2: The change in likelihood and the associated change in health outcomes

The next step is to estimate the reduction in fatality, injury, illness and disease that is expected to result from the regulation. This is calculated by applying the reduced likelihood in Step 1 to the population the regulation will affect. For example, the effect of an asbestos regulation on deaths from mesothelioma depends on the number of workers exposed to asbestos at the pre- and post-regulation level.

The RIS for asbestos conducted by the Occupational Health and Safety Authority of Victoria (OSHA) — formerly the Health and Safety Organisation of Victoria (HSO) — found no data on the proportion of locations that contained asbestos and consequently on the population at risk. It applied three scenarios — 25, 50 and 75 per cent of locations respectively (OSHA 1991). This is a case where a survey of workplaces might have assisted the evaluation of the proposed regulation by identifying the most plausible (rather than possible) proportions. In comparison, the RIS on the proposed Synthetic Mineral Fibres regulation (WorkCover Authority, New South Wales, 1993d) clearly identified the population at risk. This population includes employees in the synthetic mineral fibre manufacturing industry and users of synthetic mineral fibre products. Survey data then identified the workplaces that had synthetic mineral fibre levels higher than the levels contained in the alternative regulations.

One type of injury can have many causes. Thus, regulations directed at a particular cause will only affect a subset of injuries of a given type. For example, a key step in the RIS on the Certification of Plant Users and Operators (OHS Victoria, 1991) was to estimate what proportion of plant-related injuries would be affected by an improvement in plant operator skills.

Health economists have developed methods of comparing health outcomes at a non-economic level to facilitate comparisons of different policies. At their most basic, these methods simply present a total reduction in injury and disease. However, because people's health changes over time and because regulations

have a range of health benefits, researchers have developed methods to compare different states of health. Quality-adjusted life years (QALYs) are used to aggregate the diverse health and safety improvements generated by a regulation (or other health initiative). The quality of a year of life in various health states is estimated using surveys that elicit people's preferences about different states of health. Health states are usually ranked between zero (dead) and one (healthy) (World Bank, 1993).² These quality weights can then be applied to each year of life saved or extended by a regulation to estimate the QALYs generated by a regulation.

Step 3: The economic benefits to workers of reduced injury and disease

An individual places an inherent value on his or her life and its quality. Individuals affected by injury or disease are worse off when they have reduced income and earning potential, suffer reduced amenity from life, or incur medical and legal expenses. These represent resource losses. The general principle in measuring these is to find the amount of compensation that leaves a worker indifferent after a loss of health.

'Willingness to pay' is one approach to estimating these losses. Methods of gauging willingness to pay include estimating individuals' (and society's) willingness to pay for a reduced health and safety risk; and estimating the wages willingly foregone to have a safer job or occupation (Viscusi, 1981). This approach compares risks in the same context that regulators must compare risks and is claimed to capture an individual's valuation of health and wellbeing. Methods of estimating willingness to pay have limitations. In practice, wealthy people can be willing to pay more to reduce their workplace health and safety risk than poor people. This has undesirable equity implications. It is debatable whether any labour markets are responsive enough to estimate the wage premium paid for additional risk in particular occupations.

An approximate method of estimating the loss is to calculate the value of the resource losses tied to the worker. The loss of worker skills can be estimated using 'loss of future earnings' methodology. This method also has undesirable equity implications because people's expected future earnings differ. For example, it gives a greater value of life to a young person than an older one in the same occupation because the younger person has more years to retirement. Medical and legal expenses approximate the resource loss due to additional

² Sometimes they go below zero for 'worse than dead'. For example, some people would consider decades of incapacitation worse than death.

demand for medical and legal services owing to injury and disease. It is difficult to directly estimate the value of pain and suffering.

Most EIAs and RISs of Australian OHS regulations use workers' compensation payments to approximate the resource gain tied to the worker from reducing injury and disease. This method understates the gain because workers' compensation payments under-compensate and because there are more injuries and diseases than the number of claims (Appendix B).³ For example, OHSA (Victoria) costed each hazardous-substance-related-death at \$65 000 because this was the amount payable for a death under workers' compensation. This is low compared with other estimates of the value of life. For example, Viscusi (in Bentkover *et al* 1986) found estimates of the implicit value of life ranging from \$560,000 to \$11 million in a survey of market studies of risk trade-offs.

Thus, although workers' compensation payments represent the most accessible source of information, they produce extreme lower bound estimates of the gain to society from reducing work related injury and disease.

The benefits of OHS regulations accrue over different time periods. For example, the benefits of reduced exposure to asbestos could take over 20 years to become evident (OHSA 1991a). The valuation of benefits should take account of the time at which they are received — that is, the discount in value which occurs when benefits are received in future period. This is because individuals prefer to have a dollar now than wait one year for an uncertain payment of a dollar. The standard approach to discounting reduces a stream of benefits or costs to an equivalent amount of today's dollars using a particular discount rate. This allows benefits and costs to be compared in the same constant dollar units.

Potential regulations should be considered to go on forever when they are being analysed. Benefits that vary year to year (say transitional reductions in asbestos-related diseases) must be discounted year by year. Constant benefits (for example, four fewer cases of asbestosis per year in the long run) can be calculated using an annuity formula.

The discount rate should be chosen to reflect social time preference. The Treasury long-term bond rate generally provides an appropriate discount rate value. Sensitivity analysis should also be applied by varying the rate (up and down). The *Department of Finance Handbook on Cost-Benefit Analysis* (1991) is a reference on the procedures involved.

³ Workers' compensation payments provide incomplete compensation in order to encourage rehabilitation and return to work and because transactions costs absorb some premium revenue (IC 1994, p. 105).

Step 4: The economic effects of proposed regulations on employers and governments

The costs of a regulation depend on the changes the regulation requires of employers and the government.

Regulations can impose costs on employers in compliance.⁴ These may include buying new machinery or personal protective equipment, and modifying existing equipment or processes. The total costs of any capital expenditure depend on whether compliance with the regulation requires employers to replace machinery immediately or replace it when it is no longer useful to the employer.

In evaluating the economic cost to employers and employees of complying with OHS regulation, a distinction must be made between:

- the costs that would have been borne voluntarily;
- the additional costs imposed by legislation that improves safety as a by-product of meeting other objectives; and
- the additional costs imposed by OHS legislation.

The cost of compliance with OHS regulation is only the last of these.

The incremental costs of complying with a regulation can be estimated by surveying employers and suppliers of goods and services. For example, the EIA on the National Standard for Plant undertook a survey of employers to gauge anticipated costs of the regulation. Employers can have difficulty in distinguishing and separating these costs from the costs of operating their business. Worksafe noted that:

It is difficult to obtain realistic estimates of compliance costs from industry. The estimates are often highly inflated, particularly if industry opposes the standard (sub. 50, p. 24).

Alternative sources of information include engineering studies, pilot studies and Australian and overseas experience.

Regulations often add enforcement and administration costs to government.⁵ Proposed regulations for which there is already high tacit compliance would impose fewer costs on the government, but would probably also have fewer benefits.

⁴ Firms' responses to many regulations are tempered by the condition that the means of compliance are 'practicable'.

⁵ Changes in government transfers via the social security, health and legal systems do not represent resource effects.

The costs of OHS regulations accrue differently over time. For example, asbestos standards could impose relatively high initial costs as employers identify, assess and control risks. After a certain number of years, costs would reduce to an annual monitoring and administrative cost. Like the benefits of OHS regulations, these costs should be discounted to an equivalent amount of today's dollars using a particular discount rate, and should be considered to go on forever. The costs usually become smaller over time, and their value in constant discounted dollars becomes even smaller.

Employers can derive some benefits from reduced injury and disease, although this benefit does not necessarily offset the cost of compliance. A reduction in injury and disease can increase worker morale and reduce retraining, plant and property damage, administration of workers' compensation claims, down time, lost production and the need for extra employees. Reductions in workers' compensation premiums do not represent resource gains because they are transfers to individuals.

Although many of these benefits to the employer are difficult to value, they can be captured in productivity estimates. Oxenburgh (1991) proposes a 'productivity model' for estimating the monetary value of these benefits to an employer and Appendix F outlines the potential benefits to employers of improving occupational health and safety practice.

Alternatively, Victorian and some national RISs use a multiple of workers' compensation payments to estimate the benefits of regulation to employers and the government. This multiple is typically called the 'indirect cost' of injuries and diseases. Estimates vary from one to over ten times the workers' compensation payments. There is debate among different groups about the definition and relative sizes of direct and indirect costs of injury and disease. There is unlikely to be a constant ratio for all proposed regulations due to different types of compensation schemes and different injuries and diseases. The Commission has estimated the ratio of direct and indirect costs based on the severity of the injury or disease in Appendix C.

As before, these benefits should be discounted to constant dollars and considered to go on forever.

E.4 Benefit–cost and cost–effectiveness analysis

Benefit and cost analysis is a method of systematically identifying the likely effects of proposed regulations for policy-makers so that the basis of any decision is transparent. Steps one to four specify the connection between regulation, likelihood of injury or disease and health outcomes, and generate a

list of the economic costs and benefits of regulation. Benefit–cost and cost–effectiveness analysis are two specific methods of summarising the expected outcome of a proposed regulation.

If benefits and costs are presented in monetary terms (by completing steps one to four), a benefit–cost analysis indicates the net benefit of a proposed regulation to society. There are advantages and disadvantages in assigning monetary values to the health benefits of occupational health and safety regulations. Methods of valuing health benefits, particularly of saving lives, typically provide a wide range of estimates and can be challenged. Nevertheless, benefit–cost analysis clearly indicates the predicted economic effect of a proposed regulation on society.

Occupational health and safety regulations will usually generate some benefits that are difficult to value in monetary terms, like reduced pain and suffering. The net economic effect of any regulation can be estimated as in benefit–cost analysis, but policy-makers must trade this value off against the non-valued effects of the regulation. Any choice of regulation clearly indicates the estimated value placed on these non-economic effects.

An alternative to assigning monetary values to health benefits is to use expected physical health benefits (step three is not made). A cost–effectiveness analysis indicates the cost per health benefit of proposed regulations. Cost–effectiveness analysis avoids some of the disadvantages of benefit–cost analysis. However, it does not indicate the overall economic effect of a proposed regulation — it just ranks alternative proposals. QALYs are the principal method of aggregating diverse health benefits. They are a great advantage in applying cost–effectiveness techniques in health policy, but suffer some criticisms. People prefer temporary injury or disease to permanent injury, illness or disease. An equity implication is that a regulation saves more QALYs if it prevents a young person from sustaining a permanent injury rather than an old person. In addition, acquiring information on people’s preferences about the quality of life through surveys may not produce reliable results.

The benefit and cost methodology is essentially partial equilibrium in nature. It does not capture the flow-on effects from occupational health and safety regulations because these are difficult to account for individually. For example, an OHS regulation that reduces work absences in a particular industry can reduce the overall demand for labour in that industry. This might induce wage changes and investment responses across a range of industries and change the allocation of resources. Despite this criticism, benefit–cost analyses estimate a large part of the effects of any proposed regulation, and are much less expensive than using an economy-wide model. The Commission has used an economy-

wide model to illustrate the effects of improved workplace health and safety (Appendix R).

The benefit and cost methodology is comparative static. It *compares* the situation with and without the regulation once all changes have stabilised (or become *static*). For example, if a regulation is estimated to reduce injury and disease by five per cent, this means that, over time, injury and disease will be five per cent lower than without the regulation. Such estimates are not forecasts of changes over time, which depend on many influences apart from the particular regulation being considered. This comparative static approach still offers considerable information to policy-makers, and imposes fewer data and modelling requirements than forecasting.

E.5 Application of the four steps to a proposed noise standard

The Bureau of Industry Economics (BIE, 1991) investigated the potential benefits and costs of a variety of methods of reducing the occupational noise standard from 90 to 85 dB(A) $L_{Aeq,8h}$. A measure of 85 dB(A) $L_{Aeq,8h}$ represents exposure to the equivalent of a steady noise at 85 decibels for eight hours.

This study does many things that a good benefit–cost analysis should do. It captures a range of benefits and costs and notes those that can not be assigned monetary values. However, policy-makers would obtain the key information more clearly if the analysis was presented in the four steps outlined above. The results are reorganised and presented below according to the four-step method.

The study used the basic metal products and fabricated metal products industries as case studies and examined five methods of reducing noise:

- wearing personal hearing protection;
- enclosing operators;
- enclosing machines;
- adapting noisy machinery; and
- purchasing new, quiet machinery.

It also considered a sixth scenario using a combination of all these methods of reducing noise. Each method was assumed to contribute an equal share of the reduction in workplace noise.

Step 1: Estimate the change in likelihood of workplace hearing loss due to the proposed standard

The study cited results from another source that estimated the effect of reducing workplace noise from 90 to 85 dB(A) $L_{Aeq,8h}$. If employees were exposed to 90 dB(A) $L_{Aeq,8h}$ for their whole working life, introducing the new standard was predicted to reduce the number of employees with noise-induced hearing loss by 73 per cent. A weighted average reduction of 64 per cent was also calculated, using periods of employment as the weights, assuming that people leaving the industry move to an environment with less than 85 dB(A) $L_{Aeq,8h}$. Since people may move to another noisy environment, this study selected 70 per cent as an indicative proportion of hearing-loss cases avoided.

Step 2: Apply the change in likelihood to the exposed population to predict the health benefits

The study estimated the number of employees potentially exposed to noise between 85 and 90 dB(A) $L_{Aeq,8h}$ in the case study industries.

Multiplying the potentially exposed workforce in each of the case study industries by the 70 per cent proportional reduction in hearing-loss cases estimated the number of hearing loss cases avoided. The number of hearing loss cases potentially avoided is a key item of information for policy-makers and should have been clearly highlighted in the report. However, no estimate of this number was presented.

Step 3: Value the health benefits

This study estimated the value of a 70 per cent reduction in workers' compensation noise-induced hearing loss claims. The study acknowledged that workers' compensation claims understate the real number of compensable cases of hearing loss, but it could not quantify the extent. This problem might have been avoided, by using data from steps 1 and 2 and the average cost of each case of hearing loss, instead of the total cost of workers' compensation hearing loss claims.

The study noted that hearing loss reduces quality of life. It assumed that the value of the increase in quality of life if the standard were introduced would equal the value of workers' compensation savings. The study also identified a reduction in health costs, although it did not identify the reduction over and above that counted in workers' compensation payments. Therefore the study estimated the total value of health benefits to be twice the value of workers' compensation hearing loss claims.

The types of benefits achieved under each method of reducing workplace noise were assumed to be identical. However, some methods are less effective in delivering benefits. The degree of employee compliance in wearing personal hearing protection was assumed to vary from 10 to 100 per cent (5 different scenarios). The effectiveness of machinery enclosures was uncertain, so the study estimated two benefit scenarios, assuming effectiveness levels of 50 and 80 per cent. The timing of the benefits also varies with the timing of the implementation of the noise-reducing method.

Step 4: Estimate the economic effects of proposed standards on employers and governments

The costs employers would incur in meeting a lower noise standard depend on the method of reducing noise. The study assumed that personal hearing protection would be introduced immediately. Compliance costs for new investment, machinery adaptation, machinery and operator enclosures were estimated under four timing options — immediate action, action after five and ten years, and action at the average replacement life of equipment.

Reducing noise from 90 to 85 dB(A) $L_{Aeq,8h}$ is predicted to reduce absenteeism, staff turnover and workplace accidents. This benefit to employers was estimated by assuming one less day of absence per noise-exposed employee per year, at average weekly earnings. Other benefits, including increased productivity and increased international competitiveness were also identified, but not assigned monetary values.

The study assumed that employers are complying with the present 90 dB(A) $L_{Aeq,8h}$ standard, and conducting audiometric testing, providing training, information, noise assessments and rotating staff. Similarly, government incurs administration and enforcement costs for the present standard. Reducing the noise exposure standard is assumed to require no incremental costs in these areas.

The study then estimated the net present value of the monetary benefits and costs of different methods of reducing noise in the workplace. There was a number of scenarios for each method of reducing noise due to different phase-in times, differing effectiveness of some methods, and variations in other parameters. Benefits and costs were generated over a 15 year period (rather than to infinity, as recommended above) and discounted to net present values using three different discount rates. A 15 year horizon would reduce the present value of all methods that have a net benefit in year 15 and subsequent years.

The study listed additional benefits and costs that it could not value but which could be significant to allow decision makers to include them in the final

assessment. It mentioned that decision makers must decide what weights to assign to these other factors in the overall decision.

The study provided many results, depending on the various assumptions made. Some results indicated that introducing the proposed standard would produce positive social net present values. For example, the net present values of the combination scenario were positive when machinery was replaced over 10 years or at the average replacement period of the machine. Other results produced negative social net present values. For example, the net present values of the combination scenario were generally negative when replacement was immediate or over five years. The study recommended that setting exposure levels and allowing employers to select the method of implementing the new standard was the most efficient means of achieving the desired outcomes.

F BEST PRACTICE

The purpose of this appendix is to identify OHS best practice at the enterprise level.

F.1 Defining OHS best practice

Definitions of best practice refer to superior organisational processes and performance over time. For example, as defined by the Department of Industrial Relations' Australian Best Practice Demonstration Program:

Best practice is a comprehensive, integrated and co-operative approach to the continuous improvement of all facets of an organisation's operations. It is the way leading edge companies manage their organisations to deliver world class standards of performance ... It is a moving target. As the leading organisations continue to improve the 'best practice' goalposts are constantly moving (Department of Industrial Relations 1991, p. 2).

OHS best practice has been defined both discretely and in the context of overall organisational performance. For example, Worksafe defines best practice as:

1. an organisational strategy which integrates OHS with the functions and operations of an organisation leading to superior OHS in the context of improving organisational performance ...
2. excellence in a specific area of OHS practice which results in the best achievable outcome in a discrete area of OHS (for example, hazardous substances management, OHS skills development, equity, environmental management, noise control engineering) (1992a, p. 1).

OHS best practice is an elusive concept for a number of reasons, including:

- the diversity of workplaces and industries;
- the inter-relatedness of OHS performance and overall business performance; and
- the dynamism of OHS problems and solutions.

Given these considerations, the Commission has adopted the following definition of OHS best practice for this report:

Organisational practice(s) which lead to superior OHS outcomes over time in competitive enterprises relative to their peers — which exceed community standards.

The main components of this definition are:

- *organisational practice* — refers to any organisational practice(s), directly or indirectly related to OHS performance;
- *superior OHS outcomes* — refers to the prevention of workplace injuries, illness and disease over time;
- *over time* — refers to ongoing practice and performance rather than practice and performance at one point in time;
- *competitive enterprise* — refers to enterprises operating in competitive environments;
- *peers* — refers to a particular industry or class of enterprise in a particular industry; and
- *community standards* — refers to minimum standards of occupational health and safety legislation as reflected in legislation.

F.2 Examining OHS best practice

Several studies, conducted in Australia within the last five years, have examined business best practice and OHS best practice; and more generally the relationship between OHS performance and overall business performance. The findings of these studies indicate that OHS best practice is largely driven by an strong health and safety culture within enterprises.

Workplace injury, illness and disease are largely systemic to the workplace. OHS outcomes — the culmination of many factors — are largely determined by the workplace culture (see Appendix B). The Australian Institute of Petroleum suggest that culture is more important for improving OHS performance than OHS legislation:

The existence of an effective safety culture throughout the workplace is the single biggest factor in improving OHS performance... Safety culture in an organisation has a far greater impact on OHS performance than government regulation. A high level safety culture starts with commitment at the highest levels of management in the organisation and extends to all workplace participants. Regulations by themselves can only improve safety so far (sub. 137, p. 2).

According to the Department of Industrial Relations' Australian Best Practice Demonstration Program, international competitiveness is also driven by an effective workplace culture which '... emphasises the role of human resources as assets rather than merely costs of production' (Curtain and Mortensen 1994, p. 10).

Available evidence suggests that most workplaces have not embraced an effective workplace culture, despite the fact that many workplaces perceive

themselves as having achieved good (if not best) OHS practice. According to the Australian Manufacturing Council study:

Site visits showed that many participating sites overstated their OHS practices in the survey questionnaire. This may be because some sites simply comply with minimum standards and assume their performance to be excellent because of this compliance. At these sites there is little understanding that these standards represent the minimum requirements in OHS or that firms can benefit from viewing compliance as a platform from which to advance to best practice ... A tremendous effort is required to shift this mind-set from one of compliance and reaction to a proactive, integrated OHS management approach (1994, p. 34).

The following attributes are important to achieving an effective health and safety culture in an organisation:

- impetus for change;
- top management commitment;
- workplace participation and consultation;
- integrated quality approaches to management;
- management systems approach;
- line management responsibility and accountability; and
- benchmarking performance.

Impetus for change

A sense of crisis, caused internally or externally, triggers organisational change in pursuit of OHS best practice. A sense of crisis refers to events or circumstances which threaten the survival or competitiveness of an organisation enough to motivate change (or re-organisation). As stated by The Effective Change Consultants:

Almost all (if not all) of the Best Practice Demonstration Program and OHS Best Practice companies faced a crisis of one sort or another which forced a fundamental rethink of the organisation ... In some cases, the crisis was imposed from outside the organisation ... In other cases, the crisis occurred because of internal events (sub. 161, p. 4).

A sense of crisis may be brought on by any number of events or circumstances directly or indirectly related to occupational health and safety. These range from general circumstances such as poor overall performance of an organisation to specific events such as a fatality in the workplace. Most enterprises involved in Worksafe's *OHS Best Practice Program* experienced a crisis before radical

reform and subsequent improvements in OHS performance. For example:

In 1986 there was one serious accident for every five shop floor workers at Danum. Because of the company's poor OHS performance, Workcare premiums were skyrocketing, morale was low and lost time was affecting production ...

A worker at a nearby site was killed on the job. Soon after one of Danum's cherry pickers hit overhead power lines ... And that's when Danum started to take safety more seriously (Worksafe 1992 p. 6).

Typically, a number of different events and circumstances culminate to bring about crisis in an organisation before management initiate change.

Top management commitment

OHS best practice can only be effectively pursued where those managing an enterprise's resources give adequate priority to managing occupational health and safety. Many participants argued that management commitment is crucial to improving OHS performance. For example, 'BHP supports the view that senior management commitment is crucial' (sub 141, p. 17).

The Shell Company of Australia Limited's Enhanced Safety Management guide states:

[Visible management commitment]... is the most important single feature. Without initiative and continued support from management no safety effort can survive. The management of safety has to be seen as an essential part of a manager's daily responsibilities, along with others such as sales, production, cost control, profitability and morale (1985, p. 8).

In response to a preliminary survey, Shell Company of Australia Limited also stated that the 'low priority standing of OHS relative to other concerns' was an impediment to improved OHS performance in the past.

A Draft Project Report by the Australian Health Ministers Advisory Council (AHMAC) — aimed at identifying and suggesting solutions to OHS problems in the Health Industry — found that:

where there is senior management commitment to good OHS practice, changes occur, so that OHS performance improves and the changes are maintained. If good OHS performance is required of senior management, then OHS receives attention (sub. 66 p. 28).

The Department of Transport (WA) stated that:

... a positive and active commitment by management at all levels is the single most important element of a successful occupational health and safety program. Without such a commitment, it is difficult, if not impossible, to implement an effective occupational health and safety program (sub. 48, p. 4).

Workplace participation and consultation

Workplace participation and consultation refers to the involvement — through consultation and participation — of all workplace parties. Many participants have stressed the necessity of joint management of occupational health and safety. For example the Construction Forestry Mining and Energy Union (Mining and Energy Division) stated:

One of the conclusions to arise from the International Mining Conference in 1993 was that the sharing of safety goals by employer and employee was the critical component in establishing an effective safety culture at the mine. This is intuitively attractive, but these goals must be worked out jointly – not imposed by management, but negotiated in good faith with genuine agreement (sub. 153 p. 3).

The National Union of Workers stated:

It is the employer who has the most direct influence over workplaces health and safety. Equally important is the involvement of workers through their elected representatives. Workers have a direct interest in making sure their work environment is safe. Since they know their work area better than anyone else they must understand what a hazard and risk is and how it can be fixed (sub. 346, p. 2).

Involvement at the strategic and operational level of OHS management, means that workplace parties are empowered to contribute to planning, implementing and improving OHS systems in their workplace. Quinlan and Bohle offered a number of arguments for worker involvement in the management of occupational health safety:

They are the people closest to the process and therefore the most knowledgeable about actual work practices. They are often the most aware of the problems using machinery and safety equipment, and the pressures that encourage non-compliance with safety practices. Awareness of the reasoning behind health and safety policies, and a genuine opportunity to participate in their development, can also increase worker commitment to health and safety programs (1991, p. 398).

Verna Blewett of New Horizon Consulting explained that ‘empowerment of workers almost inevitably leads to the development of self-managed teams’ — or team based approaches more generally (Blewett 1994, p. 2). Blewett explains the benefits of team-based approaches to occupational health and safety:

What value can teams add to OHS systems in organisations? People who do the work understand their work the best. They are the local experts. Put the responsibility for process improvement in the hands of appropriately trained team members and they will inevitably rise to the occasion with creative solutions to sticky problems (1994, p. 6).

The Meat Industry OHS Best Practice Project found that ‘team-based approaches have proven a very effective OHS improvement strategy’ (Raward 1994, p. 8).

Quality approaches to management

The pursuit of OHS best practice is consistent with quality approaches to management. As stated by Krause and Finley :

Safety and continuous improvement in quality are closely related, perhaps so closely that they are essentially two sides of the same coin (1993, p. 25).

Quality is a management philosophy which seeks continuous improvement in the quality of performance of all the processes, products and services of an organisation. The pursuit of improved OHS performance is often *part and parcel* of the pursuit of quality through continuous improvement. OHS injuries, illness and disease are equivalent to other forms of waste, error and defects which a quality approach to management seek to minimise through continuous improvement. As stated by Mitch Mitchell and Associates:

Efficient, effective and ethical organisations are the product of quality in management, and quality in management depends on the ability to get things done by, with and through other people without workplace mishaps.

Personal harm, property damage and pollution are therefore symptoms of flawed management processes and are prima facie evidence of low-quality management (sub. 124, p. 1).

Many participants referred to the relevance and applicability of quality management tools — such as the ISO 9000 and AS 3000 series — to the management of occupational health and safety. For example, the South Australian Government stated:

Quality management systems theoretically encompass all aspects of work so as to reduce costs and increase the competitiveness of an enterprise using the systems ...

A high level of OHS as an outcome is one aspect of work which can be readily integrated within the language of quality management for those companies looking to develop quality management systems (sub. 147, p. 47).

Many participants referred to the benefits — arising from management synergies — of integrating occupational health and safety into quality management practices. For example, Penrice Soda Products Pty Ltd explained:

Quality and occupational health and safety management are closely linked and should all become an integral part of the organisation. There should be commonality in approach and at Penrice we are exploring using a single management system for health, safety, quality and environment. Benefits should result from single internal audits covering all these areas and 'corrective actions' for quality and unusual incidents relating to safety or the environment could all be included in the one report (sub. 163, p. 4).

Smith stated:

There are many success stories of companies that have dramatically improved productivity and quality. Many of these examples also show an intimate link between quality and safety (1993, p. 38).

Most enterprises involved in Worksafe's *OHS Best Practice Program* adopted an integrated approach to occupational health and safety and quality. For example:

Improvements in OHS formed the basis of Henderson's cultural change. It is now a 'safe company'. OHS is truly integrated into all aspects of the company's work. In this way the OHS program has provided a model for the quality system and, therefore, the means by which productivity and efficiency are maintained (Worksafe 1992 p. 19).

Integrated systems approach

Generally, OHS systems are more effective when integrated with broader workplace management systems. Integration prevents occupational health and safety from being marginalised and gives rise to management synergies. As stated by Caltex Oil (Australia) Pty Limited:

The economic realities of the 1980s and 1990s clearly indicate that business survival and progress into the next century is dependent on gains in productivity and improved organisational and technological effectiveness. Integral with these pursuits is excellence in occupational health and safety management (sub. 175, p. 1).

According to Worksafe, effective OHS systems incorporate the following elements:

- OHS policy and planning — which sets OHS objectives, develops OHS strategies, defines responsibilities and sets accountability mechanisms in place within the organisation;
- risk identification, assessment and control — which effectively prevents or reduces injury, illness and disease;
- participative and consultative mechanisms — which ensures joint management of occupational health and safety in the workplace;
- education and training — which ensures that workplace parties are informed about OHS concerns and their OHS responsibilities; and
- systems auditing — which measures system implementation and performance against OHS objectives and strategies.

Most enterprises involved in Worksafe's *OHS Best Practice Program* (1992a) had a management system in place which incorporated these elements in one

form or another. An empirical study by Gallagher concluded *inter alia*:

Establishments with lower claims incidence rates are more likely to have health and safety management systems in place ...

An effective health and safety management system is an integral part of a broader workplace managements system ... (1992, pp. 97–98).

A management systems approach to occupational health and safety is widely recognised as being effective. OHS agencies are assisting enterprises with the development and implementation of OHS management systems in their workplaces. For example, the Victorian Health and Safety Organisation (formerly the Occupational Health and Safety Authority) explained:

To assist organisations to achieve continuous improvement, OHS has developed a publication entitled *SafetyMAP: A guide to OHS management systems*.

SafetyMAP can be used by organisations which have implemented or are working towards implementing a management system to improve the quality of OHS in the workplace. The format of *SafetyMAP* is designed to assist employers working towards AS 3901 quality accreditation to implement an OHS management system that is integrated into their quality management system (sub. 176, p. 24).

Line management responsibility and accountability

Line management responsibility and accountability for OHS performance elevates the priority of OHS objectives in the actual workplace. Many participants attested to the effectiveness of line management responsibility and accountability for occupational health and safety. For example, The Plastics and Chemicals Industries Association (PACIA) stated:

Du Pont, who are widely regarded as having the best safety record in the chemical industry worldwide, attribute their performance to the emphasis they place on safety as a line management responsibility – managers are judged by their safety performance, responsibilities are not delegated to safety managers (sub. 208, p. 5).

Line managers have considerable influence in the workplace, which can significantly impede or enhance the effectiveness of OHS systems. Quinlan and Bohle explained:

There has been a tendency for line managers to see health and safety as a nuisance, an obstruction to efficiency and productivity ... It is clear that if a participatory approach to health and safety management is to be effective it must involve line management. Their support is vital for the successful implementation of many interventions and any resistance from them is a major impediment to the development of an effective organisational OHS program (1991, p. 399).

Benchmarking performance

Performance benchmarking may be formally defined as:

... the continuous process of measuring products, services, and practices against the toughest competitors or those companies recognised as industry leaders (Camp 1989, p. 10).

The objective of benchmarking:

... is to identify best practice and to measure the gap between actual performance and best practice performance (Whiteman and Pearson 1993, p. 97)

Preferred Care Networks Pty Ltd explains:

Benchmarking is imperative. Processes and events are flow charted, risks and outcomes are quantified, quality audits are part of normal systems processes, performance is evaluated against reference benchmarks and standards. Shortcomings are corrected (sub. 36, p. 9).

Benchmarking performance enables enterprises to identify and adopt overall best practice approaches. The Australian Manufacturing Council found benchmarking to be one the most important factors distinguishing poor overall business performance from good overall business performance (1994, p. 39).

Many participants have attested to the importance of benchmarking in improving OHS performance. For example, the PACIA stated:

What we have seen is that many of the very poor performers in 1990 have lifted up their game considerably, because they can see that it was possible to have a much better safety record. So this benchmarking activity as a measure is vital I believe for performance improvement (transcript, p. 1897)

All enterprises participating in Worksafe's *OHS Best Practice Program* measure performance internally and most compare this performance with other enterprises. For example, at Herbert Adams:

Key performance indicators are measured on a monthly basis by the department as well as for the plant as a whole ... Comparison is also made with the performance of other companies within the Pacific Dunlop group of companies through statistics produced by Pacific Dunlop's risk management consultants (Worksafe Australia 1992a, p. 15).

Du Pont (Girraween) monitors performance, measures the results of improvements and:

... compares these against other Du Pont plants throughout the world. Through this benchmarking process, it is able to set targets for continuous improvement which will take it beyond competitors' performance towards world class manufacturing (Worksafe Australia 1992a, p. 8).

Worksafe's benchmarking project found that enterprises surveyed considered that benchmarking management processes were more effective than

benchmarking injury outcomes. Andrea Shaw of The Effective Change Consultants explained:

OHS benchmarking has been used in industry as an effective strategy for learning about the processes of OHS management. Use of measures, such as Lost Time Injury Frequency Rates (LTIFRs) as the focus of benchmarking activities was a feature of less successful projects. Most companies surveyed identified difficulties in the comparison of statistics or questioned the value of quantitative measures as valid tools for comparison. In fact, those companies which had undertaken process benchmarking of OHS found the effort worthwhile...Number [for example injury rate] benchmarking did not show them what they had to do to improve (sub. 161, p. 7–8).

F.3 Best practice and OHS best practice

General best practice and OHS best practice are closely related, although not mutually dependent. Business performance and OHS performance are likely to be mutually reinforcing for some enterprises, given the synergies between occupational health and safety and broader workplace management systems, and between occupational health and safety and quality approaches to management.

There is a lack of empirical evidence on whether or not ‘best practice’ enterprises are also ‘OHS best practice’ enterprises.

The Department of Industrial Relations’ Australian Best Practice Demonstration Program, identified 13 general principles emerging from the experiences of enterprises pursuing best practice in Australia. One of these was:

Innovative human-resource policies which include a commitment to Occupational Health and Safety and Equal Employment Opportunity (Department of Industrial Relations 1991, p. 3).

The Department of Industrial Relations’ elaborated on this principle by stating that:

The integration of comprehensive occupational health and safety policies into strategic plans and day to day operations represents sound management practice (Department of Industrial Relations 1991, p. 3).

A study by the Australian Manufacturing Council was equivocal about the proposition that best practice manufacturing enterprises were also best practice in occupational health and safety. It found that in Australia, 63 per cent of leaders (high performing enterprises) reported fewer workplace injuries relative to competitors, compared to 19 percent of laggards (poorer performing). For New Zealand the comparable results were 50 per cent and 27 per cent for leaders and laggards respectively (1994 p. 35).

F.4 Economic significance of OHS best practice

The economic significance of OHS best practice refers to the total costs and benefits (or cost savings) which accrue at the enterprise level, from improved OHS performance. These costs and benefits are a function of:

- the direct costs of workplace incidents, injury, illness and disease;
- the direct costs of proactive prevention activities;
- the direct and indirect wage and salary costs;
- employee turnover costs;
- productivity and quality losses due to absenteeism;
- capital costs related to occupational health and safety; and
- intangible costs associated with occupational health and safety (see Attachment F1).

For a description of these and other classifications of direct and indirect costs associated with occupational health and safety, see Appendix C, Andreoni (1986) and Oxenburgh (1991).

Quantification of costs and benefits

In general, enterprises quantify some of the direct costs of workplace incidents, injury, illness and disease — for example workers' compensation premium costs. However, most other direct costs and indirect costs associated with occupational health and safety are not separately quantified. For example, in regard to manual handling regulations and codes of practice, Deloitte Touche Tohmatsu (1995) found that:

Even in circumstances where a manual handling risk has been reduced through significant expenditure on equipment, such expenditure has not been separately identified as an OHS expense.

No employer was able to provide us with an accurate estimate of the costs incurred through the implementation of the Manual Handling Regulations and/or Codes of Practice.

In fact, where these issues were discussed with full-time OHS practitioners within these organisations they saw no benefit in identifying and highlighting the costs of such activities (1995 p. 20).

A preliminary study of OHS practice and performance at the enterprise level was conducted by the Commission involving:

- BHP Co Ltd;
- Shell Company Australia Limited;

- Esso Australia Ltd; and
- Alcoa Australia Limited.

The primary aim of this study was to examine the economic significance of occupational health and safety at the enterprise level — an area not investigated by most existing studies of occupational health and safety at the enterprise level. Responses from OHS managers of these enterprises suggested that even relatively large and well resourced enterprises did not quantify many of costs and benefits associated with occupational health and safety in their workplaces. However, all the OHS managers stated that there were net benefits arising from ‘good’ occupational health and safety performance at the enterprise level. (A copy of the questionnaire used as part of the preliminary study of OHS practice and performance at the enterprise level, is provided in Attachment F1).

Worksafe’s *OHS Best Practice Program* (1992a) did not rigorously identify the costs and benefits of improved OHS performance in financial terms. However, measures such as workers compensation claims performance, lost time injury frequency rates, absenteeism rates, and general business productivity were used to illustrate the benefits of improving OHS performance.

It is not clear to what extent enterprises, which pursue best practice approaches to occupational health and safety, are driven by economic incentives at the enterprise level, but the fact some enterprises tenaciously pursue OHS best practice suggests that the economic gains of OHS best practice outweigh the economic costs for these enterprises.

F.5 Conclusion

There appears to be broad agreement on what attributes are important to achieving an effective health and safety culture within the workplace, and hence OHS best practice performance. Although the extent to which most enterprise exhibit these attributes is low.

OHS legislation needs to be sufficiently flexible to allow those enterprises with sufficient incentive, to pursue OHS best practice; while also being sufficiently vigorous to motivate those enterprises with inadequate incentive to improve their OHS performance (or at least attain community standards expressed in legislation).

ATTACHMENT F1**A PRELIMINARY STUDY OF OHS PRACTICE AND PERFORMANCE AT THE ENTERPRISE LEVEL**

The following is a copy of the survey sent to:

- BHP Co Ltd;
- Shell Company Australia Limited;
- Esso Australia Ltd; and
- Alcoa Australia Limited.

Introduction

This questionnaire seeks to analyse the development of occupational health and safety systems; track improvements in OHS performance; and analyse the relationship between occupational health and safety and overall business performance.

The following questions relate to a period of development and improvement in OHS systems and performance in your organisation. Section A deals with general information about your organisation; Section B deals with why and how the organisation improved its OHS performance; and Section C deals with the cost savings (and costs) associated with improved OHS performance.

Section A General Information

Q1: Name of the organisation (or division of the organisation being analysed)

Q2: Industry type of core or predominant activity.

Q3: Occupational class of employees employed in core or predominant activity.

Q4: Select a period of analysis, and complete Table 1

Table F1.1 General information

Item	199x-9x	199x-9x	199x-9x	199x-9x	199x-9x
<i>Financial information^a</i>					
operating profit before tax (\$ per year)					
total assets (\$ per year)					
payroll size (\$ per year)					
<i>Other information (miscellaneous)</i>					
number of employees ^b					
ASIC class ^c					
ASOC class ^d					
<i>OHS performance</i>					
indicator of frequency ^e					
indicator of severity ^f					
workers' comp. premium rate (%)					

a As stated in annual financial reports.

b Use the average number of employees over the period, ie monthly average.

c Australian Standard Industrial Classification for the purposes of workers compensation insurance.

d Australian Standard Classification of Occupations for workers compensation insurance.

e The measure used by your organisation to measure the number of injuries, illness and disease per hours worked or per worker. (Please indicate the method and units used).

f The measure used by your organisation to measure the severity of injuries, illness and disease per hours worked or per worker. (Please indicate the method and units used).

Source: Industry Commission.

Section B Why and How the Organisation Improved OHS

B.1 Motivation for change

Q5: When did the organisation consciously commence radical reform to improve its OHS performance?

Q6: What specific set of events or issues motivated management to make this decision? To what degree were the following elements contributing factors? (Attach descriptive information if necessary):

- wider organisational change — for example, pursuit of international best practice or total quality management *per se*;
- business factors — the cost of occupational health and safety and competitive pressures generally;
- OHS legislation — for example, the gradual introduction of performance based legislation;
- an safety incident or set of incidents — for example, a severe work related accident, illness or disease;
- enforcement — workplace inspections or regulatory sanctions of any kind;
- industrial relations — industrial disputes over occupational health and safety or the inclusion of OHS provisions in awards or enterprise agreements;
- awareness and education — promotional activity of any kind; and
- policy of parent company.

B.2 Environment prior to change

Q7: Prior to the decision to improve the organisations OHS performance, why was OHS performance not improved? *For example; ignorance of the costs and benefits of occupational health and safety; or the low priority of occupational health and safety relative to other business concerns.*

B.3 Commercial rationale for change

Q8: Was there any analysis of the expected benefits and costs of improving OHS performance, that is commercial rationale, before embarking on improvement?

B.4 Occupational health and safety systems

Q9: Describe in as much detail possible, your current OHS system(s) (Attach descriptive material as necessary). Give particular regard to the following elements (where applicable):

- OHS policy and planning;
- accountability and incentive structures;
- consultation and participation;
- auditing of systems and outcomes; and
- performance measurement and benchmarking.

Q10: What is the relationship between OHS system(s) and the following business principles (where applicable):

- organisation's vision or mission;
- a strategic plan;
- organisational structure;
- industrial relations;
- human-resource policies;
- suppliers and customers, internal and external;
- innovation in technology, products and processes;
- performance measurement systems and benchmarking;
- environmental management; and
- external relationships.

B.5 Implementation of occupational health and safety systems

Q11: Describe in as much detail possible, the process of implementing the OHS system(s). That is, the steps taken from formulation of goals and objectives, to implementation of action plans. Give particular regard to establishing and maintaining of commitment at all levels of the organisation. (Attach descriptive material if necessary).

Section C The Economic Significance of Improved OHS

Preface

The purpose of this section, is to identify the magnitude of costs (and cost savings) related to occupational health and safety, borne by the employer.

When answering these questions please make note of any assumptions made, or proxies used in the process (see notes at the bottom of each table for guidance).

It is understood that some of the information being requested may not be available, and in some instances virtually unidentifiable to any high degree of accuracy. When this is the case, best estimates will suffice.

Time series data

All questions in this section relate to time series information. Select the period of greatest improvement in the organisation's OHS performance— starting from relatively average (or poor) performance to current performance (1992–93 or 1993–94 financial year). Space for five time periods has been provided, but a minimum of two time periods of information is required. Note that the years for which information is provided do not have to run consecutively.

Boundaries

To keep answers manageable, diverse organisations with many different operations and cost centres (with more than one ASIC and ASOC) should select their core business activity for analysis, ie a group of employees and production activities which belong to one ASOC and ASIC respectively. In instances where resources are shared between establishments, estimates of shares (costs) proportions will have to be made.

C.1 Definitions

Q12: What does your organisation classify as an OHS incident, for example, does it include accidents without any days lost? Does an OHS incident include work related illness and disease in addition to injury? Does an OHS incident include near-misses without consequence? How is 'incident' defined?

C.2 Direct cost information

Q13: Direct costs of occupational health and safety are generally those that are clearly attributable to accidents, illness and disease in the workplace.

Table F1.2 Direct costs of OHS incidents
(\$ per year)

<i>Item</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>
<i>Direct cost of OHS incidents</i>					
workers compensation premium					
finest ^a					
other penalties, eg cease work					
investigation time ^b					
claims management ^c					
rehabilitation costs ^d					
<i>TOTAL direct costs</i>					

- a Any fine or penalty proceeds resulting from a breach of OHS legislation in your jurisdiction.
- b Management/supervisor time spent (in terms of wages/salaries) investigating and reporting on accidents internally, and accompanying external inspectors in their inspection of the workplace.
- c Includes claims processing costs and any legal expenses incurred (including time spent settling disputes).
- d Any costs (not insured for) associated with rehabilitating injured workers, such as reduced work load (in terms of wages/salary), in house facilities etc.

Source: Industry Commission.

Q15: The direct costs of planning and implementing an OHS system(s).

Table F1.3 The direct costs of pro-active prevention activities
(\$ per year)

<i>Item</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>
<i>Planning costs</i>					
management/staff time ^a					
external consultancies ^b					
other					
<i>Total planning costs</i>					
<i>ADD Implementation costs^c</i>					
policy and procedures ^d					
consultation and participation ^e					
risk management ^f					
OHS training and education ^g					
safety equipment and modifications ^h					
extra labour costs ⁱ					
<i>Total implementation costs</i>					
<i>TOTAL direct OHS costs</i>					

- a Estimate management and staff time spent (in terms of wages and salaries) in meetings, conferences etc, planning and setting in place OHS policies and strategies.
- b The cost of consultants contracted to give advice on OHS issues and the cost of any other external sources of advice such as workshops, seminars etc.
- c All *extra* costs associated implementing an OHS system. (Where aspects of OHS systems share expenditures with other workplace programs such as total quality management or the adoption of ISO or AS quality standards, estimate a proportion for OHS expenditure.
- d Estimate the wage and salary cost; and marketing cost of setting OHS policies and procedures in place, eg manuals, internal promotional campaigns etc.
- e Estimate management and staff time spent (in terms of wages and salaries) in OHS committee meetings (or any consultative or participative forums required to maintain OHS systems in the workplace)
- f Estimate management/staff time spent (in terms of wages and salaries) associated with identifying and assessing risks.
- g The costs of conducting training courses in terms of wages and salaries paid to trainers; and management/staff time spent away from normal work duties attending courses.
- h The costs of purchasing safety equipment and the cost of modifications to machinery and equipment (not included as capital losses in table 5).
- i The extra wage and salary costs of any staff employed (on a contract or full time basis) specifically to carry out OHS functions, such as safety auditors, medical officers and health and safety specialists. If newly created positions were filled by existing staff, include any increments in their remuneration.

Source: Industry Commission.

C.3 Labour productivity

Q16: The actual number of productive hours worked each year, that is after planned and unplanned absences have been subtracted.

Table F1.4 Average productive working time
(hours per year)

<i>Item</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>
<i>TOTAL paid time</i>					
<i>Standard Working Year^a</i>					
<i>LESS planned absences:</i>					
vacation time					
statutory holiday time					
maternity leave					
training and study					
<i>Total planned absences</i>					
<i>LESS unplanned absences:</i>					
short term illness and injury ^b					
long term illness and injury ^c					
other ^d					
<i>Total unplanned absences</i>					
<i>TOTAL productive hours per year</i>					

a For total paid hours per employee, use the number of paid days per year, multiplied by standard hours per day (excluding overtime unless a regular part of the working week).

b Less than or equal to 5 days (including normal sick days).

c Greater than 5 days, but only to the extent that the employer is liable to pay wages.

d Loss of production time due to causes such as strikes, absence with no explanation given.

Source: Adapted from the 'Productivity Model' developed by Dr Maurice Oxenburgh (1991).

Q17: The salary and wage costs per year including costs additional to the basic wage and salary.

Table F1.5 Direct and indirect wages and salary cost
(\$ per year)

<i>Item</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>
<i>Direct costs:</i>					
wage paid ^a					
payroll tax					
health insurance					
superannuation					
other ^b					
<i>Total direct costs</i>					
<i>Indirect costs:</i>					
personnel wages ^c					
administration charges ^d					
<i>Total indirect costs</i>					
<i>TOTAL wage costs per year</i>					

a Wage or salary paid directly to the employee inclusive of income tax (excluding overtime unless a regular part of the working week). Also include statutory and vacation holiday pay.

b Any other charges to the wage, obligatory or otherwise, such as non-cash benefits, fringe benefit tax, make-up pay etc.

c This includes all management, supervisor and personnel remuneration.

d Administrative costs include all the non-production, non-salary costs, ie the costs of services associated with all supporting departments eg rent, communications etc. If these costs are shared among production sites, then a proportion of total costs can be used.

Source: Adapted from the 'Productivity Model' developed by Dr Maurice Oxenburgh (1991).

Q18: The cost and number of all employee turnover in the year.

Table F1.6 Employee turnover costs

<i>Item</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>
<i>Employee turnover (number)</i>					
total employee turnover ^a					
employee turnover related to OHS ^b					
<i>Cost to hire employees (\$ per year):</i>					
<i>Recruitment costs</i>					
extra administration ^c					
discussions (union/supervisor, etc)					
marketing ^d					
other					
<i>Starting Costs</i>					
induction and training ^e					
on site work training ^f					
<i>Total costs</i>					
<i>Cost of losing employees (\$ per year):</i>					
administration					
loss of experience and know-how ^g					
loss of production and quality ^h					
<i>Total costs</i>					
<hr/>					
<i>TOTAL turnover cost per yearⁱ</i>					

- a The number of employees who resigned, were terminated or were retrenched.
- b Estimate the number of employees who's leaving was related (directly or indirectly) to occupational health and safety, that is injuries causing incapacity or poor health and safety conditions without incident.
- c This is the cost to administer the induction/employment of new staff including interview time.
- d The cost of using recruitment and/or advertising agencies to procure new employees.
- e The cost of training away from the service or production area.
- f On site training costs include the non-productive (less productive time) of new employees and of supervisors and colleagues who are assisting in the training. Use a proportion of basic wages to estimate.
- g The longer term costs of lower quality and production as a result of the loss of experience and know-how, that is, not recouped after new employees have been trained.
- h Losses as an employee winds down prior to leaving or employees leaving abruptly without immediate replacement.
- i Use the total number of employees as the denominator (not the number turned-over in the period).

Source: Adapted from the 'Productivity Model' developed by Dr Maurice Oxenburgh (1991).

Q19: The productivity and product quality losses suffered as a result of absenteeism.

Table F1.7 Productivity and quality losses due to absenteeism
(\$ per year)

<i>Item</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>
<i>Cost of maintaining output^a</i>					
<i>overtime^b</i>					
<i>over-employment (over staffing)^c</i>					
<i>substitution (purchases)^d</i>					
<i>Total direct costs</i>					
<i>Additional cost:</i>					
<i>lowered production</i>					
<i>reduced quality</i>					
<i>other^e</i>					
<i>Total costs</i>					
<i>TOTAL short fall costs per year</i>					

a A system(s) by which the employer makes up for lost production or service output resulting from short term absenteeism. (Note this is to be distinguished from employing new staff, which is dealt with in the previous table.

b For overtime, use the direct costs of overtime which were incurred as a result of absenteeism, and not overtime which is a regular part of the work organisation, included previously.

c Use the total wages costs of the number of extra employees as a proxy for the productivity loss due to over-employing to cover short-falls in production.

d Products and services purchased to make up the short fall in production due to absenteeism.

e Other costs incurred as a result of a short-fall in production caused by absenteeism, such as lost sales, diminished reputation etc.

Source: Adapted from the 'Productivity Model' developed by Dr Maurice Oxenburgh (1991).

C.4 Capital Productivity

Q20: Losses associated with plant, machinery and equipment as a result of occupational health and safety incidents.

Table F1.8 Capital costs related to occupational health and safety
(\$ per year)

<i>Item</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>	<i>199x-9x</i>
<i>Asset value of capital^a</i>					
<i>Direct capital costs^b :</i>					
machine down time ^c					
re-scheduling production ^d					
hiring of extra equipment ^e					
repair expenses ^f					
lost, damaged or incomplete prod. ^g					
replacement ^h					
<i>Total costs</i>					
<i>Indirect capital costsⁱ :</i>					
management/supervisor time					
employee time					
other					
<i>Total costs</i>					
<i>TOTAL capital loss per year</i>					

- a The value of all plant, machinery and equipment used in the production process (as stated in financial reports).
- b Any reductions in capital productivity directly related to a workplace accident.
- c The value of output the equipment could have produced while it was down (being re-scheduled), in terms of its gross profit margin.
- d Any costs associated with rescheduling of production runs etc. (avoid double counting down time).
- e The cost of hiring extra equipment and having it installed.
- f The cost of repairs on damaged machinery and equipment (parts and labour).
- g The full cost of any product damaged, incomplete or lost as a result of an accident.
- h The cost of replacement machinery and equipment.
- i Any time spent (in terms of basic wages/salaries) by management, supervisors, employees organising or tending to machinery and equipment as a result of an accident.

Source: Industry Commission.

C.5 Intangible costs associated with OHS

Q21: An estimation of costs such goodwill, corporate image, reputation and worker morale etc.

G OVERSEAS REGULATORY APPROACHES

The legal, institutional and industrial relations environment in selected overseas jurisdictions is reviewed in this appendix. It is based upon extracts from a consultancy conducted for this inquiry by Professor Neil Gunningham (Gunningham 1994).¹

The countries considered are the United States (US), the United Kingdom (UK), Sweden, Denmark, and (on identified specific issues) Canada. The principal reasons for this selection are that the two Scandinavian countries have developed particularly innovative approaches to workplace health and safety, the UK is the system on which Australian legislation is modelled, the US has adopted a radically different approach which provides a valuable contrast, and both the US and Canada offer important but very different models of how a federal system might approach workplace health and safety. The basic features of the selected regimes are summarised in Attachment G1.

The principal legislation in each of these countries is: the *Occupational Safety and Health Act 1970* (US) — hereafter referred to as the *OSH Act*; the *Health and Safety at Work Act 1974* (UK) — hereafter *HSW Act*; the *Work Environment Act 1977* (Sweden); and the *Working Environment Act 1975* (Denmark). Canada, like Australia, has not adopted comprehensive national legislation — setting OHS standards and health and safety remains principally a responsibility of the individual provinces.

G.1 Division of responsibilities

The UK, Sweden and Denmark are examples of unitary systems where workplace health and safety is addressed at the national level and all significant legislation is national legislation. As such, they tell us very little about how to achieve the best division of responsibilities between national and state governments. In contrast, both the US and Canada have had to grapple with defining state-federal roles in workplace health and safety, and their experience will be considered below.

In the US, until 1970 workplace health and safety was regulated principally at state level. The Federal Government's involvement was very modest, being limited to federal employees and to a small number of other issues. However,

¹ The full consultancy report is publicly available through the Industry Commission

the inadequacy of state legislation, and in particular of state enforcement, finally led Congress to introduce federal OHS legislation.

In debating the 1970 reforms, Congress found that ‘personal injuries and illnesses arising out of work situations impose a substantial burden upon, and a hindrance to, interstate commerce in terms of lost production, wage loss, medical expenses and disability compensation payments’. Under its powers to regulate interstate commerce, Congress enacted the *OSH Act* to encourage ‘employers and employees in their efforts to reduce the number of occupational safety and health hazards at their places of employment, and to stimulate employers and employees to institute new and to perfect existing programs for providing safe and healthful working conditions’. A primary purpose of the *OSH Act* was to ensure *uniformly* applied standards across the country.

Despite the clear constitutional capacity to regulate workplace health and safety federally under the interstate commerce power, the approach adopted in implementing the *OSH Act* is a form of co-operative federalism, similar to that applied to environmental regulation. This involves a clear demarcation between standards, which are to be set by the federal government, and the administrative responsibility for enforcement and monitoring of those standards, which to a significant extent is delegated to the States by virtue of ‘State plans’. The inducement for the involvement of the states in monitoring and enforcement is financial — they receive substantial federal grants if they participate, whereas if they do not, they lose significant control over their local industry.

Pragmatic reasons, including the fiscal and administrative difficulties of implementing the legislation at federal level, largely explain the federal government’s preference for delegation to the states. Nevertheless, the continuing involvement of the states has been severely criticised in some quarters. For example, Ashford, in his major study of the *OSH Act*, concludes:

The states’ previously poor record in OHS enforcement does not suggest that sufficiently increased worker protection will result from the return of the programs to the states, even though the total occupational health and safety compliance force will be increased somewhat. State takeovers could severely limit the ability of labor unions to act in a watchdog role and hamper their efforts to improve working conditions. Manufacturing concerns with operations in several states may find it difficult to conform uniformly to different state requirements (Ashford 1976, p. 6).

Partly in recognition of this problem, reforms proposed by the Clinton Administration include provision whereby the Occupational Health and Safety Administration (OSHA) would be required to investigate complaints against state plans. Modifications to the procedures for withdrawal of approval of a state plan are also proposed. Nevertheless, it is significant that these proposals

are limited to improving state administration, rather than replacing it with direct federal intervention.

Except where the federal government clearly intends to 'pre-empt' state regulation, the states are at liberty to develop standards which are more stringent than those prescribed under federal legislation, and the proposed reforms would leave states free to impose additional safety and health requirements to protect the general welfare (see further Ballam 1988 and Sand 1992).

In Canada, the basics of constitutional law are largely determined by the principles of the *British North America Act, 1867*, as amended and subsequently consolidated (and now subject also to the constraint of the Charter of Rights and Freedoms). For labour law, including occupational health and safety, jurisdiction is divided between federal and provincial levels of government on the basis of the nature of the activity involved. The federal government has jurisdiction over inter-provincial and international trade, transportation and communications, defence-related industries, and industrial relations in the federal public service. Almost all other employee-related matters fall within provincial jurisdiction.

Although there is some scope for a broader interpretation of federal powers (including the 'peace, order and good government' clause in the constitution, in respect of issues which have an international or inter-provincial dimension) political considerations similar to those operating in Australia largely preclude this option. As a result, workplace health and safety is regulated principally at a provincial level, with the federal role being largely limited to federal employees. In the federal jurisdiction, the *Canadian Labour Code* deals with workplace health and safety. For the most part it is a complete code — similar to the statutes of each province — providing for external enforcement and internal responsibility such as joint health and safety committees at the workplace and rights to refuse dangerous work. Approximately 90 per cent of the Canadian workforce is covered by provincial OHS legislation.

There are some modest examples of co-operative federalism in the workplace health and safety sphere. For example, Ontario provincial inspectors conduct inspections in federally regulated uranium mines and nuclear facilities. Another example is the transportation of dangerous goods, where a federal statute is co-ordinated with statutes in all the provinces, and where the provincial statutes adopt federal regulations, thereby producing a uniform system across the country. There is similar co-operation in the field of chemical 'right to know'.

G.2 Legal responsibilities

In the UK, the approach of the *HSW Act* is to impose broad ranging general duties on both employers and employees. The principal duty imposed on the employer is to ensure 'so far as reasonably practicable the health safety and welfare at work of all his employees'. This duty is further specified as including the provision and maintenance of safe plant and systems of work; safe use, handling, storage and transport of articles and substances; provision of information, training, instruction and supervision; safe access and egress; and the provision of a working environment that is safe, without risks to health and has adequate welfare facilities.

All these duties are qualified by the phrase 'reasonably practicable'. This has been interpreted to mean that the cost of preventive action has to be weighed in the balance against the probability of personal injury occurring and the severity of the injury likely to occur. That is, it implies some form of cost-benefit analysis.

The employer also has a duty not only to provide a safe system of work, but also to prepare a written statement of their general policy on the health and safety at work of their employees. They must also set out the organisation's arrangements in force for carrying out that policy. This provision is intended to dispel apathy (believed by the Robens Committee to be the major cause of accidents at work) and to focus employers' minds directly on workplace health and safety issues and how to address them. As the Robens Committee put it, the policy statement will be 'a frame of reference for positive safety and health activity within the firm, and a stimulus to interest and participation by all personnel'.

Each employee also has a general duty to take reasonable care for his or her own health and safety and of other persons who may be affected by their acts or omissions at work, and to co-operate with other persons to enable those other persons to carry out the statutory duty imposed upon them in respect of health and safety at work. There is also a general duty laid on everybody at work not to interfere with or misuse anything provided in pursuance of any statutory duty connected with health, safety or welfare.

Over and beyond the general duty provisions, there remain in the UK a substantial number of specific and detailed regulations dealing with particular types of hazard (for example, fencing of dangerous machinery), with particular types of operations (for example, construction sites) or substances (for example, *Control of Substances Hazardous to Health and Safety (General Provisions) Regulations, 1992*). Regulations are supplemented, or sometimes replaced, by codes of practice, which are dealt with further below. The employer's duties in

respect of safety representatives and safety committees are also dealt with in a separate section below.

In the US, the *OSH Act* provides that each employer has a specific duty to comply with occupational safety and health standards promulgated under the *OSH Act*. These comprise a myriad of extremely detailed prescriptions concerning most aspects of the workplace. In all cases not covered by specific standards, the employer has a general duty to ‘furnish to each of his employees, employment and a place of employment which are free from recognised hazards that are causing or are likely to cause death or serious physical harm to his employees’. This requirement known as the ‘general duty clause’ is an important ‘backstop’, which has been the basis of many citations issued against employers.

The *OSH Act* also imposes a duty on the employee to comply with OHS standards and all rules, regulations and orders issued pursuant to the Act. However, no mechanism exists under the *OSH Act* to force compliance by employees, with the result that for practical purposes ultimate responsibility for compliance rests with the employer (Ashford 1976, p. 161).

In Sweden, most of legislative standards are also very broadly stated — the *Work Environment Act 1977* being essentially ‘framework’ legislation that outlines systems, techniques and allocates responsibilities for the working environment in general terms. For example, Chapter 2 of the Act states that the ‘work environment shall be kept in a satisfactory state having regard to the technological progress occurring in the community at large’, that ‘work must be planned and arranged in such a way that it can be carried out in healthy and safe surroundings’ and that ‘working premises must be arranged and equipped in such a way as to provide a suitable working environment’. It then goes on to specify requirements in respect of such matters as industrial hygiene, machinery, hazardous substances, personal protective equipment and related matters. As indicated below, regulations (ordinances) may be promulgated to specify in more detail what is required of employers or others under the Act.

In the early 1990s changes were made to the *Work Environment Act* in order to emphasise the employer’s responsibility for workplace health and safety and to define the work environment more broadly to include work systems and psychosocial problems. For example, employees must be given an opportunity to participate in designing their own working situation, and technology, work organisation and job content must be designed so as to avoid physical or mental strain. The employer is made responsible for systematically planning, directing and inspecting working environment efforts (internal inspection), as well as continuously investigating hazards and work injuries. The employer must also carry out job modification and rehabilitation at the workplace.

The responsibility of the employee under the Swedish legislation is to co-operate with the employer in establishing a good working environment, to observe current safety regulations, to use safety devices and exercise the caution required for the prevention of ill-health and accidents.

In Denmark, the *Working Environment Act 1975* imposes broad duties on employers to ensure safe and healthy working conditions, and to ensure that work is performed safely and without risk to health. The more specific duties of the employer include effective supervision, informing employees of any risks of accidents and diseases and providing them with the necessary instruction and training to avoid danger or risk, informing safety representatives and shop stewards of any written communications (for example, improvement notices) issued by the inspectorate, and carrying out tests, examinations and surveys at the request of the inspectorate (*Work Environment Act 1975 Part 4*).

Supervisors are required on behalf of the employer to contribute towards ensuring health and safety within their field of activity, to check the effectiveness of measures to protect health and safety, to take steps to avert danger when they know of faults which may involve risks of accident or disease and to inform the employer if danger arises which cannot be prevented by their intervention on the spot.

The main duty of employees is to co-operate in ensuring that working conditions are safe and without risk to health, and to check the effectiveness of measures taken to promote health and safety. In particular, they must wear protective clothing supplied, obey work procedures, go to training courses and obey hygiene conditions.

It should be noted that general duties are also imposed in most jurisdictions on other persons at the workplace such as controllers or occupiers of premises, and manufacturers and suppliers of substances or equipment.

G.3 Coverage

In the past, coverage under OHS legislation was incomplete. For example, in the UK, the law was inconsistent and incoherent, and the legislation (itself contained in a variety of statutes) only applied to designated premises, processes or activities. As a result, the legislative coverage of the workforce was partial and inadequate and many workers had little or no protection from workplace hazards. This was clearly an undesirable state of affairs, and more recent legislation, not only in the UK, but also in Scandinavia and North America, has adopted the principle that all workers and all workplaces should be covered by OHS legislation.

The Robens Committee recommendations, on which both British and Australian contemporary legislation is based, called for the development of a unified and integrated body of law, and the *HSW Act* in the UK largely implemented this objective. In particular, it established a comprehensive set of duties relating to the basic and over-riding responsibilities of employers, employees, manufacturers and others. These standards protect any person present at or near a workplace, including visitors and members of the public. Some pre-existing legislation with differential coverage did however remain, and the *HSW Act* exempted some sensitive establishments under government control.

In the US, the *OSH Act* applies to any employer who is engaged in a business affecting commerce, either in the US or any territory administered by the US. In doing so, it provides coverage to many employees who were not previously protected by any legislation. State and local government employees are now the only major group not covered, although they must be covered under plans submitted by each state to the extent permitted by its law (see Hirsch 1993). Reforms currently being proposed by the Clinton Administration should rectify this anomaly. Specifically, the *Comprehensive Occupational Safety and Health Reform Bill* would extend the *OSH Act* provisions to state and local government employees.

Similarly, the approach in Denmark and Sweden is to achieve a comprehensive coverage of both the workforce and workplaces. In Sweden, the *Work Environment Act 1977* covers 'every activity in which an employee performs work for an employer's benefit' subject only to exceptions involving work performed on ships and in the employer's home. However, draftees, prisoners and patients are not normally regarded as employees, although they nevertheless receive some protection under the Act. Nevertheless, the general philosophy is that all areas of working life, both in the private and in the public sector, should be covered comprehensively, and this includes not just physical hazards, but also job content, working hours, employee participation in decision-making and the psychosocial aspects of the workplace.

In Denmark, the *Working Environment Act 1975* covers all work undertaken for an employer except some work in the aviation, fishing and shipping industries (which are regulated by other Acts), while certain other types of work such as military service and self-employment are only partially covered. The Act's requirements are perceived as broad and much more comprehensive than previous legislation.

In summary, all jurisdictions under study believe that equity and efficiency dictate that uniform legislation should be implemented to ensure comprehensive occupational health and safety protection for all workers and in respect of all workplaces. This has been substantively achieved in all the jurisdictions under

study although the drafting techniques utilised for this purpose differ somewhat between countries.

G.4 Co-regulation

Workers, as the group most directly affected by work injuries, have an important contribution to make: in identifying the hazards; in co-operating with employers and governments to bring about improved conditions; and on occasion in taking direct action to protect themselves from imminent danger. The law can play an important role in ensuring that workers and their organisations do make those contributions, by giving them enforceable rights, both in setting and legislating standards, and in enforcing them.

In terms of setting and legislating OHS standards, most jurisdictions now adopt a tripartite approach. For example, in the UK, the Health and Safety Commission is the body charged with carrying out the general purposes of the Act, including the replacement of existing enactments and regulations by a new system of regulations and codes of practice. The Commission is comprised of employer representatives, employee representatives, (and also local authority and professional body representatives). The Health and Safety Executive, which advises and assists the Commission and is entrusted with the enforcement function under the *HSW Act*, is also tripartite in nature.

The UK legislation also makes specific provision for worker participation in workplace health and safety through the mechanisms of safety representatives and safety committees. The Robens Committee placed worker involvement high on its list of ways to dispel apathy and recommended that workers 'must be able to participate fully in the making and monitoring of arrangements for safety and health at their workplace'. The creation of rights and roles for safety representatives and safety committees, under the *HSW Act* and regulations, is the main way of implementing this recommendation.

In particular, the *Safety Representatives and Safety Committees Regulations 1977*, gave trade union appointed safety representatives the right to investigate dangerous hazards and occurrences, to investigate worker complaints, to make representations to employers, to carry out workplace inspections, to represent employees in consultations with inspectors, to receive information from inspectors, to attend meetings of safety committees, and to paid time off for training and to perform other functions. Employers are also required to establish a safety committee within three months of being requested to do so, but no specific powers were given to safety committees by the regulations.

The relationship between occupational health and safety and industrial relations contemplated by the UK legislation is complex. The Robens Committee asserted that there was far greater community of interest between employers and employees on workplace health and safety than on most other workplace issues and, therefore, that there was no legitimate role for collective bargaining on workplace health and safety. However, trade unions never accepted this aspect of the Robens Committee philosophy, and in industrial reality there has certainly been collective bargaining on workplace health and safety issues in the UK (Dawson *et al* 1988). Although this reality was barely recognised by the *HSW Act* itself, the 1977 Regulations, promulgated following the election of a Labour Government, took a different approach.

In particular, those regulations gave trade unions the sole right to appoint safety representatives, and also gave them a series of rights (described above) far more extensive than the Robens Committee believed necessary to achieve consensus solutions to workplace health and safety problems. The backdrop to this change of approach was the overall government commitment to the encouragement of collective bargaining, and union recognition and the rights associated with it, as the preferred means of regulating relations between employers and employees. However, under a subsequent government, the exclusive rights given by the regulations to trade unions has resulted in a large (non-unionised) component of the workforce being effectively excluded from the benefits of this aspect of the legislation.

The UK experience of health and safety representatives is summarised by James as follows:

In workplaces where union membership is high, trade unions are well organised and have member support, and management adopts a supportive approach, safety representative and safety committee structures have been found to work well. In other situations a far less satisfactory situation has been found, with only very partial application of the regulations being discovered (James 1992, p. 91 cf Dawson *et al* 1988, p. 85).

The Scandinavian countries have gone still further in terms of involving workers directly in the decision making process. In Sweden, the *Work Environment Act 1977* enshrines the concept that worker control is a critical aspect of a healthy working environment. To strengthen worker influence, safety delegates are given the right to halt dangerous processes pending an investigation by an inspector. They are also given the right to participate in the planning of new premises, devices, work processes, work methods and the use of substances liable to cause ill health or accidents, while employers are required to inform delegates of any changes having significant bearing on conditions in the areas they represent (Tucker 1992, p. 108).

Employers are also required to respond to representations made by safety delegates without delay and, failing a satisfactory resolution, the matter can either be referred to the inspector or to the joint employer–employee safety committee. Additional rights of safety delegates to time off with pay, to training, to freedom from harassment or discrimination, and rights to information are also provided by the 1977 Act.

Joint committees are required in workplaces with 50 or more employees or where employees demand one. Their role is to plan and supervise company safety and health activities. In general, safety committees are expected to strive for consensus in decision-making, but in the event of disagreement, any member may choose to refer an issue to the government inspectorate (Tucker 1992, Korostoff *et al* 1991).

Following the enactment of the 1977 legislation a new Working Environment Agreement was negotiated by the main government, trade union and employer representative bodies. This provided more detailed rules and guidelines for implementing the law. In particular; workers are given a majority of one on safety committees; at least one employer member of the committee must hold a management position in the firm; the committee is to be treated as a decision-making and as an advisory body; and it is given authority over company health services. Unanimous decisions of the committee on budgetary matters are made binding on the company and if unanimity is not achieved, any member can refer a matter to an inspector (Tucker 1992, p. 108).

Employees also have an opportunity to influence health and safety issues through collective bargaining. However, while collective agreements still determine much of the local administration of safety, the basic framework remains that set up by the Act (Korostoff *et al* 1991). The history of co-operation between unions and employers has been influential in shaping health and safety policy and in limiting tensions between the legislation and the outcomes of collective bargaining.

The Swedish experience is that safety delegates and safety committees play an important role in influencing work conditions, and in general, that authority has been well-utilised. The evidence is that the right of safety delegates to stop dangerous work is exercised with restraint and very rarely abused. However, there are concerns that committees, though active, may exercise little influence on production decisions and that they lack the power and authority necessary to assume the responsibility for the safety of the work environment (Tucker 1992).

A further unforeseen and undesirable side-effect of this system has been to encourage and facilitate many employers avoiding direct responsibility for safety issues, and passing the burden instead to the safety delegate (Korostoff *et al* 1991). Given that the employer has both the major responsibility for work

accidents and the greatest ability to prevent them, this trend is a matter of serious concern. Some efforts have been made to reverse it (for example, legislative amendments to make clear that the committee's role is limited to 'participating' in the planning of the safety program), but it is unclear to what extent they have been successful. A fundamental issue remains that of ensuring that health and safety concerns are integrated into the highest levels of the firm's decision-making processes (Tucker 1992, p. 111).

Sweden had also adopted a tripartite approach to the enactment and implementation of health and safety standards. Until 1992, the Directorate of the National Board of Occupational Health and Safety comprised the Director-General, ten other members and two employee representatives. Seven of the members represented the labour market parties. However, private employers withdrew from the Directorate in 1992 and by the Spring of 1993 neither employer nor employee organisations had seats on the Board (Gunningham 1994).

Denmark is in many respects very similar to Sweden in that one of the main aims of the 1975 legislation was to create a system whereby workplaces themselves solve health and safety problems and where the 'social partners' work co-operatively to achieve this. To this end, all workplaces with more than ten employees (twenty in the case of office work) are required to have safety representatives, safety groups and safety committees.

Safety representatives have inspection, information and representation rights, are protected from discrimination, and have rights to time off for training and to submit questions to the inspectorate.

Safety groups (which form the core of the Internal Safety Organisation) must be set up for each department or field of activity. Their roles are to evaluate the acceptability of working conditions; to ensure that necessary instructions are given to employees; to ensure that employees observe safety regulations; to take action against risks arising out of working conditions; to participate in planning and to establish action plans for problem-solving (Environmental Resources Limited for the Commission of the European Communities 1985). They must also check compliance with safety regulations and report and investigate occupational injuries. Each safety group consists of the foreman or supervisor and the employees' safety representatives. The group has power to stop work or work processes so far as is necessary to avert imminent and serious risk to health and safety.

Finally, safety committees must be established in enterprises with twenty or more employees. Their role is to plan, manage, advise on and supervise activities concerning health and safety at the workplace. The duty of the safety

committee is purely advisory and it has no power to make decisions as regards the execution of safety and health measures.

Again, there is a substantial degree of tripartism, with both the Danish Federation of Trade Unions and the peak employer organisation nominating members to sit on the Working Environment Council (which recommends policy changes under the Act), and on the 12 trade safety councils (each of which covers one specific industry sector). This is consistent with the strong Danish tradition for 'involving the social partners in the formulation of new work environment rules' (Arbejdsministeriet 1994).

In contrast, the US's approach to worker participation in workplace health and safety issues has been much more muted. An element of tripartism is evident in that the National Advisory Committee on Occupational Safety and Health, which involved representatives of management and labour, as well as occupational safety and occupational health professionals, and the public. However, there was very little effort to involve workers directly at workplace level (see Hirsch 1993, McGarity and Shapiro 1993). At present:

... the great majority of US employees play no real role in the enforcement of health and safety regulations, and the United States still has by a considerable margin, the worst occupational health and safety rates of western civilised nations (Korostoff *et al* 1991).

The limitations of the US approach, which relies instead on an adversarial strategy and an army of inspectors to identify breaches of the Act and issue citations, is now increasingly recognised (Vogel 1986, Bardach and Kagan 1982). Significantly, the Clinton Administration's proposed reforms to the *OSH Act* seek to involve the workforce directly in workplace health and safety issues in a number of important ways (see also Korostoff *et al* 1991).

First, the Comprehensive Occupational Safety and Health Reform Bill will require employers to establish and maintain safety and health programs to reduce or eliminate hazards and prevent injuries and illness to employees. These programs will include employee education and training. Second, the bill requires employers with 11 or more full-time employees to establish safety and health committees made up of employee representatives and up to an equal number of employer representatives. Third, the bill allows affected employees to more actively participate in Commission proceedings by authorising employee challenges to, and commission review of, penalties and violations. Finally, the bill prohibits employers from penalising an employee for taking *bona fide* health and safety action or for refusing to undertake unsafe work that would expose the employee to a danger of injury or serious impairment to health.

Even under the present law, there is nothing to prevent workers raising workplace health and safety issues in the broader context of collective bargaining and there may be significant benefits in them doing so.

As Ashford puts it:

Collective bargaining has the potential to go far beyond the mandates of the *OSH Act* by obliging employers to interact closely with workers rather than merely complying with loosely enforced and inadequate government standards. The negotiation process enables different local and industry-wide needs to be met, particularly where hazards are extensive. Further, it may move the responsibility for occupational health and safety out of the sole hands of management and thus encourage the participation of workers in the process of controlling technology in the workplace (Ashford 1976, p. 31).

Occasionally, workers in the US have taken advantage of their rights to bargain over occupational health and safety, but the complex nature of the collective bargaining process, and the fear that jobs will be lost if strict OHS standards are introduced, have deterred workers from taking industrial action except in extreme circumstances.

In summary, provisions relating to broad worker participation in workplace health and safety have a long history, particularly in Scandinavia and have been increasingly adopted in the UK. Despite initial employer concern that such provisions might be abused and used as an industrial relations weapon to extract concessions in other areas such as wages, there is little evidence that this has occurred in practice (Carson and Johnstone 1990). On the contrary, there is considerable evidence that, at least in larger workplaces with safety conscious and effective worker organisations, worker participation can play a substantial role in improving workplace health and safety. It is significant that the US, the one country that has not attempted to involve the workforce directly in improving workplace health and safety, is now belatedly contemplating doing so.

G.5 Harmonisation of standards

Of the countries under consideration, only the US and Canada have federal systems and substantive difficulties in harmonising standards, implementing nationally uniform standards and ensuring mutual recognition of regulation. These countries have adopted quite different approaches to resolve these problems.

In the US, the approach taken under the *OSH Act* was to enact legislation at federal level that would apply throughout the country. Accordingly, the United States does not experience major problems of harmonisation, national

uniformity or of mutual recognition within its territorial limits. The most significant difficulties are concerned with uniformity of enforcement and are caused by the delegation of responsibility for administration of the *OSH Act* to individual States by virtue of State plans.

In contrast, occupational health and safety legislation in Canada is still largely a provincial responsibility, giving rise to similar problems of harmonisation and uniformity as beset Australia. In response to these problems, there have been some efforts to achieve national harmonisation in respect of specific issues. These have been initiated largely for reasons of cost and efficiency (for example, to pool resources and reduce duplication). In particular, employers and unions operating in more than one jurisdiction indicated that they could operate more effectively under a more uniform set of standards and procedures. Signature of the North American Free Trade Agreement has also encouraged a move towards common standards.

In 1992, the OHS harmonisation project was developed as a co-operative inter-governmental and tripartite initiative, for the purpose of achieving greater harmonisation in OHS standards and procedures across Canadian jurisdictions (OHS Harmonisation Secretariat 1993). At present, principles and a consultation process for the harmonisation initiative are being developed.

The most significant steps towards national harmonisation achieved to date are:

- The role of national standards produced by voluntary associations which are incorporated by reference into law (Gunningham 1994). A number of occupational health and safety acts and regulations refer to codes of standards for equipment such as fuel-fired heating equipment, personal protective equipment and ladders.
- The Workplace Hazardous Materials Information System (WHIMIS) which was developed by a tripartite committee with representation from industry, labour and both levels of government. WHIMIS is implemented by complementary federal and provincial (territorial) legislation. Specifically, the federal government passed legislation to require suppliers of workplace materials to provide labels and material safety data sheets as a condition of sale or import into Canada, while provincial and territorial governments have enacted legislation requiring employers to maintain the labels and to ensure employees have access to the material safety data sheets, and to provide education and training.
- In respect of international harmonisation, an in principle agreement to harmonise toxic substance standards upwards, has been introduced in Ontario. This involves a search of certain foreign jurisdictions which meet specified criteria. Where those jurisdictions have lower permitted

exposure levels for a specified substance, the intention is to regulate to similarly reduce exposure levels in Ontario. The process is bipartite, and where no agreement is reached, the Minister will determine whether exposure levels will be lowered.

In the European context, the European Union's (EU) 'framework' directive for the *Introduction of Measures to Encourage Improvements in Safety and Health of Workers*, should also be noted. This furthers the policy of a single European act, encouraging improvements in health and safety of workers through 'the harmonisation of conditions in this area, while maintaining the improvements made'. It lays down a series of principles that employers in each of the member countries should apply in developing protective and preventive measures. These include giving priority to the avoidance, rather than the control of risk and the importance of combating risk at source rather than through ameliorative measures (see further, Eberlie 1990). The five 'daughter' Directives cover workplace conditions, safe use of work equipment, manual handling, personal protective equipment and display screen equipment.

Each Directive creates a legal relationship between the EU and the member state that 'is binding as to the result achieved upon each member state to which it is addressed, but shall leave to the national authorities the choice of form and methods'. It was originally believed that Directives did not provide any directly enforceable rights for individuals. However, a series of landmark decisions of the European Court of Justice have established that private individuals can enforce Directives in certain circumstances, which now arguably extend to employees in the private sector (Gunningham 1994).

Different member (or prospective member) countries are responding in different ways to EU directives. For example, Sweden is in the process of amending about 55 of its 210 or so statutory instruments, and repealing more than 70. Denmark is also placing a high priority on achieving uniform work environment rules at a high level and regularly amends rules made under the *Working Environment Act 1975* in order to comply with European Union Directives. In contrast, the UK position is to avoid disrupting the basic framework of the 1974 legislation and to minimise change to the most recent regulations while continuing to modernise out-dated regulations in a manner consistent with the EU Directive. In introducing regulations to meet the relevant Directive the intention is generally not to go beyond it, so as to minimise the impact of alterations in the law.

There remain doubts about both the efficiency and the adequacy of the pattern created by the single European Act, which gives primary responsibility to the home country regulator, subject to an agreed floor of minimum standards, while retaining also the residual right of the host country to regulate in the 'public

interest'. Arguably this may leave consumers inadequately protected, potentially lead to a deregulatory 'race to the bottom' and create uncertainty for producers due to continued regulatory diversity and lack of clarity as to the permissible scope of host country rules protecting the 'general good' (Katz 1993).

G.6 Enforcement powers

In the UK, the main burden of enforcing the 1974 Act falls on the Health and Safety Executive, with day to day enforcement being the responsibility of the Health and Safety Inspectorate (with some non-industrial sector responsibilities being devolved onto local authorities). The inspectors have extensive powers to enter premises, to examine equipment or materials, to conduct investigations, and to require information and the disclosure of documents.

In order to enforce the Act, the inspectors have two major powers. First, they may institute a prosecution, alleging a specific breach of a relevant statutory provision. Where the court finds the breach proven, it may impose criminal sanctions on the wrongdoer (who may be an individual or a corporation). The main sanctions stipulated in the legislation are fines (which in the Crown Court may be any amount the court thinks just) or, in respect of a limited class of serious breaches, imprisonment for up to two years either in addition to or instead of a fine. Proceedings may be brought against any director, manager or similar officer of a body corporate where an offence committed by that body was either committed with their consent or connivance or was attributable to their neglect.

The second major enforcement power involves the service by an inspector of a form of administrative notice requiring an unsatisfactory situation to be remedied. There are two forms of notice: the improvement notice and the prohibition notice. An improvement notice may be issued if there is a contravention of any of the relevant statutory provisions, directing a person to remedy the fault within a specified time. This notice would be served on the person who is deemed to be contravening the law, or it can be served on any person on whom responsibilities are placed, whether that person is an employer, an employed person, or a supplier of equipment or materials. A prohibition notice may be issued where an activity or state of affairs involves a risk of serious personal injury. The notice will direct the recipient to cease the activity either immediately or within a specified period. The notice can be served on the person undertaking that activity, or on the person in control of it at the time the notice is served (Drake and Wright 1983).

In practice, prosecutions are reserved for serious breaches, usually of a flagrant, wilful or reckless nature, and the inspectorate rely much more heavily on prohibition and improvement notices or on informal counselling in the large majority of circumstances. Prohibition and improvement notices have proved to be perhaps the Robens Committee's most successful innovation. They are preventative in nature, and allow action to be taken swiftly without the necessity of going to court. Appeals are rare and infrequently successful. In contrast to the cumbersome and time consuming nature of the traditional prosecution process, these orders offer a quick and simple mechanism capable of being used on the spot to deal with serious hazards immediately they are detected. Moreover, such orders are particularly flexible in that they do not necessarily specify how an employer may come into compliance, thereby leaving her or him free to choose the least cost method and avoid unnecessary expense (see further Dawson *et al* 1988).

Employees, employee representatives and individuals do not have any enforcement powers under the Act. Specifically, section 38 makes it clear that no employee, trade union official or interested private person may directly set the law in motion to secure compliance with the provisions of the Act, health and safety regulations or pre-existing legislation. That is (apart from civil action brought by an injured employee for breach of existing statutory provisions or the regulations) employees and their representatives cannot take part directly in the enforcement of the Act.

One further power under UK legislation deserves mention, namely the power of the courts to make a compensation order requiring a convicted person to pay compensation for any personal loss, injury or damage resulting from the offence (*Powers of the Criminal Courts Act 1973*).

In Sweden, there is provision for mandatory sanctions, principally in the form of fines. However, until recently, Swedish inspectors perceived their role to be almost exclusively that of giving practical advice and of encouraging unions and management to co-operate on workplace health and safety issues. As a result, these sanctions were only issued after unreasonable and persistent delay by the employer or the refusal to implement a change that had been ordered by the labour inspectorate (Fleischauer 1983, p. 298). Inspectors also have the power to issue a written order to correct a violation (work environment improvement notices) but again, such orders in the past were issued only rarely. In practice, Swedish inspectors usually gave verbal instructions at the end of the conference with the employer that concludes their inspection, without resorting to any legally binding formal enforcement mechanism (Fleischauer 1983).

However, a shift is taking place with the inspectorate becoming increasingly willing to use coercive measures when it identifies troublesome workplaces.

These measures include the use of injunctions or prohibitions in order to achieve necessary modifications to the work environment (Gunningham 1994). Significantly, the percentage of inspections leading to the issuing of improvement orders has increased appreciably, due partly to improved procedures for the prioritisation and selection of inspection projects (Gunningham 1994).

In Denmark, the Labour Inspectorate, like inspectorates elsewhere, has very broad powers of entry into premises and of inspection. As is also common elsewhere, the inspectorate operates to a large extent informally, offering verbal instruction and advice to employers and using its considerable powers of discretion. Where the Labour Inspectorate does decide to take formal action, there are three options available.

First, the inspector can issue a written notice (an improvement notice) requiring that matters contravening the law be remedied within a specified period of time. Second, an inspector may issue a prohibition notice requiring that immediate steps be taken to avoid imminent and serious risk to the health and safety of employees. Finally, an inspector may choose to prosecute, particularly where there has been a failure to comply with an inspector's decision. Sanctions include imprisonment, although this is most unlikely in practice.

In the US, the *OSH Act*, like the UK legislation, gives broad powers to inspectors to enter and inspect premises, and question any person concerning possible violations. However, in most other respects, the United States approach to enforcement differs substantially from that of the UK and Scandinavia.

Inspectors have very little discretion, and in most circumstances are required to take some formal action once they have identified a violation, thereby reducing the possibility of an inspector being 'captured' or corrupted by employers. In contrast, under the UK and Scandinavian approaches, inspectors rely heavily on informal interaction with employers, seeking to function primarily through education and persuasion rather than prosecution, which is often treated as a last resort, and almost as an admission of failure (Dawson *et al* 1988, Hawkins 1984).

In the US, after completing an inspection, an inspector (called the 'compliance officer') must report any violation to the Area Director, who decides whether to issue a citation. In some cases the inspector may issue it directly. Notices may be issued in lieu of citations for *de minimus* violations. A citation must describe the specific nature of the violation and establish a reasonable time for the abatement of the condition in violation. Within a reasonable time after issuing the citation, the Secretary of Labor must notify the employer of any proposed penalties. The employer then has a limited period within which to contest the

proposed penalties or citation. If the employer fails to do so, the violation and the assessed penalty are deemed final and are not subject to review. If the employer contests the citation or penalty, the case goes to an administrative law judge. The judge's decision is final unless one of the three members of the Review Commission exercises a statutory right of directing review.

The *OSH Act* provides a range of monetary penalties for violation of the Act or rules promulgated under it. Any employer who fails to correct a violation for which a citation has been issued within the period permitted for abatement, may be assessed a civil penalty for each day the abatement continues. Wilful or repeated violations merit the highest penalties. Lesser penalties are provided if an employer receives a citation for a serious violation (that is, where there is a serious probability that death or serious bodily injury could result). Even if a violation is specifically determined not to be of a serious nature, an employer will still receive a civil penalty. An employer who commits a violation that results in the death of an employee is liable to a fine or up to six months imprisonment or both (see generally Cimino 1992, Hirsch 1993).

The Clinton Administration's proposed reforms would authorise OSHA to require an employer to take immediate action where a hazard poses an immediate danger of death or serious injury, with fines of up to \$50 000 per day for failure to take corrective action. Criminal penalties would be increased to a maximum of ten years in gaol for wilful violations that cause death, and a maximum of five years for those that cause serious bodily injury. The bill also establishes a new minimum penalty of \$1000 for each serious violation and directs that this money be used to increase funding for the OSHA program.

The *OSH Act* does allow employees to become involved in administrative and enforcement activities under the Act. In particular it gives employees the right to request an OSHA inspection, to accompany an OSHA inspector, to obtain a review if an inspector fails to issue a citation after employees have formally alleged violations, to appeal if the abatement period appears unreasonably long, and a number of ancillary rights.

Most contemporary specialists on regulatory strategy point to the limitations of both pure deterrence and pure compliance strategies, and argue, on the basis of considerable evidence from both Europe and the US, that a judicious mix of compliance and deterrence is likely to be the optimal regulatory strategy (for a comprehensive review of the literature see Kagan 1994 (Gunningham 1994)).

ATTACHMENT G1

SUMMARY OF ARRANGEMENTS

Table G1 Legal institutional and industrial relations arrangements

<i>Arrangements</i>	<i>UK</i>	<i>Denmark</i>	<i>Sweden</i>	<i>US</i>	<i>Canada^a</i>
Federal system	no	no	no	yes	yes
Regulation at national level	yes	yes	yes	yes	no
Enforcement at national level	yes	yes	yes	b	no
Comprehensive duties imposed on employers	yes	yes	yes	yes	yes
Comprehensive coverage of workplaces	yes	yes	yes	yes	yes
Written OHS policy required	yes	no	no	no	
Tripartisan vs enactment/implementation of legislation	yes	yes	no	no	
Extensive powers of safety reps	yes	yes	yes	no	
Reps power to stop dangerous work	no	yes	yes	no	c
Safety committees required	yes	yes	yes	no	
Safety groups required	no	yes	no	no	
<i>Enforcement powers</i>					
imprisonment	yes	na	na	yes	
finest	yes	yes	yes	yes	
citations	no	no	no	yes	
improvement and prohibition notices or equivalent	yes	yes	yes	no	

a Canada — where occupational health and safety is regulated at the provincial level — is only included in this study for a limited number of system arrangements.

b In state-plan States, enforcement is at the national level. In other States, enforcement is administered by a national body.

c Individual workers have this right.

na Not available.

Source: Industry Commission consultancy into legal, institutional and industrial relations environment governing OHS in other countries.

H NATIONAL UNIFORMITY

A key aspect of the Commonwealth Government's microeconomic reform agenda has been the removal of differences in regulations seen as retarding Australia's economic performance. In pursuing this goal, success has been achieved in areas including mutual recognition of standards in occupations and sale of goods, food standards, regulation of non-bank financial institutions and agreements on heavy and light vehicles.

The drive for national uniformity in OHS regulatory regimes has taken place on two fronts:

- efforts at making the various OHS Acts consistent across jurisdictions; and
- attempts at achieving uniformity in the area of OHS requirements.

Most effort has been directed at achieving uniformity in the area of requirements through the development of model regulations and codes of practice. The National Occupational Health and Safety Commission (NOHSC) has had the responsibility for developing these 'national standards'.

H.1 Background to national uniformity

In May 1990, the Labour Ministers' Conference (Ministers of Labour Advisory Committee — MOLAC) agreed to the following resolution:

Commonwealth, State and Territory Governments agree that, as far as practicable, any standards endorsed by NOHSC will be accepted as minimum standards and implemented in the State/Territory jurisdiction as soon as possible after endorsement.

In August 1990, NOHSC initiated a Standards Development Action Plan.

In November 1990, the *Review of Occupational Health and Safety in Australia*, prepared by a Committee to the Minister for Industrial Relations, declared:

It is imperative that, if Australia is to improve its OHS performance, the question of uniformity in OHS legislation and standards be seriously addressed. States need a mechanism to develop and declare standards in areas of urgent priority and their legislation provides them with the charter to do this. However, a number of submissions to the Review have pointed out the problems resulting from different regulations in each State and the '... desperate need to have uniform legislation and standards throughout the country' (Review C'ttee to the Minister for Industrial Relations 1990, p. 25).

In April 1991, NOHSC convened a National Standards Summit to review the standard setting process. Following the summit, the Minister for Industrial

Relations commissioned reports on legislative impediments to national uniformity (Grabosky 1991) and OHS training (Else 1992). The Grabosky report identified three main legislative impediments:

1. The extraordinary complexity of the standards development process, involving, as it does, tripartite consultative processes in nine separate jurisdictions, any of which may be subject to influence by political or industrial relations factors. This is compounded, under the Australian federal system, by a strong ethos of state autonomy and by the frequency of electoral cycles.
2. Resistance to change in general, especially by vested interests. Individuals may regard local adoption of national standards as leading to procedural changes which might entail a loss of personal status. Similarly, deference to national uniformity may be perceived as devaluing a state or territory department or commission which would otherwise be in full control of its agenda. It should be noted that such attitudes may reflect the honest conviction that one's ability to develop and implement standards efficiently and effectively in one's own jurisdiction is superior to any capability which might be achieved under national direction or co-operation.
3. The idiosyncratic nature of parliamentary procedure and practice in states and territories of Australia. The various legislative processes within the Australian federal system are accompanied by an array of local drafting conventions. These incompatibilities can inhibit timely adoption of national standards (Grabosky, 1991, p. 5).

In November 1991, Labour Ministers agreed to achieve national uniformity in OHS standards by the end of 1993.

To achieve uniformity, MOLAC was given responsibility for the standardisation of the parent Acts, while NOHSC was to be responsible for the development of subordinate instruments (regulations and codes of practice) to a stage where they could be uniformly adopted.

Later that month, Premiers and Chief Ministers agreed to 'direct relevant Ministers to achieve nationally uniform OHS standards and uniform standards in relation to dangerous goods by the end of 1993' (Premiers and Chief Ministers 1991).

In April 1992, Ministers of Labour endorsed a comprehensive strategy developed by NOHSC to achieve national uniformity in key standards by the end of 1993.

In its preliminary submission to this inquiry, the Department of Industrial

Relations (DIR) stated:

National standards are intended to lead to regulatory reform through fewer regulations which are cost-effective; performance-based; written in plain English; with a nationally consistent approach to hazards which can be supported by codes of practice allowing flexibility and innovation.

The strategy involves the States and territories reviewing their existing 'prescriptive' regulations and replacing them with nationally consistent 'performance-based' regulations. Once new regulatory models and codes of practice are declared by NOHSC it is up to governments to adopt and implement them under their OHS legislation, replacing existing 'prescriptive' regulations (sub. 74, p. 7).

The priority (on a descending scale from 1 to 12) given to individual standards is shown in Attachment H1.

The seven first-order priorities are:

- plant;
- certification of users and operators of industrial equipment;
- workplace hazardous substances;
- occupational noise;
- manual handling;
- major hazardous facilities; and
- storage and handling of dangerous goods.

Worksafe Australia estimates that these hazards account for between 65 and 80 per cent of all compensated occupational injuries and diseases (sub. 50, p. 6).

DIR stated:

The priority hazard areas, identified by governments, employers and unions as accounting for a majority of work-related accidents, injury and disease, were: occupational back pain; noise-induced hearing loss; occupational skin disorders; safe management of chemicals; occupational cancer; and mechanical equipment injury (sub. 74, p. 7).

As at August 1995, NOHSC had declared five of the seven first-order priority national standards:

- plant;
- certification of users and operators of industrial equipment;
- workplace hazardous substances;
- occupational noise; and
- manual handling.

Other ('non-first' priority) national standards declared by NOHSC cover asbestos, synthetic mineral fibres, occupational overuse syndrome, lead, and a standard on carcinogens (see Attachment H2).

H.2 Standards development process

The steps undertaken by Worksafe Australia in drawing up National Standards are as follows.

- An expert working group (EWG) is formed, consisting of tripartite representatives plus some specialist expertise. Their task is to produce an initial draft standard.
- The draft then goes to a Standards Development Standing Committee (SDSC), consisting of three employer and union representatives, plus a representative from the Commonwealth, each of the States and Territories and a representative from Standards Australia. Their task is to be satisfied with the draft and to make alterations where necessary.
- The draft is then released for public comment for a period of three months.
- A review group (similar in make-up to the expert working group) then takes on board the public comments.
- The draft is then referred back to the SDSC which finalises the draft standard.
- NOHSC then declares the standard.

Alongside this procedure, an Economic Impact Assessment (EIA) is undertaken.

The entire process takes from two to five years. The time it has taken to declare some of the priority national standards (see Table H1).

After a standard is declared, each jurisdiction is expected to request their Parliamentary Counsel to draft legislation with identical content, according to the drafting styles and conventions of the various jurisdictions. However, in most cases, further consultation takes place at the State and Territory level before national standards are implemented in the various jurisdictions. As the

Department of Industrial Relations noted:

Currently States and Territories have, under their OHS legislation, tripartite OHS commissions or similar bodies to develop and advise on standards and codes of practice. This can add a further and duplicative layer with implications for:

- the time it takes from the decision to develop a national standard to its adoption and implementation by governments;
- agreements reached at national level, as employers, unions and governments may seek to re-open debate; and
- national uniformity, as there remains the possibility of individual governments not adopting, or revising, a national standard ... (sub. 74, p. 8).

Table H.1 Timelines for development of selected national standards

<i>Standard</i>	<i>Decision to develop</i>	<i>Release for public comment</i>	<i>Review of public comment completed</i>	<i>Economic impact assessment noted</i>	<i>Declared</i>
Plant	July 92	December 92	September 93	June 94	June 94
Noise	July 86	September 89 ¹	June 90	August 91	March 92
Certified operators	December 90	January 92	May 92	na	December 92
Hazardous substances	November 88	March 90	December 90	December 93 ²	December 93

a The noise standard was one of the first to be addressed by Worksafe Australia. Its development trialed a number of the processes subsequently used to develop standards in other areas.

b A tripartite review of the national model regulations and national code of practice on hazardous substances to consider possible impediments to implementation was undertaken in 1992 prior to an EIA being conducted.

na Not available.

Source: Information supplied to the Industry Commission by Worksafe Australia.

Some participants argued that delays in implementing national standards create confusion for industry. The MSB Hunter Port Authority said:

A particular concern is the time taken from the recognition for the need for a national standard and the adoption of that standard by the various States or Territories. A relevant example within New South Wales is the proposed Hazardous Substances Regulation based on the National Standard. There seems to be an overwhelming need to streamline the process in adopting a national standard at the State level. This delay negatively impacts on industry by sending conflicting messages on the significance and importance of these proposals in reducing or eliminating risk within the workplace (sub. 87, p. 3).

H.3 Progress in adopting national standards

None of the five priority national standards declared so far has been implemented in all jurisdictions. However, most jurisdictions that have not yet adopted the standards are planning to do so.

- The manual handling standard has been adopted in all jurisdictions except the Commonwealth (implementation expected in September 1995).
- The noise standard has been adopted in all jurisdictions except New South Wales (expected second half of 1995), South Australia (expected April 1996), Tasmania (expected January 1996), and Western Australia (under review).
- The national standard for certification for users and operators of industrial equipment has been adopted in all jurisdictions except New South Wales (expected 1995), and Tasmania (expected January 1996).
- The workplace hazardous substances standard has been adopted in all jurisdictions except New South Wales (expected 1995), the Commonwealth (expected 1995), Victoria (early 1996), Western Australia (expected 1995–96), and Tasmania (expected January 1996).
- The plant standard has been adopted in all jurisdictions except the Commonwealth (expected September 1995), New South Wales (expected May 1996), Western Australia (expected 1995–96), and Tasmania (expected January 1996) (DIR, sub. 395, attachment 4.1).

Based on information provided by the Department of Industrial Relations, the main variations from the agreed national standards are likely to be as follows.

- In South Australia, the noise standard of 85dBA will apply only to new plant and equipment while existing plant and equipment will have an exposure limit of 90dBA. In Western Australia, public comment is being sought on a 90dBA exposure limit for the next three years, followed by 85dBA.
- In New South Wales, the content and format of Material Safety Data Sheets will be mandated in regulations, whereas in other jurisdictions the requirements will be referenced in codes of practice.
- In Victoria, South Australia and New South Wales, the plant standard will exclude manually powered and held tools. In New South Wales, the exclusion applies only to the office environment (sub. 395).

The progress in implementing non-priority standards is shown in Attachment H2. The form of incorporation of priority national standards in each jurisdiction (in the principal Act, as regulations, a code of practice, or guidance material) is shown in Attachment H3.

H.4 Other approaches to national uniformity

In 1991 three options were advanced as options for the achievement of national uniformity of OHS standards.

Option 1. The Commonwealth Government would exercise its constitutional power to assume responsibility for the regulation of occupational health and safety.

Option 2. Based on the recent model for the development and adoption of uniform national food standards, States and Territories would reach an agreement with the Commonwealth Government to automatically adopt standards approved by majority vote of a Commonwealth/State/Territory Ministerial Council.

Option 3. A systematic, rationalised process of standards development and implementation would be developed cooperatively, with Worksafe Australia playing the central role in coordinating the most efficient division of labour and allocation of resources across the Federal system (Grabosky, 1991, p. 4).

Option 3 was chosen to achieve national uniformity.

Australia has already accumulated useful experience from the process of removing regulatory differences across jurisdictions in a number of areas other than workplace health and safety. These models may offer lessons for approaching the task of eliminating the differences in OHS requirements across Australia.

Road transport

Prior to the establishment of the National Road Transport Commission (NRTC) in January 1992, line agencies had for many years generally been moving towards uniformity in the regulation of road vehicles and road use. A major problem arose however as the uniformity agreed to at the national level through the Australian Transport Advisory Council (ATAC) was jeopardised at the jurisdictional level by interest groups and inconsistent implementation and administration between jurisdictions. The general result was the continuation of non-uniformity.

A principle reason for the establishment of the NRTC was to provide a structure for the achievement of uniformity, or at least consistency, in the regulation of road transport. The NRTC is achieving uniformity through template legislation.

The template legislation method requires that the national legislation is passed in one jurisdiction and then adopted as law in all the jurisdictions. However, as the philosophy and approach to regulation differs between States and Territories, this must be resolved before the adoption of national law.

The approach being pursued by the NRTC is to develop legislation in modules to ensure achievement of some reform prior to the introduction of a single piece

of legislation. These modules will be integrated into one comprehensive piece of legislation at a later date.

The progress in achieving national uniformity has been slower than expected and it is unclear at this stage how successful the NRTC strategy has been. Difficulties have been experienced by both the NRTC and jurisdictions in the consultation process to obtain agreement on the content of legislation and regulations.

The legal drafting task is not insignificant because national laws have to be drafted and existing State and Territory laws must be adapted to enable integration with the national law. Agreement, or at least consultation, is required with Parliamentary Counsels in all jurisdictions, in addition to consultation on technical matters.

National Food Authority

Another approach to achieving national uniformity of standards was adopted by the National Food Authority (NFA). In this case, the major reforms of institutional structures were agreed to prior to Special Premiers' Conferences (SPCs), although formal agreements were signed at the SPCs of October 1990 and July 1991. At the latter conference State and Territory Governments agreed to adopt, without variation, food standards established by the NFA.

Thus, the task of standards development resides with the NFA, which develops standards in consultation with industry, consumer representatives and State and Territory authorities. Following a process of wide public consultation, the NFA makes a recommendation to the National Food Standards Council (NFSC), that is comprised of Commonwealth, State and Territory Ministers. The NFSC has the responsibility for declaring national food standards, which is formally done by publishing new standards or amendments to existing standards in the Commonwealth Government Gazette. The formal agreements require States and Territories to take legislative or other necessary steps to adopt, or incorporate by reference, any standards approved by a majority of the NFSC.

A key element in this process is the constraint of 12 months placed on the NFA to draft and implement each standard.

National companies and securities legislation

A formal agreement between the Commonwealth, State and Territory Governments provides for the automatic adoption of national companies and securities legislation as a means of ensuring uniformity.

The legislative framework for this scheme entailed the Federal Parliament enacting corporations law for the Australian Capital Territory (ACT), which was then adopted automatically by the other States and Territories through enabling legislation. Section 7 of each State and Territory Act adopts the ACT corporations law 'as in force for the time being'. Thus, amendments to the relevant ACT law apply automatically in the States and the Northern Territory. Section 8 provides for the adoption of the corporations regulations of the ACT in a similar manner.

Non-bank financial institutions

Concerns about the fragmented system of regulation for non-bank financial institutions (NBFI) were highlighted by the failure of a major NBFI. This gave increased priority to regulatory reform in this area. The Special Premiers' Conference (SPC) process provided the ideal vehicle for State Governments to pursue reform of the NBFIs on a national and uniform basis.

Reforms were built on the work of an inquiry established prior to the commencement of the SPC processes. Template legislation (Queensland being the host State for the NBFI legislation) was used to implement a two-tier approach of a State-based system of prudential supervision with national co-ordination of uniform prudential standards and practices. The new scheme commenced on schedule on 1 July 1992.

Participants' views

Many inquiry participants agreed on the benefits of nationally consistent approaches to regulation of work health and safety. However, views differed on how this should be achieved.

Pacific BBA Ltd said that:

organisations with manufacturing locations throughout Australia would greatly benefit from uniform legislation enabling greater compliance and ability to share across interstate boundaries (sub. 185, p. 1).

The Sydney Hospital Occupational Health and Safety Service supports the need for national consistency of OHS regulation (sub. 122, p. 2).

Blundstone Pty Ltd said that:

The case for uniformity of regulations covering the use of PPE [personal protective equipment] is overwhelming. People frequently move across state borders in the course of their work. Companies issuing PPE to employees in various states will not be faced with differing requirements. Manufacturers, and particularly distributors, of PPE will not face confusion in specification and supply, particularly against national contracts (sub. 213, p. 2).

The National Standards Commission expressed concern that mutual recognition legislation may lead to the acceptance of lower or conflicting standards, citing the example of safety footwear. It emphasised the importance of mandatory national standards, and the desirability of harmonising these with international standards (sub. 204).

W.D and H.O.Wills Ltd considered that the main costs of non-uniform State and Territory OHS regulations concern the time taken to recognise where there are differences, prepare for the change across the whole company, implement the changes and then provide a review process that ensures that the company meets all the requirements. For this reason, it considers it more effective to refer to one Federal set of guidelines (sub. 232, p. 2).

National Acoustic Laboratories considered it important for all states and territories to implement the national standard on occupational noise (sub. 12, p. 12).

The NSW Workers Compensation Self Insurers' Association supports the creation of a national OHS authority to administer a single OHS regime for all workplaces. The authority would incorporate Worksafe Australia and all state and territory OHS agencies, including inspectorates (sub. 18, p. 1).

The Australian Nursing Federation said that because many in the nursing profession work in a variety of States and Territories throughout their working lives, the variation between state and territory OHS legislation is confusing to them (sub. 60, p. 2).

However, the Australian Defence Force (sub. 131) and the Returned and Services League of Australia (sub. 46) argued that the defence forces should be able to determine their own OHS requirements, due to the hazardous nature of their work, and demands on the sector in providing for national security.

H.5 Commonwealth powers to make OHS legislation

Workplace health and safety has long been regarded as the responsibility of the States and Territories. Each of the States has statutes dealing with OHS, and in

some States and Territories, the present statutes are the latest in a line of legislation that began early in this century.

There is no specific power in the Australian Constitution to support similar Commonwealth legislation, although various heads of power provide some scope for Commonwealth action in this field. The Commonwealth Parliament has enacted eleven statutes relating to health and safety at work — establishing NOHSC and dealing with the health and safety of Commonwealth employees.

s.51(i) Overseas and inter-state trade and commerce

Section 51(i) of the Constitution provides the Commonwealth Parliament with the power to legislate with regard to ‘trade and commerce with other countries, and among the states’. The Commonwealth could rely on this power to legislate with respect to the health and safety of persons involved in overseas or inter-state trade and commerce, or the incidents of such trade and commerce. For example, legislation could be made with respect to the health and safety of people involved in inter-state transport and shipping industries, and those involved in activities incidental to that industry, such as the loading and unloading of vehicles and vessels.

s.51(xx) Corporations

The Commonwealth has power under s.51(xx) to make laws with respect to ‘foreign corporations, and trading or financial corporations formed within the limits of the Commonwealth’. The scope of this power is not entirely certain. However, it would appear that the Commonwealth has power to regulate the employment relationship between a corporation and its employees, including matters of workplace health and safety.

s.122 Territories and s.52(i) Commonwealth places

The Commonwealth has, under s.122 of the Constitution, a plenary power to make laws, including those related to OHS, for the government of the Territories.

The Commonwealth also has power, under s.52(i) of the Constitution, to make laws with respect to ‘the seat of government of the Commonwealth, and all places acquired by the Commonwealth for public purposes’.

Commonwealth employees

The Commonwealth also has power to make laws with respect to the workplace health and safety of its employees, including persons employed by Commonwealth departments, statutory authorities, government business enterprises and the Australian Defence Force. The *Occupational Health and Safety (Commonwealth Employment) Act 1991* was enacted in reliance on the Commonwealth's powers in this regard.

s.51 (xxxvii) Reference by the States

The Commonwealth has power under s.51(xxxvii) of the Constitution to make laws with respect to matters referred to the Commonwealth by a State or States. However, a law made in reliance on that power only extends to those States which refer power to the Commonwealth or which later adopt the law.

s.51(xxix) External Affairs

The High Court has established that the Parliament's power to make laws with respect to external affairs extends to legislation implementing Australia's international treaty obligations.¹

The Commonwealth Government could rely on the external affairs power of the Constitution to legislate for a national OHS regime if it ratified International Labour Organisation (ILO) conventions relating to OHS, specifically Convention No. 155. This would follow the precedent established by the *Industrial Relations Reform Act 1993*, of relying on the external affairs power of the Constitution to legislate for employee entitlements derived from ILO conventions.

ILO Conventions

The ILO adopted Convention No. 155, the Occupational Safety and Health Convention, 1981 (ILO Convention No. 155), on 22 June 1981. On the same day, the ILO adopted Recommendation No. 164, the Occupational Safety and Health Recommendation, 1981 (Recommendation No. 164). Australia is not yet a party to ILO Convention No. 155, though it could become a party provided it had the legislation and practice in place to enable compliance.

¹ The *Tasmanian Dam case* (1983) 158 CLR 1, and later cases such as *Richardson v Forestry Commission* (1987) 164 CLR 261 and *Queensland v The Commonwealth* (1989) 167 CLR 232.

The Attorney General's Department has advised the Commission that ratification of ILO conventions, specifically Convention No. 155, would probably support the Commonwealth making OHS laws of general application. The key provisions of the Convention in this regard are articles 4 and 8, which state:

Article 4

1. Each Member shall, in the light of national conditions and practice, and in consultation with the most representative organisations of employers and workers, formulate, implement and periodically review a coherent national policy on occupational safety, occupational health and the working environment.
2. The aim of the policy shall be to prevent accidents and injury to health arising out of, linked with or occurring in the course of work, by minimising, so far as is reasonably practicable, the causes of hazards inherent in the working environment.

Article 8

Each member shall, by laws or regulations or any other method consistent with national conditions and practice and in consultation with the representative organisations of employers and workers concerned, take such steps as may be necessary to give effect to Article 4 of this Convention (ILO Convention No. 155, pp. 2-3).

The full text of ILO Convention No. 155 is reproduced in Attachment H4.

The Commonwealth Government has an Interdepartmental Ratification Taskforce which examines unratified ILO conventions and assesses their suitability for ratification. A number of conventions assessed for ratification directly relate to workplace health and safety, and include the following:

- Guarding of Machinery 1963;
- Working Environment (Air Pollution, Noise and Vibration) 1977;
- Occupational Health Services 1985;
- Safety and Health in Construction 1988; and
- Prevention of Major Industrial Accidents 1993.

These conventions and their accompanying recommendations amount to a comprehensive coverage of measures for the prevention of, and protection against, hazards in the working environment.

It is usual practice for Australia not to ratify an ILO convention until all relevant jurisdictions — Commonwealth, State and Territory — have established compliance with the provisions of the convention, and all relevant governments have formally agreed to ratification. Furthermore, consultations with the peak employer and worker organisations are carried out before ratification is undertaken (Minister for Industrial Relations, *Hansard*, 20 October 1994, as cited by Hon. E. G. Whitlam, sub. 189).

Participants' views

Most participants appeared to agree with the principles on which ILO Convention No. 155 are based. However, most employer associations oppose unilateral ratification by the Commonwealth Government because of the potential use of the external affairs powers to pass OHS legislation.

For example, the Northern Territory Chamber of Mines and Petroleum said that it:

... supports the continuation of the Territory's (and States) rights and is opposed to the Commonwealth Government extending its power under the Constitution to set and enforce national standards (sub. 152, p. 2).

Of those who participated, most unions support ratification of Convention No. 155. For example, the Australian Services Union considers that ratification of the OHS ILO Conventions relating to OHS would form the basis for minimum national OHS standards (sub. 159, p. 2).

ATTACHMENT H1

NATIONAL UNIFORMITY TASKFORCE PRIORITY STANDARDS

Table H1 National Uniformity Taskforce priority standards

<i>A</i>	<i>Common standards</i>	<i>Priority status</i>
1.0	<i>Manual handling</i>	
1.1	Manual handling hazards	4
1.2	Occupational overuse syndrome	4
2.0	<i>Physical hazards</i>	
2.1	Noise	5
2.2	Vibration	12
2.3	Radiation	12
3.0	<i>Workplace hazardous substances</i>	
3.1	Workplace hazardous substances	3
3.2	Carcinogens	3
3.3	Asbestos	3
3.4	Lead	3
3.5	Synthetic mineral fibres	3
4.0	<i>Biological hazards</i>	
4.1	Biological hazards (including HIV and Hepatitis B)	12
5.0	<i>Plant</i>	
5.1	Plant	1
5.2	Registered plant	1
5.3	Hazards from plant under pressure	1
5.4	Hot plant	1
5.5	Plant with moving parts	1
5.6	Mobile plant	1
5.7	Electric hazards of plant	1
5.8	Hazards from plant which use laser light	1
5.9	Hazards from plant designed to lift or move people, equipment or materials	1
5.10	Manually powered plant	1
6.0	<i>Working environment</i>	
6.1	Lighting	7
6.2	Heat/cold	7
6.3	Workplaces and their precincts (for example, amenities, access or egress)	7

<i>B</i>	<i>Hazardous work</i>	<i>Priority status</i>
1.....	Work in confined spaces	8
2.....	Isolated work.....	10
3.....	Demolition work	9
4.....	Building work	9
5.....	Excavation work (including tunnels, trenches)	9
6.....	Foundry work.....	9
7.....	Welding.....	10
8.....	Work at heights (including prevention of falls)	9
9.....	Work under water (including occupational diving).....	8
10.....	Abrasive blasting	10
11.....	Major hazardous installations	6
12.....	Electroplating	10
13.....	Spray painting	8
14.....	Work on or near vehicle thoroughfares and public roadways	9

<i>C</i>	<i>Certified occupations</i>	<i>Priority issues</i>
1.....	Industrial equipment and plant (for example, scaffolding, rigging, crane and hoist operations, load shifting equipment, boiler and pressure vessel operations).....	2
2.....	Hazardous work operations (for example, asbestos removalists, welders and pest control operators).....	8

<i>D</i>	<i>Emergency/incident reporting</i>	<i>Priority issues</i>
1.....	Emergency procedures (fire safety)	11
2.....	Accident (incident) recording and reporting	10
3.....	Accident investigation.....	10
4.....	OHS first aid	12

Note: The number 1 has the highest priority and number 12 the lowest priority.

Source: Worksafe Australia, *National Uniformity for Occupational Health and Safety Standards: Policy and Procedures*, developed by the National Uniformity Taskforce, August 1992, Part 2 'Occupational Health and Safety Standards Framework', pp.3-4.

ATTACHMENT H2

ADOPTION OF NATIONAL STANDARDS

Table H2 Adoption of non-priority national standards

<i>Document (year declared)</i>	<i>C'wealth</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>SA</i>	<i>WA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>
Asbestos Code of Practice (1988)	D	D	UC	D	D	D	P	D	D
Synthetic Mineral Fibres Standard (1990)	D	D	a	P	D	D	UC	D	D
Code of Practice (1990)	D	D	a	UC	D	D	UC	D	D
Ethylene Oxide in Sterilisation/Fumigation Code of Practice (1991)	D	P	a	UC	UC	D	UC	C	D
Exposure Standards (1990)	P	P	P	P	UC	D	UC	D	D
Timber Preservatives Code of Practice (1989)	D	D	a	C	D	NR	UC	NR	D
Vinyl Chloride (1990) Code of Practice (1990)	D	D	a	C	b	D	UC	b	b
Biological Hazards HIV/AIDS Code of Practice (1992)	D	P	a	C	C	UC	C	D	P
Workplace Injury and Disease Recording Standard (1990)	D	D	D	NR	D	C	c	D	NR

a Used as guidance material.

b Not a significant hazards.

c Other consistent provisions apply.

Note: D=Adopted, P=planned, UC=Under consideration, NR=Not recommended.

Source: Department of Industrial Relations (based on information current at 3 November 1994).

ATTACHMENT H3

INCORPORATION OF PRIORITY NATIONAL STANDARDS IN LEGISLATION

Table H3.1 National Standard for Occupational Noise (declared March 1992)

<i>Section of standard</i>	<i>C'wealth</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>
<i>Method of adoption or intended adoption</i>									
Noise standard									
85dB(A)	R	R	R	R	R	R ^a	R	R	R
140 dB(lin)	R	R	R	R	R	R	R	R	R
Employer duties									
employee exposure not above standard	R	R	R	R	R	R	R	R	R
engineering controls	R	C	R	C	R	R	R	R	R
administrative controls	R	C	R	C	R	R	R	R	R
personal hearing protection (AS1269 and AS1270)	R	C	R	R	C	R	R	R	R
Employees duties									
comply with controls	R	C	R	A	C	R	R	R	R
use PHP	R	C	R	A, C	C	R	R	R	R
Duties of designers, importers, suppliers									
noise emission from plant	R	C	R	C	C	R	R	R	A, C
provision of information	R	C	R	A, C	R	R	R	R	A, C

a 85dBA (designers), 90dBA (employers).

Note: A = Act, R = regulations, C = code of practice.

Source: Department of Industrial Relations (sub. 395).

Table H3.2 National Standard for Manual Handling (declared October 1989)

<i>Section of standard</i>	<i>C'wealth</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>
<i>Method of adoption or intended adoption</i>									
Employer duties									
design	R	R	R	C	C	R	R	R	R
assess risk	R	R	R	C	R	R	R	R	R
risk factors	R	R	R	C	C	R	R	R	C
control risk	R	R	R	C	C	R	R	R	R
redesign	R	R	R	C	C	R	R	R	R, C
employee training	R	R	R	C	A, C	R	R	R	R, C
other	R	R	R	C	C	R	R	R	R, C
consultation	R	R	R	C	A, C	R	R	R	R
Employee duties									
use training provided	R	R	R	A	A, C	R	R	R	A, R

Note: A = Act, R = regulations, C = code of practice.

Source: Department of Industrial Relations (sub. 395).

Table H3.3 National Standard for Certification of Users and Operators of Industrial Equipment (declared December 1992)

<i>Section of standard</i>	<i>C'wealth</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>
<i>Method of adoption or intended adoption</i>									
Basis for issuing cert.	R	R	R	R	R	R	R	R	R, O
Eligibility for certificate	na	R, O	R	R	R	R	R	R	R, O
Application/assessment conditions	na	R	R	R	R	R	R	R	R, O
Application/assessment process	na	R, O	R	R	R	R	R	R	R, O
Details on certificate	na	R	R	R	R	R	R	R	R, O
Transition arrangement	R	R, O	R	R	R	R	R	R	A, O
Suspension/cancellation	R	R	R	R	R	R	R	R	R
Appeals	R	R	R	R	R	R	R	R	R
Exemptions	R	R	R	R	R	R	A	R	R
Supervised/accredited training	na	R	R	R	R	R	R	R	R, O
Assessment	na	R, O	R	R	R	R	R	R	R, O
Registers	na	O	O	R	R	R	O	R	O
Certificate classes	na	R, O	R	R	R	R	R	R	R
Scope of competency standards	na	R	R	R	R	R	R	R	R

Note: A = Act, R = regulations, C = code of practice.

na not applicable.

Source: Department of Industrial Relations (sub. 395).

Table H3.4 National Standard for Control of Workplace Hazardous Substances (declared December 1993)

<i>Section of standard</i>	<i>C'wealth</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>
<i>Method of adoption or intended adoption</i>									
Objective	R	R	^a	R	R	R	O	R	A
Scope/Application	R	R		R	R	R	R	R	A
Classification	R	R		R	R	R	R	R	R
Suppliers' duties									
provide information	R	R		R	R	R	R	R	R
disclose ingredients	R	R		R	R	R	R	R	R
Employers' duties									
provide information	R	R		R	R	R	R	R	R
prohibition of scheduled substances for specific purposes	R	R		R	R	R	R	R	R
induction/training	R	R		R	R	R	R	R	R
assessment	R	R		R	R	R	R	R	R
control	R	R		R	R	R	R	R	R
monitoring	R	R		R	R	R	R	R	R
health surveillance	R	R		R	R	R	R	R	R
record keeping	R	R		R	R	R	R	R	R
Employees' duties	R	A, R		A	R	R	R	A, R	R
Public authorities/emergency services	R	R		A	R	R	R	R	O
Transitional arrangement	R	R		R	R	R	R	R	R
Schedule 1	R	R		A	R	R	R	R	R
Schedule 2	R	R		O	R	R	R	R	R
Schedule 3	R	R		A	R	R	R	R	R

^a Regulations are being developed.

Note: A = Act, R = regulations, C = code of practice.

Source: Department of Industrial Relations (sub. 395).

Table H3.5 National Standard for Plant (declared June 1994)

<i>Section of standard</i>	<i>C'wealth</i>	<i>NSW</i>	<i>Vic</i>	<i>Qld</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>
<i>Method of adoption or intended adoption</i>									
Scope	R	R	R	C	A	R	R	R	A
Hazard identification, assessment and control	R	R	R, C	C	R	R	R	R	R
Designer's duties	R	R	R, C	C	R	R	R	A, R	A, R
Manufacturer's duties	R	R	R, C	C	R	R	R	A, R	A, R
Importer's duties	R	R	R, C	C	R	R	R	A, R	A, R
Supplier's duties	R	R	R, C	C	R	R	R	A, R	A, R
Installers/erectors' duties	R	R	C	C	R	R	R	A, R	A, R
Employer's duties	R	R	R, C	C	R	R	R	A, R	A, R
Owner's duties	na	R	a	C	R	R		A, R	A, R
Self-employed duties	na	R	R, C	C	R	R	R	A, R	A, R
Employee duties	R	R	R, C	C	R	R	R	A, R	A, R
General requirements: hazard identification, assessment and control	R	R	C	C	R	R	R	R	C, O
Registration of design	R	R	R	C	R	R	R	R	R
Registration of items of plant. Notification of compliance.	R	R	R	C	R	R	R	R	R
Exemptions	R	R	R	C	A, R	A	A	R	R
Appeals	R	R	O	C	A, R	A	A	A, R	R
Schedule 1	R	R	R	C	R	R	R	R	R
Schedules 2 and 3	R	R	C	C	R	R, C	R	R	R, C

a Public safety legislation.

Note: A = Act, R = regulations, C = code of practice, O = other (for example, guidance).

Source: Department of Industrial Relations (sub. 395).

ATTACHMENT H4

ILO CONVENTION NO. 155

International Labour Organisation

Convention No. 155

Convention concerning Occupational Safety and Health and the Working Environment ²

The General Conference of the International Labour Organisation,

Having been convened at Geneva by the Governing Body of the International Labour Office, and having met in its Sixty-Seventh Session on 3 June 1981, and

Having decided upon the adoption of certain proposals with regard to safety and health and the working environment, which is the sixth item on the agenda of the session, and

Having determined that these proposals shall take the form of an international Convention,

adopts this twenty-second day of June of the year one thousand nine hundred and eighty-one, the following Convention, which may be cited as the Occupational Safety and Health Convention, 1981:

PART I. SCOPE AND DEFINITIONS

Article 1

1. This Convention applies to all branches of economic activity.
2. A Member ratifying this Convention may, after consultation at the earliest possible stage with the representative organisations of employers and workers concerned, exclude from its application, in part or in whole, particular branches

² Date of coming into force: 11 August 1983.

of economic activity, such as maritime shipping or fishing, in respect of which special problems of a substantial nature arise.

3. Each Member which ratifies this Convention shall list, in the first report on the application of the Convention submitted under article 22 of the Constitution of the International Labour Organisation, any branches which may have been excluded in pursuance of paragraph 2 of this Article, giving the reasons for such exclusion and describing the measures taken to give adequate protection to workers in excluded branches, and shall indicate in subsequent reports any progress towards wider application.

Article 2

1. This Convention applies to all workers in the branches of economic activity covered.

2. A Member ratifying this Convention may, after consultation at the earliest possible stage with the representative organisations of employers and workers concerned, exclude from its application, in part or in whole, limited categories of workers in respect of which there are particular difficulties.

3. Each Member which ratifies this Convention shall list, in the first report on the application of the Convention submitted under article 22 of the Constitution of the International Labour Organisation, any limited categories of workers which may have been excluded in pursuance of paragraph 2 of this Article, giving the reasons for such exclusion, and shall indicate in subsequent reports any progress towards wider application.

Article 3

For the purpose of this Convention —

(a) the term ‘branches of economic activity’ covers all branches in which workers are employed, including the public service;

(b) the term ‘workers’ covers all employed persons, including public employees;

(c) the term ‘workplace’ covers all places where workers need to be or to go by reason of their work and which are under the direct or indirect control of the employer;

(d) the term ‘regulations’ covers all provisions given force of law by the competent authority or authorities;

(e) the term 'health', in relation to work, indicates not merely the absence of disease or infirmity; it also includes the physical and mental elements affecting health which are directly related to safety and hygiene at work.

PART II. PRINCIPLES OF NATIONAL POLICY

Article 4

1. Each Member shall, in the light of national conditions and practice, and in consultation with the most representative organisations of employers and workers, formulate, implement and periodically review a coherent national policy on occupational safety, occupational health and the working environment.

2. The aim of the policy shall be to prevent accidents and injury to health arising out of, linked with or occurring in the course of work, by minimising, so far as is reasonably practicable, the causes of hazards inherent in the working environment.

Article 5

The policy referred to in Article 4 of this Convention shall take account of the following main spheres of action in so far as they affect occupational safety and health and the working environment:

(a) design, testing, choice, substitution, installation, arrangement, use and maintenance of the material elements of work (workplaces, working environment, tools, machinery and equipment, chemical, physical and biological substances and agents, work processes);

(b) relationships between the material elements of work and the persons who carry out or supervise the work, and adaptation of machinery, equipment, working time, organisation of work and work processes to the physical and mental capacities of the workers;

(c) training, including necessary further training, qualifications and motivations of persons involved, in one capacity or another, in the achievement of adequate levels of safety and health;

(d) communication and co-operation at the levels of the working group and the undertaking and at all other appropriate levels up to and including the national level; and

(e) the protection of workers and their representatives from disciplinary measures as a result of actions properly taken by them in conformity with the policy referred to in Article 4 of this Convention.

Article 6

The formulation of the policy referred to in Article 4 of this Convention shall indicate the respective functions and responsibilities in respect of occupational safety and health and the working environment of public authorities, employers, workers and others, taking account both of the complementary character of such responsibilities and of national conditions and practice.

Article 7

The situation regarding occupational safety and health and the working environment shall be reviewed at appropriate intervals, either over-all or in respect of particular areas, with a view to identifying major problems, evolving effective methods for dealing with them and priorities of action, and evaluating results.

PART III. ACTION AT THE NATIONAL LEVEL

Article 8

Each Member shall, by laws or regulations or any other method consistent with national conditions and practice and in consultation with the representative organisations of employers and workers concerned, take such steps as may be necessary to give effect to Article 4 of this Convention.

Article 9

1. The enforcement of laws and regulations concerning occupational safety and health and the working environment shall be secured by an adequate and appropriate system of inspection.
2. The enforcement system shall provide for adequate penalties for violations of the laws and regulations.

Article 10

Measures shall be taken to provide guidance to employers and workers so as to help them to comply with legal obligations.

Article 11

To give effect to the policy referred to in Article 4 of this Convention, the competent authority or authorities shall ensure that the following functions are progressively carried out:

- (a) the determination, where the nature and degree of hazards so require, of conditions governing the design, construction and layout of undertakings, the commencement of their operations, major alterations affecting them and changes in their purposes, the safety of technical equipment used at work, as well as the application of procedures defined by the competent authorities;
- (b) the determination of work processes and of substances and agents the exposure to which is to be prohibited, limited or made subject to authorisation or control by the competent authority or authorities; health hazards due to the simultaneous exposure to several substances or agents shall be taken into consideration;
- (c) the establishment and application of procedures for the notification of occupational accidents and diseases by employers and, when appropriate, insurance institutions and others directly concerned, and the production of annual statistics on occupational accidents and diseases;
- (d) the holding of inquiries, where cases of occupational accidents, occupational diseases or any other injuries to health which arise in the course of or in connection with work appear to reflect situations which are serious;
- (e) the publication, annually, of information on measures taken in pursuance of the policy referred to in Article 4 of this Convention and on occupational accidents, occupational diseases and other injuries to health which arise in the course of or in connection with work; and
- (f) the introduction or extension of systems, taking into account national conditions and possibilities, to examine chemical, physical and biological agents in respect of the risk to the health of workers.

Article 12

Measures shall be taken, in accordance with national law and practice, with a view to ensuring that those who design, manufacture, import, provide or transfer machinery, equipment or substances for occupational use:

- (a) satisfy themselves that, so far as is reasonably practicable, the machinery, equipment or substance does not entail dangers for the safety and health of those using it correctly;

(b) make available information concerning the correct installation and use of machinery and equipment and the correct use of substances, and information on hazards of machinery and equipment and dangerous properties of chemical substances and physical and biological agents or products, as well as instructions on how hazards are to be avoided; and

(c) undertake studies and research or otherwise keep abreast of the scientific and technical knowledge necessary to comply with subparagraphs (a) and (b) of this Article.

Article 13

A worker who has removed himself from a work situation which he has reasonable justification to believe presents an imminent and serious danger to his life or health shall be protected from undue consequences in accordance with national conditions and practice.

Article 14

Measures shall be taken with a view to promoting in a manner appropriate to national conditions and practice, the inclusion of questions of occupational safety and health and the working environment at all levels of education and training, including higher technical, medical and professional education, in a manner meeting the training needs of all workers.

Article 15

1. With a view to ensuring the coherence of the policy referred to in Article 4 of this Convention and of measures for its application, each Member shall, after consultation at the earliest possible stage with the most representative organisations of employers and workers, and with other bodies as appropriate, make arrangements appropriate to national conditions and practice to ensure the necessary co-ordination between various authorities and bodies called upon to give effect to Parts II and III of this Convention.

2. Whenever circumstances so require and national conditions and practice permit, these arrangements shall include the establishment of a central body.

PART IV. ACTION AT THE LEVEL OF THE UNDERTAKING

Article 16

1. Employers shall be required to ensure that, so far as is reasonably practicable, the workplaces, machinery, equipment and processes under their control are safe and without risk to health.
2. Employers shall be required to ensure that, so far as is reasonably practicable, the chemical, physical and biological substances and agents under their control are without risk to health when the appropriate measures of protection are taken.
3. Employers shall be required to provide, where necessary, adequate protective clothing and protective equipment to prevent, so far as is reasonably practicable, risk of accidents or of adverse effects on health.

Article 17

Whenever two or more undertakings engage in activities simultaneously at one workplace, they shall collaborate in applying the requirements of this Convention.

Article 18

Employers shall be required to provide, where necessary, for measures to deal with emergencies and accidents, including adequate first-aid arrangements.

Article 19

There shall be arrangements at the level of the undertaking under which —

- (a) workers, in the course of performing their work, co-operate in the fulfilment by their employer of the obligations placed upon him;
- (b) representatives of workers in the undertaking co-operate with the employer in the field of occupational safety and health;
- (c) representatives of workers in an undertaking are given adequate information on measures taken by the employer to secure occupational safety and health and may consult their representative organisations about such information provided they do not disclose commercial secrets;
- (d) workers and their representatives in the undertaking are given appropriate training in occupational safety and health;
- (e) workers or their representatives and, as the case may be, their representative organisations in an undertaking, in accordance with national law

and practice, are enabled to enquire into, and are consulted by the employer on, all aspects of occupational safety and health associated with their work; for this purpose technical advisers may, by mutual agreement, be brought in from outside the undertaking; and

(f) a worker reports forthwith to his immediate supervisor any situation which he has reasonable justification to believe presents an imminent and serious danger to his life or health; until the employer has taken remedial action, if necessary, the employer cannot require workers to return to a work situation where there is continuing imminent and serious danger to life or health.

Article 20

Co-operation between management and workers and or their representatives within the undertaking shall be an essential element of organisational and other measures taken in pursuance of Articles 16 to 19 of this Convention.

Article 21

Occupational safety and health measures shall not involve any expenditure for the workers.

PART V. FINAL PROVISIONS

Article 22

This Convention does not revise any International Labour Conventions or Recommendations.

Articles 23-30: Standard final provisions.

I LEGISLATIVE APPROACHES

Over the past decade, all jurisdictions have introduced Robens-style occupational health and safety (OHS) legislation. Nevertheless, significant differences remain between legislation impinging on workplace health and safety in the States, Territories and the Commonwealth.

This appendix summarises the main features of OHS and related legislation in each of the jurisdictions. In particular it will examine the nature of OHS legislative arrangements as they currently exist, and where appropriate, where they appear to be heading. A detailed examination of alternative regulatory approaches is contained in Appendix L. The focus of this appendix is on the role of legislation, regulation and codes of practice as they relate to the prevention of work related injury, illness and disease.

The traditional role of OHS legislation was to make the failure to observe legislated minimum health and safety standards an offence. In contrast, current legislative approaches follow the recommendations of the Robens Report (1972).

In 1970 the United Kingdom (UK) Government appointed a committee of inquiry into safety and health at work, chaired by Lord Robens. The 1972 report of the Robens Committee had a significant impact on approaches to OHS legislation in the UK. Because Australian OHS legislation had evolved from the UK legislation, the Report was also influential in Australia.

The Robens Committee's recommendations were directed toward two main objectives:

One main objective of reform of the statutory arrangements should be the creation of a more unified and integrated system to increase the effectiveness of the state's contribution to safety and health at work. But reform is also needed to meet the criticism we have made ... concerning the effect of too much law of the wrong type upon the attitudes and actions of employers and workpeople. This points to a second and related objective of the greatest importance. *The most fundamental conclusion to which our investigations have led us is this. There are severe practical limits on the extent to which progressively better standards of safety and health at work can be brought about through negative regulation by external agencies. We need a more effectively self-regulating system* [Emphasis in original] (1972, p. 12).

The various jurisdictions throughout Australia have, in recent years, enacted legislation aimed at implementing the fundamental approaches recommended by Robens (see Appendix L for an assessment and critique of the Robens approach).

I.1 Approaches to OHS legislation in Australia

Since 1972, and particularly during the 1980s, every jurisdiction in Australia has enacted some form of Robens legislation. Although OHS legislation in each jurisdiction differs to varying degrees, in both substance and detail, there remain some important common elements which reflect the Robens approach.

The style of occupational health and safety legislation in Australian jurisdictions involves a principal Act, that requires all persons involved (including manufacturers of plant, employers and employees) to take responsibility for occupational health in a broad respect. The principal Act is supported by detailed requirements which specify many particular areas of responsibility.

In recent years there has been a move away from detailed prescriptive legislation towards so-called performance-based legislation, with a single principal Act in each jurisdiction outlining the duty of care of all parties. Subordinate legislation (regulation) is then made under the statute to expand on particular requirements in specific areas. This regulation has also been supplemented by codes of practice designed to advise workplace parties on how to comply with regulations and the duty of care.

Duty of care

A duty of care is a legal responsibility. Duties of care are central to all OHS legislation in Australia, requiring all workplace participants to take ‘practicable’ steps to ensure workplace health and safety. The duties set out in the various OHS Acts codify responsibilities that have always existed under common law. These duties have not been diminished by the shift to so-called performance-based requirements.

The duties of care in OHS Acts are limited by ‘practicability’ (or words to that effect). To carry out a duty as far as is practicable means the degree of risk in a particular activity or environment should be balanced against control measures. As the risk increases it is reasonable to increase substantially the time, effort and cost devoted to reducing or eliminating that risk.

A detailed examination of the notion of ‘duty of care’ is included in Appendix L.

Risk identification, assessment and control

In order to be effective, a legislative approach that relies on assigning responsibility for workplace health and safety through duties of care needs to be

accompanied by practical guidance for workplaces on how to achieve good safety and health outcomes. In order to address the hazards in the workplace, employers need to follow a process of risk identification, assessment and control needs.

The modern approach in drafting OHS legislative provisions and codes of practice is to require risk identification, assessment and control as the foundation of particular provisions. The manual handling code, the plant safety code and the hazardous substances code, for example, all involve the application of this approach.

Sanctions

Inspectors and investigators functioning under the various OHS Acts have the power to enforce the provisions of those Acts. The enforcement provisions are numerous and varied, and enable not only monetary penalties but also withdrawal of registration or licence where appropriate and in the most serious cases, can result in imprisonment. To date, penalties relating to imprisonment have never been invoked.

All jurisdictions, except Western Australia and the Northern Territory, have provision for monetary fines to be expressed in penalty units or divisions rather than in dollar amounts.

A more detailed examination of enforcement arrangements is contained in Appendix M.

Codes of practice

Codes of practice are designed to advise employers and employees of acceptable ways of achieving compliance with OHS legislation. They are usually designed to support requirements in statutes and regulations. Most codes are ‘voluntary’ — compliance with the code is not mandatory. However, if codes are incorporated into legislation compliance becomes mandatory.

In general, a code of practice achieves legal status only when approved by the Minister responsible for a particular jurisdiction. A jurisdiction may develop its own codes of practice, or, where convenient, adopt a national code and have it approved under the relevant Act — for example, where a national code declared under s.38 of the *National Occupational Health and Safety Commission Act 1985* is adopted under a State, Territory or Commonwealth Act.

An approved code of practice does not have the same legal force as legislation or subordinate legislation (regulations). A person or business cannot be

prosecuted for failing to comply with an approved code of practice. However, in proceedings for contravention or failure to comply with the OHS legislation, failure to observe an approved code of practice may be admissible as evidence.

For example, in proceedings in Victoria, where it is alleged that a person breached a provision of the Act or the regulations, a relevant approved code of practice is admissible as evidence, although a breach of the code is not of itself an offence. In South Australia, where in proceedings for an offence against the Act it is proved that the defendant failed to observe a provision of an approved code of practice dealing with the matter in respect of which the offence is alleged to have been committed, the defendant is, in the absence of proof to the contrary, to be taken to have failed to exercise the standard of care required.

I.2 Commonwealth

The *National Occupational Health and Safety Commission Act 1985* (NOHSC Act) established the National Occupational Health and Safety Commission (NOHSC). The *Occupational Health and Safety (Commonwealth Employment) Act 1991* (the OHS (CE) Act) promotes the health and safety of persons employed by the Commonwealth and Commonwealth authorities, and for related purposes.

The Commonwealth also maintains a number of specific OHS statutes and regulations related to air and sea navigation; the main one's being the *Air Navigation Act 1920*, the *Navigation Act 1912* and a number of associated regulations.

The *Coal Industry Act 1946*, through s.15, gives the Commonwealth Coal Industry Board the power to issue OHS references to New South Wales Coal Board inspectors.

The National Occupational Health and Safety Commission Act 1985

The *National Occupational Health and Safety Commission Act 1985* (the NOHSC Act) established the National Occupational Health and Safety Commission (NOHSC). NOHSC is a tripartite body established by the Commonwealth Government to develop, facilitate and implement a national OHS strategy. The objects of the Act are:

- the development among the members of the community of an awareness of issues relevant to occupational health and safety matters and the facilitation of public debate and discussion on such issues;

- the provision, in the public interest, of a forum by which representatives of the Government of the Commonwealth, the Governments of the States and of employers and employees may consult together in, and participate in the development and formulation of policies and strategies relating to, occupational health and safety matters; and
- the provision of a national focus for activities relating to occupational health and safety matters.

In the carrying out of its responsibilities NOHSC operates under the name of Worksafe Australia, and has played a central role in the reform of OHS legislation, particularly in encouraging the shift from detailed prescription to more performance-based requirements. Section P.2 of Appendix P discusses the role of NOHSC in detail.

Commonwealth employees

The *Occupational Health and Safety (Commonwealth Employment) Act 1991* (the OHS(CE) Act) has its aims spelt out in its full title of ‘An Act to promote the occupational health and safety of persons employed by the Commonwealth and Commonwealth authorities, and for related purposes’.

Hence, by definition, it is an Act with a much narrower jurisdictional focus than the State and Territory Acts. However, the Commonwealth jurisdiction covers a wide range of occupations and industries, principally government services, including Australian Defence Forces, telecommunications, banking, broadcasting, transport, construction, manufacturing and service industries.

Commonwealth employees work throughout Australia. Section 109 of the Constitution declares that where there is any inconsistency between Commonwealth and State or Territory legislation, then the Commonwealth legislation must prevail. However, where there is no inconsistency, under s.4 of the OHS(CE) Act, both operate concurrently.

As in other Acts, the duty of care placed on employers and other persons under sections 16 to 21 of the Act are taken from common law and refer to what is ‘reasonably practicable’.

Employee representation

Part 3 of the Act is concerned with fostering labour–management co-operation in workplace health and safety. The Act adopts the Victorian approach of dividing workplaces into designated work groups, each with a selected employee health and safety representative. Each health and safety representative is elected for two years (or other agreed period).

The powers of health and safety representatives cover inspections, including the right to request an investigation, consultations with management, access to information, the issuing of provisional improvement notices and the issuing of directions to stop work in certain circumstances.

The Act requires the formation of joint union (or employee) and management safety committees, where there are 50 or more employees at the workplace. The exact composition is to be agreed between management and unions — however, where agreement is not reached, management and employee members must have equal representation.

Despite the Act outlining detailed powers and responsibilities for health and safety committees, none of those sections of the Act impose any penalties. The Act does, however, place duties on employers in relation to health and safety committees under s.36. Failure to comply with this provision could be considered a contravention of duty of care under s.16 of the Act.

Notification of accidents

The employer is required to report to Comcare, by telephone, within two hours of a fatal accident, and within 24 hours of an accident causing serious injury or incapacity of at least five successive days, or a dangerous occurrence.

Enforcement

Comcare has the power to conduct investigations under s.41 of the Act. Investigations are conducted to ensure compliance with the provisions of the Act or after an accident or dangerous occurrence.

Section 51 of the Act enables the contracting of State and Territory OHS inspectors to exercise the powers and perform the duties of investigators for the Commonwealth.

Under s.46, in order to remove an immediate threat to health or safety, an investigator may issue a prohibition notice, ordering the cessation of any particular activity. Failure to comply with such an order carries a penalty of \$25 000 (for Government Business Enterprises only).

Where there is an apparent breach of the Act or regulations, but there is no immediate threat to health or safety, under s.47 an investigator may issue an improvement notice, setting a reasonable period for the employer to rectify the breach. Failure to comply with an improvement notice carries a fine of \$10 000 (for Government Business Enterprises only).

Under s.48 any person affected by a notice issued by an investigator may appeal to the Australian Industrial Relations Commission.

Maximum penalties under the Act are \$5000 for individuals and \$100 000 for corporations (Government Business Enterprises only).

Under s.11 Commonwealth organisations and authorities are not liable to prosecution for an offence, however, other penalty provisions apply.

Regulations

The Governor-General is authorised under s.82 to make regulations under the Act.

The *Occupational Health and Safety (Commonwealth Employment) Regulations* were gazetted in 1991. As from March 1995, the *Occupational Health and Safety (Commonwealth Employment) (National Standards) Regulations* also apply.

The Commonwealth is required to incorporate each NOHSC standard and code declared under s.38(1) of the NOHSC Act, to the extent that it is capable of relating to Commonwealth employment, in a regulation or code of practice of the OHS(CE) Act.

Codes of practice

The Commonwealth Act, as is the case in other jurisdictions, allows (in s.70) for the Minister to approve codes of practice ‘for the purpose of providing practical guidance to employers’. The Safety Rehabilitation and Compensation Commission (SRC) has the main responsibility for preparing codes for Ministerial approval. In particular, the Safety Rehabilitation and Compensation Commission has the responsibility of preparing codes for Ministerial approval as soon as practicable after the NOHSC has issued them, where they are deemed to relate to Commonwealth employees. Approved codes must be gazetted and presented to Parliament within 15 days of being gazetted.

Similar to other jurisdictions, codes are not legally enforceable, but may be used as evidence of non-compliance with the Act and accompanying regulations, if not followed. The onus of proof is on employers accused of breaching the Act or regulations, to establish that they complied with their statutory obligations other than by adherence to the code.

Seafarers legislation

In 1992, the Commonwealth agreed to proposals by the maritime unions and ship operators that seafarers should be covered by modern OHS legislation. Consequently, the *Occupational Health and Safety (Maritime Industry) Act 1993* came into effect on 18 July 1994.

Adopting the Robens approach, the Act is structured around the ‘duty of care’ concept and places obligations on employers to take all reasonable steps to protect the health and safety at work of employees. The Act obliges the employer to:

- provide and maintain a working environment (including plant and systems of work) that is safe for employees and without risk to their health;
- give employees the information, instruction, training and supervision necessary to enable them to perform their work in a way that is safe and without risk to their health;
- take appropriate action to monitor employees’ health and safety at work; and
- maintain appropriate information and records relating to employees’ health and safety.

Employers are subject to penalties for any breaches of these requirements.

Both Commonwealth and State Governments continue to have jurisdiction and responsibilities for aspects of health and safety in the maritime industry. Some of the difficulties created by the overlapping application of Commonwealth and State requirements were outlined by the MSB Hunter Ports Authority (sub. 87). Residing within New South Wales the MSB Hunter Ports Authority has responsibilities under the *New South Wales Occupational Health and Safety Act 1983* and associated regulations. It also has substantial responsibilities under the *Navigation Act 1912* and its Regulations (Marine Orders).

Offshore petroleum legislation

Under the shipping and navigational arrangements agreed as part of the 1979 offshore constitutional settlement between the Commonwealth and the States, the Commonwealth is responsible for offshore industry vessels (including supply craft, anchor handling craft and seismic ships) other than those confined to one State and its adjacent area. Consequently, the *Petroleum (Submerged Lands) Act 1967* and the *Petroleum (Submerged Lands) Amendment Act 1979* form a complementary structure of Commonwealth and State legislation. All the States have enacted legislation basically identical to Commonwealth legislation. State departments (presently in Victoria and Western Australia) are responsible for administering health and safety matters on offshore petroleum facilities.

The procedure for determining whether or not an offshore industry vessel is confined to one State depends upon the owner making a declaration as to the intended operations of the vessel under subsection 8A(2) of the *Navigation Act*

1912. Most of the larger offshore industry vessels are declared under subsection 8A(2) of the *Navigation Act 1912* and are thus covered by that Act.

However, the *Petroleum (Submerged Lands) Act 1967 (P(SL) Act)* requirements are capable of displacing *Navigation Act 1912* requirements, pursuant to section 283K of the *Navigation Act 1912*. Nonetheless, while specific operations on vessel could be covered by the P(SL) Act (for example seismic work, divers operating from the vessel, transfers of equipment or material) this does not displace the application of the *Navigation Act 1912* to the vessel generally.

The P(SL) Act requires each operator of an offshore platform or mobile drilling unit to develop and submit a ‘safety case’ that must demonstrate that the operator:

- has identified the major hazards associated with the platform and the risks to personnel and has provided appropriate controls;
- has safety management systems that ensure the design, construction and operation of the platform and its associated facilities and services are safe; and
- has made provisions for temporary refuge, evacuation, escape and rescue in the event of a major emergency.

A complication with this arrangement, apart from when personnel or operations shift between two areas, is that part of off-shore operations — specifically vessels in territorial waters while mobile, such as supply and service ships — remain subject to the Commonwealth *Navigation Act 1912*.

I.3 New South Wales

The main Acts relevant to workplace health and safety in New South Wales are the *Occupational Health and Safety Act 1983*, the *Factories, Shops and Industries Act 1962* and the *Construction Safety Act 1912*. The *Dangerous Goods Act 1975*, the *Mines Inspection Act 1901* and the *Rural Workers Accommodation Act 1969* and their regulations constitute associated OHS legislation according to the *Occupational Health and Safety Act 1983*.

The oil industry is also subject to specific legislation by the *New South Wales Petroleum (Onshore) Act 1991* and the *New South Wales Petroleum (Submerged Lands) Act 1982*.

Occupational Health and Safety Act 1983

The *Occupational Health and Safety Act 1983* is the most important New South Wales Act dealing with workplace health and safety in general. Its objects are:

- to secure the health and welfare of persons at work;
- to protect persons present at workplaces (other than persons at work) against risks to health and safety arising out of the activities of persons at work;
- to promote an occupational environment for persons at work which is adapted to their physiological and psychological needs; and
- to provide the means for progressively replacing associated OHS legislation by provisions made by or under this Act.

To achieve its objectives, the Act also covers the establishment and functions of health and safety committees, the notification of accidents and certain proposed work, and the inspection of workplaces. Regulations cover asbestos dust, first aid, pest control, confined spaces, manual handling, synthetic mineral fibres, and so on.

Despite criticisms in some quarters of the 1983 Act (Niland 1989), it was generally considered at the time of its enactment to constitute ‘a much more full-blooded attempt to create a unified and integrated system of health and safety legislation and administration than had hitherto been adopted in Australia’ (Creighton 1986).

In the Robens tradition, the New South Wales Act is directed at workplace health and safety generally, rather than at specific types of workplaces, processes or hazards. Like similar Acts in Victoria and South Australia, the principal New South Wales Act is designed to operate alongside other existing industrial safety legislation (the main ones listed above), until such time as they can be replaced by further provisions under the Act.

Employee representation

One unique feature of the New South Wales legislation is its provision for workplace health and safety committees, but not providing for health and safety representatives (other than as an alternative to committees in workplaces with between five and 20 employees). Under the New South Wales Act, health and safety committees have some of the powers that in other jurisdictions are granted to safety representatives. Under s.25(1)(a) and (b), a member of a committee has power:

- to carry out such inspections of the place of work; or
- to obtain such information relating to the place of work; or

- to do such other things in relation to the place of work, as may be prescribed.

Under this Act neither individual workers nor health and safety committees are granted statutory powers to stop dangerous work or to direct its cessation as is the case in Victoria and South Australia (although individual workers retain their common law right to refuse dangerous work).

Notification of accidents

The New South Wales legislation provides for the notification of accidents and other matters affecting work health and safety. Under s.27(1), notification is required if:

- an accident occurs at a place of work, whether or not it causes the death of, or bodily injury to, any person; or
- any other matter occurs at or in relation to a place of work which affects the health or safety of any person, being an accident or other matter which is required by the regulations to be notified under this section

The *Occupational Health and Safety (Notification of Accidents) Regulation 1990* sets out in detail the requirements for notification in relation to workplace accidents or illnesses. Under this regulation notification is to be made ‘as soon as practicable’, (but no longer than seven days) after an accident resulting in a ‘serious personal injury’ or in the event of a ‘work related illness’. Similar requirements for notification apply to any ‘dangerous occurrence’, such as damage to a boiler, or any plant, equipment or thing which endangers the health and safety of workers.

Enforcement

The inspectorate draws its legislative authority primarily from s.31 of the *Occupational Health and Safety Act 1983*.

Furthermore, s.45(2) gives the inspectorate powers:

- to require any contravention, or likely contravention, of this Act or the regulations to be remedied; and
- to prohibit any activity at a place of work which is not safe or which is a risk to health.

The *Occupational Health and Safety (Inspectors’ Notices and Penalty Notices) Regulations*, which commenced in March 1988, provide for Improvement Notices and Prohibition Notices. The penalty for failure to comply with an Improvement notice is 100 penalty units (each penalty unit equal to \$100) for a

corporation, 50 penalty units for a non-corporate offender other than an employee, and 25 penalty units for an employee.

Maximum penalties under the Act are \$25 000 individuals and \$250 000 for corporations.

Regulations

In New South Wales, s.45(1) empowers the Governor to make regulations appropriate for achievement of the objects of the Act. The Governor may make regulations, not inconsistent with this Act, for or with respect to any matter that by this Act is required or permitted to be prescribed or that is necessary or convenient to be prescribed for carrying out or giving effect to the objects of this Act.

Under the *Subordinate Legislation Act 1989*, all regulations are subject to sunset provisions, and cost-benefit analyses. Regulatory impact statements are required for new regulations as well as ongoing reassessments of regulations every five years. The requirement for regulatory impact statements may, however, be avoided where the regulations relate to matters arising out of complementary legislation of the Commonwealth or another State or Territory or to matters involving the adoption of Australian Standards or codes of practice where such an assessment has already taken place.

Codes of practice

Section 44A(3)(b) of the New South Wales Act provides that a code may apply, incorporate or refer to any document formulated or published by any body or authority as in force at the time the industry code of practice is approved or as amended, formulated or published from time to time.

All codes must be approved by the Minister, published in the New South Wales Government *Gazette*, and made available for public inspection.

Although a person cannot be prosecuted for failure to observe a code, s.44B declares the failure to observe such codes as relevant evidence of breaches of legislation or regulations. In any proceedings under this Act in which it is alleged that a person contravened or failed to comply with a provision of this Act or the Regulations:

- an approved industry code of practice which is relevant to any matter which it is necessary for the prosecution to prove in order to establish the alleged contravention or failure is admissible in evidence in those proceedings; and

- the person's failure at any material time to observe the approved industry code of practice is evidence of the matter to be established in those proceedings.

Thus, where a prosecution can show that an employer has contravened a code of practice, it is up to the employer to convince the court that their alternative practices were just as safe. Unlike the situation in Victoria and South Australia, where non-compliance with a code is proof of a breach of the Act, unless the employer can prove that their alternative procedures were just as safe, in New South Wales non-compliance with a code is simply 'evidence' to support a case of breaching the Act. The employer also has the option of convincing the court that implementing the code of practice was not 'practicable', which is a valid defence.

Mining legislation

Coal mines

New South Wales coal mines are currently regulated by the *Occupational Health and Safety Act 1983* (NSW) and associated legislation. The latter comprises the *Mines Inspection Act 1901* (NSW), the *Coal Mines Regulation Act 1982* (NSW) (the CMR Act) and regulations under that Act and the *Mines Rescue Act 1994* (NSW).

The Joint Coal Board, which operates under joint New South Wales and Commonwealth legislation, the *Coal Industry Act 1946*, also impacts on the conduct of occupational health and safety in the New South Wales coal mining industry.

The Coal Inspectorate of the New South Wales Department of Mineral Resources administers the *Occupational Health and Safety Act 1983* for the mining industry and also administers, specifically for the coal sector, the highly prescriptive *Coal Mines Regulation Act 1982* and its regulations.

A New South Wales coal industry Joint Safety Review Committee (JSRC), which comprises representatives of industry unions, employers and the inspectorate is currently reviewing the legislative framework for the industry, including conducting a review of regulations under the CMR Act as required by the *Subordinate Legislation Act 1989* (NSW). The JSRC review has the support of all key players in the industry as well as the New South Wales Minister for Mines and Energy and the Shadow Minister for Mines and Energy.

Other mines

The *Mines Inspection Act 1901* is designed to make provision for the regulation and inspection of mines other than coal and shale mines. The Act makes provision for control of the workplace, machinery and equipment as well as employee safety generally.

The *Mining Act 1993* is principally concerned with prospecting and mining minerals other than coal or shale, and includes some provisions relating to medical safeguards for employees.

The *Mines Rescue Act 1994* constitutes the Mines Rescue Board of New South Wales and establishes the New South Wales Mines Rescue Brigade. Among other functions the Board may provide occupational health and safety services for employers of (coal and other) mine workers and others.

Further progress on modernising the regulatory regime for mining is presently awaiting the outcome of discussions in Queensland.

The *Petroleum (Onshore) Act 1991* regulates the search for and mining of petroleum. The Act requires the adoption of safe work practices. The *Petroleum (Submerged Lands) Act 1982* relates to exploration for and exploitation of submerged lands along the New South Wales coast. It also contains sections relating to occupational health and safety.

I.4 Victoria

The main legislation relevant to workplace health and safety in Victoria is the *Occupational Health and Safety Act 1985* (OHS Act).

The following are excluded from the operation of the OHS Act: any land covered by an exploration licence or a mining licence issued under the *Mineral Resources Development Act 1990*, persons doing work under such licences and their employers. These are covered under mining specific legislation (see below).

Detailed legislative requirements are also contained in older legislation and regulations, pre-dating the main 1985 legislation — such as the *Labour and Industry Act 1958*. There are also a number of regulations associated with the *Health Act 1958* which relate to the health and safety of workers. Many of the older pieces of legislation, including the *Boilers and Pressure Vessels Act*, *Lifts and Cranes Act* and *Scaffolding Act* and their regulations were repealed when the national standard for plant was introduced on 1 July 1995.

There are a number of other Acts which impinge on workplace health and safety, including the *Aerial Spraying Control Act 1966*, the *Drugs, Poisons and*

Controlled Substances Act 1981, the *Explosives Act 1960* and the *Inflammable Liquids Act 1966*.

Occupational Health and Safety Act 1985

The *Occupational Health and Safety Act 1985* is the principal statute concerned with workplace health and safety in Victoria. The objects of the Act are:

- to secure the health, safety and welfare of persons at work;
- to protect persons at work against risks to health or safety;
- to assist in securing safe and healthy work environments;
- to eliminate, at the source, risks to the health, safety and welfare of persons at work; and
- to provide for the involvement of employees and employers and associations representing employees and employers in the formulation and implementation of health and safety standards.

The 1985 Act is probably the most advanced — in terms of its distance from traditional approaches — piece of OHS legislation in Australia, especially in relation to worker participation in the formulation and implementation of health and safety in the workplace. Creighton et al have argued that:

... it can safely be assumed that the Act constituted the high-water mark of Robens-style legislation in Australia. As such it constitutes a benchmark against which law and practice in the other jurisdictions (and perhaps Victoria) can be measured (Creighton *et al*, 1993, p. 1379).

The *Accident Compensation (WorkCover) Act 1992* abolished the Occupational Health and Safety Commission, and the *Occupational Health and Safety Act 1985* is now administered by the Department of Business and Employment.

Through s.21(1), the Act imposes on employers a duty to ‘provide and maintain as far as practicable for employees a working environment that is safe and without risks to health’. The term ‘practicable’ is defined in s.4 as having regard to:

- the severity of the hazard or risk in question;
- the state of knowledge about that hazard or risk and any ways of removing or mitigating that hazard or risk;
- the availability and suitability of ways to remove or mitigate that hazard or risk; and
- the cost of removing or mitigating that hazard or risk.

This definition of 'practicable' corresponds with the common law concept of 'reasonableness' (Brooks 1993).

Employee representation

The Act defines the powers and functions of health and safety representatives as including the right, after reasonable notice is given to the employer, to inspect the workplace at any time, and immediately in the event of any accident, dangerous situation or occurrence or immediate risk to health and safety. Safety representatives also have the right to issue provisional improvement notices, accompany inspections of the workplace, and have access to all information related to health and safety and.

In addition, s26 gives them the power, after consultation with the employer, to direct a cessation of dangerous work.

Health and Safety Committees

Section 31(1)(c) grants health and safety representatives the right to require the employer to establish a joint health and safety committee, with at least half the members being employees.

Notification of accidents

Under the *General Safety Regulations 1986 (Reg. 7)* employers are required to immediately report the accident to the inspectorate within 24 hours in the event of a death. In any other case, the employer is required to notify the inspector as they become, or should have become, reasonably aware of the death or injury.

The employer at a workplace where more than five persons are employed shall, regardless of the type of injury, keep an accident record in the form contained in the Australian Standard form (Reg. 8). The record shall be kept for at least three years and be available during that time for inspection by the employee, inspector and the health and safety representative.

Enforcement

Part VI of the 1985 Act deals with the powers of the inspectorate to issue Improvement and Prohibition Notices. Whereas Improvement Notices deal with apparent breaches of the Act or regulations, Prohibition Notices can be issued by the inspectorate where it is perceived there is an 'immediate risk' to health and safety, regardless of the level of formal compliance with the Act.

Maximum penalties under the Act are \$50 000 and \$250 000 for corporations.

Regulations

Section 59(1) of the 1985 Act establishes the authority of the Government to make regulations in line with the legislation's objectives. The Governor in Council may make regulations for or with respect to the safety, health and welfare of persons at workplaces.

Codes of practice

The Act provides for codes of practice for the purpose of providing practical guidance to employers, self-employed persons and employees.

The authority to issue, revise, vary or revoke codes, rests with the Minister. These codes must be published in the Victorian Government Gazette and made available to the public.

Codes do not have the same legal force as regulations. Thus, while contravention of, or failure to comply with regulations is an offence against the Act, failure to observe a provision of an approved code of practice is not in itself a breach of the Act.

Approved codes of practice are designed to provide practical guidance and should, therefore, be followed, unless there is a better solution which achieves the same result. Section 56 states codes can be used as evidence to support prosecutions for breaches of the Act or its accompanying regulations:

- the approved code of practice shall be admissible in evidence in those proceedings; and
- if the court is satisfied in relation to any matter which it is necessary for the prosecution to prove in order to establish the alleged contravention or failure that —
 - (i) any provision of the approved code of practice is relevant to that matter; and
 - (ii) the person failed at any material time to observe that provision of the approved code of practice —

that matter shall be taken as proved unless the court is satisfied that in respect of that matter the person complied with that provision of this Act or the regulations otherwise than by way of observance of that provision of the approved code of practice.

Thus, failure to observe a code is *prima facie* evidence of a breach of the requirements of the Act.

Mining legislation

The *Mines Act 1958* covers general safety regulations for mines.

The Victorian *Coal Mines Act 1958* was amended and renamed the *Coal Mines (Pensions) Act 1958* in 1987. It consolidates the law relating to coal miners and coal mine workers. The Act covers restrictions on employment, safe procedures and inspection powers over mines.

The Victorian *Petroleum (Submerged Lands) Act 1982* applies to the operation of petroleum facilities in Victoria, and includes the requirement to provide a safe workplace.

The *Extractive Industries Act 1966* serves in part to provide for the development of safe operating procedures in the extractive industries.

1.5 Queensland

The *Workplace Health and Safety Act 1995* covers all workplaces other than mines and oil wells, which are covered by separate Acts. These industry specific requirements are provided for in the *Mines Regulation Act 1964*, the *Coal Mining Act 1925*, the *Petroleum Act 1923* and the *Transport Operations (Marine Safety) Act 1994*. Some specific requirements regarding workplace health and safety are also contained in the *Radioactive Substances Act 1958*. There is an extensive list of approved codes of practice.

Workplace Health and Safety Act 1995

The *Workplace Health and Safety Act 1995* is the principal Act concerned with workplace health and safety in Queensland.

The overall object of the Act is to ensure freedom from disease or injury to persons caused, and risks of disease or injury to persons created, by workplaces, workplace activities or specified high risk plant (Division 3). This is to be achieved by:

- establishing a workplace health and safety council and industry committees;
- provisions for workplace representation;
- making workplace health and safety standards;
- promoting community awareness;
- imposing obligations on persons who may affect the health and safety of others;

- appointing inspectors; and
- enforcement procedures.

The obligations of employers and others are outlined in Division 2 of the Act. For example, s.28(1) provides that an employer has an obligation to ensure the workplace health and safety of each of the employer's workers at work. Under s.32(1) a designer or importer of plant or specified high risk plant has an obligation to ensure the plant is designed to be safe and without risk to health when properly used.

The Act is administered by the Department of Employment, Vocational Education, Training and Industrial Relations.

Health and safety standards

The Act provides for two types of health and safety standards — *compliance standards* (subordinate legislation, or regulations), and *advisory standards* (codes of practice).

An advisory standard may be made by the Minister. It is admissible as evidence in a proceeding under the Act if relevant to identifying and managing the exposure to the risk (s.42).

Section 37 sets out the following defences against a legal proceeding under the Act:

- if there is a compliance standard, that must be followed;
- if there is an advisory standard, either that must have been followed or else the person must have adopted and followed another way that identified and managed exposure to the risk, and took 'reasonable precautions and exercised proper diligence'; and
- if there is neither a compliance standard nor an advisory standard, the person can choose any appropriate way and must have taken 'reasonable precautions and exercised proper diligence'.

Also, it is a defence to prove that the commission of the offence was due to causes over which the person had no control.

Employee representation

Election of workplace health and safety representatives is provided by Section 68 of the Act. The entitlements of health and safety representatives are set out in Section 81. The health and safety representative's functions are to represent the worker, and differs from that of the health and safety officer, whose role is mainly to inform the employer about health and safety conditions at the workplace.

Under Section 30, an employer must appoint a qualified person as a workplace health and safety officer if 30 or more workers are normally employed at the workplace.

Workplace health and safety committees may be established by an employer or principal contractor (s.86(1)). Workplace health and safety committees may be established:

- at the employer's initiative;
- at the request of the health and safety representative; or
- if prescribed for, or at the direction of the chief executive.

The functions of health and safety committees are set out in Section 90.

Notification of accidents

In the event of a serious bodily injury, the employer or principal contractor is required to notify the authority within 24 hours, and, in the case of a work-caused illness, notice must be given within 24 hours of becoming aware of the illness. If a death occurs, then prompt notification must be given.

Enforcement

Part 9, division 2 of the Act outlines the powers and responsibilities of the inspectorate, which correspond to those in other jurisdictions, except that in Queensland the inspectorate has wider powers to enter domestic premises.

Improvement notices issued by the inspectorate, do not, as is the case in other jurisdictions, automatically allow employers seven days to remedy the contravention. Failure to comply with the improvement notice by the date specified in the notice is an offence, and, unlike the situation in other jurisdictions, there is no right of appeal.

Where inspectors perceive there is an immediate risk to health and safety, they can issue prohibition notices, ordering a cessation of work. Failure to comply is an offence. Unlike the procedure for improvement notices, however, there is an opportunity to appeal against a prohibition notice.

Maximum penalties under the Act are \$24 000 for individuals and \$120 000 for corporations.

Mining legislation

Queensland mines are currently regulated by the *Mines Regulation Act 1964*, *Coal Mining Act 1925* (CM Act) and the *Coal Industry Control Act 1948* —

1978 (CIC Act). The mining industry is exempted from the coverage of the *Workplace Health and Safety Act 1995*.

Both of the above statutes are presently under major review. A tripartite committee, known as the CM Act Legislation Review Committee has been developing the new Coal Mining Act for three years. The new Act will be based upon the 'duty of care' principle and will be supported by, in the main, performance-based regulation. A commitment was made at the commencement of the review that the new regulations would in no area be inferior in standard to those established under the *Workplace Health and Safety Act 1995*. The CIC Act will be subsumed within the new CM Act.

I.6 Western Australia

The major statutes concerned with OHS in Western Australia are the *Occupational Health, Safety and Welfare Act 1984* and the *Factories and Shops Act 1963*. The *Mines Safety and Inspection Act 1994* and the *Radiation Safety Act 1975* are also important in their areas.

Occupational Health, Safety and Welfare Act 1984

The *Occupational Health, Safety and Welfare Act 1984*, with amendments in 1987 and 1990, establishes the Occupational Health, Safety and Welfare Commission and aims:

- to promote and secure the health, safety and welfare of persons at work;
- to assist in securing safe and hygienic work environments and to protect persons at work against hazards by reducing, eliminating and controlling the hazards;
- to foster co-operation and consultation between employers and employees and to provide for their participation in the formulation and implementation of health and safety standards;
- to provide for formulation of policies and for the co-ordination of the administration of laws relating to occupational health, safety and welfare; and
- to promote education and community awareness on matters relating to occupational health, safety and welfare.

The main provisions of the Act were introduced in two stages. The Occupational Health, Safety and Welfare Commission was set up when the Act was introduced in 1984. Following public consultation, the sections concerning general duties, and the participation of workers were introduced through the

Occupational Health, Safety and Welfare Amendment Act 1987, which took effect on 16 September 1988.

The legislation in Western Australia is broadly modelled on the Victorian legislation.

A series of proposed amendments are currently being considered. The amendments include a proposal to rename the Act as the Occupational Safety and Health Act.

Employee representation

Part IV of the Act provides for health and safety representatives and committees. Any employee can notify an employer of the need for an election of health and safety representatives. The number of representatives is to be decided in consultation between the employer, relevant unions and employees. If agreement cannot be reached the matter can be referred to the Commissioner for Occupational Health, Safety and Welfare for determination.

The powers of health and safety representatives are similar to those in other jurisdictions, however s.33(1)(a) limits the inspection powers to:

- at such times as are agreed with the employer; or
- where he has not inspected the workplace, or that part of it, in the preceding 30 days, at any time upon giving reasonable notice to the employer.

The limitation of inspection rights to only each 30 days is unique to Western Australia (and the Northern Territory) while other jurisdictions only limit inspections by a requirement to provide reasonable notice to an employer.

Where there are more than ten employees, a health and safety representative can request the employer to establish a health and safety committee. Western Australia is the only State or Territory that requires all health and safety representatives to serve on health and safety committees. At least half the committee must comprise health and safety representatives and other elected employees.

Notification of accidents

Section 19(3) of the Western Australian Act provides where an accident occurring at a workplace results in:

- the death of an employee; or
- injury to an employee of such kind as may be prescribed in the regulations, his employer shall forthwith notify the Commissioner in the prescribed form giving such particulars as may be prescribed.

Regulation 201 of the *Occupational Health, Safety and Welfare Regulations* prescribes the kind of injuries to be reported.

Enforcement

Part V of the Act deals with the appointment and powers of inspectors by the Commissioner of Inspectors. There is no limitation on inspectors right of entry, except the requirement that reasonable steps be taken to notify the employer who, in turn, is required to notify the health and safety representatives.

Inspectors have the authority to issue Improvement Notices stating the time allowed to remedy the health and safety breach. The employer has the right to refer the Improvement Notice to the Commissioner for review, during which time the notice is suspended.

Similarly, inspectors may also issue Prohibition Notices, requiring the cessation of any activities until a health and safety breach has been rectified. Employers can seek a review of such a notice, however, it remains in force during the review process. Failure to comply with Improvement or Prohibition Notices is an offence.

Maximum penalties under the Act are \$5000 for individuals and \$50 000 for corporations.

Proposed amendments to the Act include the creation of a safety and health magistrate and an increase in maximum penalty levels to \$50 000 for individuals and \$200 000 for corporations.

Regulations

Section 60 of the Act establishes the power of the State Government to enact regulations to give effect to the aims of the Act.

Regulations issued under the Act cover general workplace standards, requirements relating to plant (boilers and pressure vessels, cranes, lifts and escalators, hoists), specific work processes (use of fibreglass and polyurethane, welding, spray painting, foundry work and abrasive blasting), hazardous substances (asbestos and lead) and construction work (including scaffolding, electrical work, excavation work and demolition).

Codes of practice

Section 57 of the Act allows codes of practice to be approved by the Minister. However, it does not specifically provide that codes of practice shall have evidentiary status in the event of a legal proceeding.

Proposed amendments to the Act include clarifying the evidentiary status of codes of practice.

Mining legislation

In Western Australia the State Mining Engineer's Branch of the Department of Mines administers the *Mines Regulation Act 1946* and the *Coal Mines Regulations Act 1946*.

The *Mines Regulation Act 1946* covers the inspection and regulation of mines, mining practices and plant and substances supplied to or used at mines. The Act also deals with employment conditions in general, health and safety representatives and committees and includes general duty of care provisions.

The *Coal Mines Regulations Act 1946* covers such matters as certificates of competency for mine managers and deputies, accident reporting and inquiry procedures and the appointment and functions of inspectors.

Certain welfare provisions for coal miners are contained in the *Coal Miners' Welfare Act 1947*.

The Petroleum Branch of the Department of Mines administers the *Petroleum Act 1967*, the *Petroleum (Submerged Lands) Act 1982*, and the *Petroleum Pipelines Act 1969*, which contain some provisions for industrial safety.

I.7 South Australia

The principal OHS legislation is the principal *Occupational Health, Safety and Welfare Act 1986 (amended 1994)* and the *Occupational Health, Safety and Welfare Regulations 1995* (consolidated regulations). The *Boilers and Pressure Vessels Act* and *Lifts and Cranes Act* were repealed when the consolidated regulations were introduced in April 1995.

Some other legislation impinges on workplace health and safety, including the *Agricultural Chemicals Act 1955*, the *Dangerous Substances Act 1979*, the *Explosives Act 1936* and the *Noise Control Act 1976*.

Occupational Health, Safety and Welfare Act 1986

The principal Act is the *Occupational Health, Safety and Welfare Act 1986*. The Act is drafted in general terms with responsibilities framed in wide terms. The objects of the Act are:

- to secure the health, safety and welfare of persons at work;

- to eliminate, at their source, risks to the health safety and welfare of persons at work;
- to protect the public against risks to health or safety arising out of or in connection with the activities of persons at work;
- to involve employees and employers in issues affecting occupational health, safety and welfare; and
- to encourage registered associations to take a constructive role in promoting improvements in occupational health, safety and welfare practices and assisting employers and employees to achieve a healthier and safer working environment.

The 1986 Act is largely modelled on the Victorian Act, but does not go as far, in a number of respects, as the latter does — particularly in relation to the health and safety of non-employees such as contractors, although the South Australian Act does deem contractors and their employees to be employees of the principal if they are performing work in the course of the business of the principal.

The South Australian Act preserves an individual's right to civil action for breaches of the sections of the Act outlining the duty of care. Thus, damages can be sought on the basis of breaches of the common law or breach of the statutory duty of care.

Employee representation

The Act provides for health and safety representatives and gives them the power to direct a cessation of work where it is deemed to pose an immediate risk to health and safety. As in Victoria, consultation with the employer and notification of an inspector are required, however there is no requirement that their agreement is necessary to order work to be stopped.

Where 20 or more workers are employed, an employer must establish a health and safety committee at the request of a health and safety representative. Section 31(4) prescribes that the membership of a health and safety committee:

... should, so far as is reasonably practicable, represent a reasonable cross-section of the persons whose activities, work, or health, safety or welfare (whether as principal, manager, supervisor or employee) could be within the responsibilities of the committee.

At least half the committee should be employees, and health and safety representatives are to be encouraged to serve on such committees. The functions of the committees are to develop policy and procedures to effectively manage workplace health and safety.

Notification of accidents

In the case of fatalities, notification is to be made by telephone as soon as is practicable, and in writing within 24 hours of such an accident, as is the requirement for all work injuries. A fine of up to \$6000 may be imposed for breaches of these notification requirements.

Enforcement

Part V of the Act outlines the powers and responsibilities of the inspectorate, along similar lines to other jurisdictions. However, s.38(1a), inserted by amendment in 1990, prevents an inspector from entering a workplace where there is a self-employed worker, unless the inspector has reason to believe that there is a risk to the health or safety of someone, other than a self-employed person.

Inspectors may issue improvement and prohibition notices under s.39 and s.40, which may be subject to review, under s.42, by a review committee of the Industrial Court. An application for review must be made within 14 days of receipt of the notice. While provisional notices are under review, improvement notices are lifted but prohibition notices remain in force, and all employees must continue to be paid even if work is stopped by such a notice. Failure to comply with these notices is an offence.

Breaches of various sections of the Act are, under s.59, summary offences and proceedings for such offences can only be initiated by the Minister or an inspector within two years of an offence being committed. The penalties imposed under the Act are graded by Divisions outlined in s.4(5), and range from \$1000 for a Division 7 penalty, to \$100 000 for a Division 1 penalty.

Regulations

Section 69(1) provides power to make regulations to give effect to the purposes of the Act. South Australia has a relatively extensive list of regulations to support their core Act, although these are currently being reviewed with a view to consolidation.

Codes of practice

The Minister has the power, under s.63, to approve codes of practice. As is the case in Victoria and New South Wales, these codes may incorporate documents prepared by other bodies or authorities.

The legal status of codes is outlined in s.63a:

Where in proceedings for an offence against the Act it is proved that the defendant failed to observe a provision of an approved code of practice dealing with the matter in

respect of which the offence is alleged to have been committed, the defendant is, in the absence of proof to the contrary, to be taken to have failed to exercise the standard of care required by that section.

This section of the Act treats codes in the same manner as they are in the Commonwealth, Victorian, Queensland, Northern Territory and, effectively New South Wales (despite its reference to the use of codes as ‘evidence’ rather than ‘proof’ of breaches of Acts) jurisdictions.

The onus of proof is placed on the employer to show that just as effective ‘reasonable care’ was taken by means other than following a code.

Mining legislation

The *Mines and Works Inspections Act 1920* makes provision for the regulation and inspection of mines and works. The Mining Inspectorate of the Department of the Department of Industrial Affairs in South Australia administers safety in the mining industry.

1.8 Tasmania

The *Workplace Health and Safety Act 1995* is the only specific piece of OHS legislation in Tasmania. It covers employees in all industries, including mining.

Workplace Health and Safety Act 1995

Unlike other States and Territories, with the exception of the Northern Territory, the *Workplace Health and Safety Act 1995* does not include a section outlining the purpose of the Act. The purpose or objective of the Act is to provide for the safety, health, and welfare of persons employed in, engaged in, or affected by industry, to provide for the safety of persons using amusement structures and temporary public stands, and to repeal certain enactments.

The *Industrial Safety, Health, and Welfare Act 1977* combined the essential provisions of the *Factories, Shops and Offices Act*, *Scaffolding Act* and *Inspection of Machinery Act*, and otherwise simply provides wide regulation-making powers in respect of safety, health and welfare matters generally. The 1995 Act includes some important revisions to the 1977 Act, including a clearer definition of the duties of employers and suppliers, provision for approval of codes of practice and workplace health and safety committees. The *Mines Inspection Act 1968*, which previously regulated health and safety in the mining industry was repealed when the *Workplace Health and Safety Act 1995* was introduced.

Section 9 (1) of the 1995 Act sets out the duty of care of employers. An employer must, in respect of each employee employed by the employer, ensure so far as is reasonably practicable that the employee is, while at work, safe from injury and risks to health ...

Employee representation

Part 5 of the Act contains the provisions for employee representation.

Section 26 of the Act requires an employer to establish a health and safety committee where there are more than 20 employees at a workplace, and a committee is requested by a majority of the employees.

Section 32 of the Act allows the election of an employee health and safety representative where there are ten or more employees. The *Industrial Safety, Health and Welfare (Employees' Safety Representatives) Regulations 1982* detail the procedures for election and the powers and responsibilities of health and safety representatives.

Section 32(1) of the Act would seem to require only one such representative at any given workplace. If 10 or more employees are employed at any workplace they may elect from time to time one of their number to be an employees' safety representative for that workplace.

Tasmanian health and safety representatives have wide powers of inspection, as reg. 7(2)(a) permits them to 'make such inspection ... as is reasonably necessary'.

Notification of accidents

Section 47 of the Act requires that if at a workplace:

- a person is killed or suffers serious bodily injury or illness; or
- a dangerous incident occurs as a result of which a person could have been killed or could have suffered serious bodily injury or illness;

the employer or the principal of the person concerned or, in the case of a person other than an employee or contractor, the employer having control or management of the workplace must, by the quickest available means, notify an inspector.

Enforcement

Part 6 of the Act outlines the powers and functions of the inspectorate. The inspectorate in Tasmania consist of 'authorised officers' appointed by the Chief Executive of Tasmania Development and Resources (the Department administering the OHS legislation).

Although not expressed in terms of Improvement or Prohibition Notices, authorised officers are responsible for issuing notices ordering the remedying of health or safety problems, and can also order a cessation of work where it is perceived to pose an immediate threat to health or safety.

Failure to comply with directions of authorised officers is an offence against the Act according to s.46. Maximum penalties under the Act are \$50 000 for individuals and \$150 000 for corporations.

Regulations

Section 57 provides that:

- the Governor may make regulations for the purpose of this Act; and
- without limiting subsection (1), the Governor may make regulations in respect of any of the matters specified in Schedule 1.

Schedule 1 lists a range of workplace activities and situations.

The Act allows for the adoption, in whole or in part, both specifically or by reference, any standard developed by other authorities, such as the Standards Association of Australia or similar bodies.

Codes of practice

Section 22 allows for approval of a code of practice by the Minister. Approved codes of practice are admissible as evidence in a legal proceeding under the Act (s.54(2)). The legal treatment of approved codes is the same as in Victoria, that is, failure to observe a code is *prima facie* evidence of a breach of the requirements of the Act.

Other legislation

The *Dangerous Goods Act 1976*, and the *Petroleum (Submerged Lands) Act 1967* also contain some OHS provisions.

I.9 Australian Capital Territory

The main piece of OHS legislation in the ACT is the *Occupational Health and Safety Act 1989*. Other workplace health and safety related Acts of significance in the ACT are the *Machinery Act 1949*, the *Scaffolding and Lifts Act 1957* and to a lesser extent the *Electricity Act 1971* and the *Flammable Liquids Act 1976*.

Occupational Health and Safety Act 1989

The *Occupational Health and Safety Act 1989* governs workplace health and safety for the private sector in the ACT. The Act is designed to promote and improve standards for occupational health, safety and welfare. The objects of the Act are:

- to secure the health, safety and welfare of employees at work;
- to protect persons at or near workplaces from risks to health or safety arising out of the activities of employees at work;
- to promote an occupational environment for employees that is adapted to their health and safety needs; and
- to foster a co-operative consultative relationship between employers and employees on the health, safety and welfare of employees at work.

Employee representation

Section 36 of the Act requires an employer with ten or more employees to establish designated work groups. Unlike other jurisdictions, this requirement does not rely on employees requesting representation. Employees in a designated work group may, but are not required to, select a health and safety representative.

Under s.56 of the Act, a health and safety representative is required to inform a supervisor of a threat to the health or safety of an employee, and if it is not possible to immediately contact a supervisor, to direct the employee to stop work. Health and safety representatives may also issue provisional improvements notices.

The functions and operations of health and safety committees are dealt with in s.58 and s.59. However, unlike some other jurisdictions, the formation of health and safety committees is voluntary.

Notification of accidents

Notification of an accident or serious occurrence, resulting in a worker being off work for seven days or more, is required to be made by the employer as soon as practicable and, in any event, within seven days.

The penalty for failing to report such accidents or incidents is up to \$50 000 for a corporation and up to \$10 000 or two years imprisonment or both for an individual employer.

Enforcement

Part V of the Act outlines the responsibilities and powers of inspectors. Inspectors have the authority to make directions and issue Improvement and Prohibition Notices.

The penalty for failure to comply with an inspector's directions, Improvement or Prohibition Notice, is \$10 000 for an individual and \$50 000 for a corporation.

The Act provides for the right of employers to request the Occupational Health and Safety Review Authority to review the issuing of an Improvement Notice, and during such a review the notice is suspended.

The Act does not include a specific provision for proceedings to be instituted for breaches of the Act.

Maximum penalties under the Act are \$20 000 for individuals and \$100 000 for corporations.

Regulations

Section 97(1) of the Act allows the Executive of the ACT to make regulations to give effect to the aims of the Act.

Codes of practice

Section 87 provides for the Minister to approve or amend codes of practice for the purpose of providing practical guidance to employers, the self-employed and employees. The ACT has adopted codes of practice developed by the NOHSC.

The Act does not specifically provide for codes of practice to have evidentiary status. However, Ministerial approval would strengthen the claim for a code to have evidentiary status.

I.10 Northern Territory

The major occupational health statute in the Northern Territory is the *Work Health Act 1986*. The *Building Act 1993*, *Marine Act 1981*, *Mine Management Act 1990* and *Radiation (Safety Control) Act 1978* are also important industrial safety statutes for their specialised fields.

Other Acts related to OHS include the *Dangerous Goods Act 1980*, the *Mines Safety Control Act 1976* and the *Mining Act 1980*.

The Work Health Act 1986

The Work Health Act 1986 is designed:

- to promote occupational health and safety in the Northern Territory;
- to prevent industrial injuries and diseases;
- to promote the rehabilitation and maximum recovery from incapacity of injured workers;
- to provide financial compensation to workers incapacitated by industrial injuries or diseases and to the dependants of workers who die as the result of such injuries or diseases; and
- to establish certain bodies such as the Work Health Authority and the Work Health Advisory Council.

Employee representation

In 1991 the Act was amended to provide for the establishment and functions of health and safety committees at workplaces where more than 20 people are employed, bringing it broadly in line with the requirements of the New South Wales Act. Similar to New South Wales however, the Act does not provide for health and safety representatives.

Section 44D of the Act entitles a person nominated by a health and safety committee to undertake a workplace inspection once every 30 days, at times agreed to by the employer. These are stronger limitations on inspection rights than operate in other jurisdictions.

Notification of accidents

Regulation 46(2) require an employer to notify the Work Health Authority by the most expeditious means possible, as soon as practicable, following a serious accident or occurrence resulting in a worker being off-work for five or more days. Such incidents are required to be reported in writing to the Work Health Authority within seven days of the accident or occurrence.

Enforcement

Part IV, division 2 of the Act outline the functions and powers of officers appointed by the Work Health Authority fulfil the responsibilities of an inspectorate.

The authority may issue Improvement Notices, allowing at least seven days for problems to be rectified. Failure to comply, within the specified time, with an Improvement Notice, is an offence punishable by a fine of \$10 000 for a corporation and \$2000 or six months imprisonment for an individual.

Where the Authority perceives there to be an immediate risk to health or safety, an officer can issue a Prohibition Notice, ordering the cessation of a certain activity until the problem is remedied. Failure to comply with a Prohibition Notice carries a fine of \$15 000 for a corporation and \$3000 or six months imprisonment or both for an individual.

Breaches of the general duties of care are subject to penalties of \$50 000 for corporations and \$5000 for individuals.

Regulations

Section 187(1) gives the Administrator the power to make regulations to give effect to the purposes of the Act.

Regulations under the Act identify the responsibilities of employers, workers and others and require employers to have a systematic approach to workplace health and safety, with provisions to identify hazards, assess the risks and put appropriate controls in place. The regulations also provide in more detail for specific work place conditions, and specify how to deal with plant, equipment and processes, and the hazards encountered.

Codes of practice

The Minister, on the recommendation of the Work Health Authority, has the power to approve codes of practice. Once approved, such codes must be published in the Gazette.

Codes of practice developed by employers at particular workplaces may be approved by the Minister, providing they do not result in a lowering of standards set out in other approved codes.

The legal status of codes of practice is the same as operates in New South Wales, where they can be used as evidence — but not proof — of a breach of the Act or associated regulations.

Mining legislation

The *Mine Management Act 1990* is an important industrial safety statute. It covers notification of accidents and reporting of injuries, mine inspections and the certification of mine managers. Regulations under the Act cover safety procedures, equipment and ventilation. The Act is administered and enforced by the Department of Mines and Energy.

J WORKERS' COMPENSATION

The opportunity to make savings in their workers' compensation premium payments provides an incentive for employers and employees to ensure workplace health and safety is adequate. Governments can use this incentive to improve health and safety at work.

Current workers' compensation arrangements and their effectiveness in improving health and safety are discussed in this appendix. For a more detailed description of workers' compensation in Australia see the Commission's Workers' Compensation Report (1994a).

J.1 Current arrangements

Australia has ten workers' compensation schemes. All schemes are based on the concept of 'no-fault' in which employers are held liable for work-related injury and disease suffered by their employees. Despite a common underlying philosophy, significant differences exist among schemes, for example, in their premium structures; benefit levels and eligibility criteria; rehabilitation; and insurance arrangements.

Premium setting

Employers must insure their workers' compensation liability with the relevant workers' compensation authority.¹ Premiums or levies are set as a proportion of the employer's wages bill. Although the structure (and government regulation) of premiums varies considerably, they at least reflect the claims experience of industries (class or industry rating).

Beyond this, under some schemes, premiums may be adjusted to reflect as closely as practicable an individual employer's claims record — that is, they may be experience-rated. Under others, employers with a claims record that deviates from the industry average by more than a specified amount may suffer an additional penalty or be rewarded with a bonus, accordingly.

Four jurisdictions have formal incentive schemes mandated by their respective regulatory authorities. New South Wales and Victoria require insurers to experience-rate premiums. South Australia and Queensland (from July 1995)

¹ The exception being for self-insurers.

set premiums using a bonus and penalty formula to reflect employer claims experience instead of experience-rating.

The Western Australian Government specifies industry rates and allows private insurers to discount or load them according to broad guidelines. Tasmania and the Northern Territory monitor premiums set by private insurers; while in the Australian Capital Territory private insurers set premiums. See Table J.1 for an outline of the insurance market structure and premium setting methods used in Australia.

A more detailed description of different premium setting methods is provided in Attachment J1.

Several jurisdictions also impose premium caps. Caps constrain the amount of premium volatility that employers may experience. Caps limit:

- the amount that a premium can increase in a year (to a limit of twice the industry rate in New South Wales, and a sliding scale in Victoria);
- the maximum penalty a business can receive (100 per cent in Queensland; 50 per cent — or 100 per cent for large businesses with a particularly bad record — in South Australia); and
- the amounts that private insurers may charge (to a maximum loading of 50 per cent on the gazetted rate in Western Australia).

Benefits and eligibility for compensation

Under most arrangements, initial compensation levels are based on some proxy for the employee's pre-injury earnings, for example, the award wage or average weekly earnings. Benefits are usually paid, at least for some initial period, at 100 per cent of this approximation of pre-injury levels, but may be subject to a maximum weekly amount.

After an initial period, benefits usually reduce — often in one or more steps. Exceptions are the Western Australian and Tasmanian schemes, which continue to pay compensation at initial levels until a specified dollar limit is reached.

Workers deemed to be partially incapacitated after an initial period, are often entitled to the same benefits as those deemed totally incapacitated, less any earnings. Also, if a partially incapacitated worker is unable to find employment, some schemes compensate workers as if they were totally incapacitated. The New South Wales and Victorian schemes are exceptions to this practice, as they

Table J.1 Insurance market structure and premium setting, by jurisdiction

<i>Jurisdiction</i>	<i>Market Structure</i>	<i>Premium setting</i>
New South Wales	Public/Private	Partial experience-rating set by WorkCover
Victoria	Public/Private	Full experience-rating set by WorkCover
Queensland	Public Monopoly	Class rating and bonus-penalty scheme set by Workers' Compensation Board
Western Australia	Private Insurers	Partial experience-rating set by private insurers based on Premium Rates Committee (PRC) recommended rates 50 per cent max. loading, full discounting allowed
South Australia	Public Monopoly	Industry class rating and bonus-penalty system set by WorkCover Safety Achiever Bonus Scheme for large employers
Tasmania	Private Insurers	Partial experience-rating set by private insurers based on Insurance Council of Australia (ICA) recommended rates Workers' Compensation Board and Premium Monitoring Committee (PMC) monitors premium rates
Australian Capital Territory	Private Insurers	Partial experience-rating set by private insurers based on ICA recommended rates The Minister monitors rates
Northern Territory	Private Insurers	Unstructured ^a – PMC monitors rates
Commonwealth	Public Monopoly	Experience-rating and Premium Reconciliation set by Comcare ^b
Seafarers	Private Insurers	Unstructured – rates set by private insurers ^c No monitoring of rates by Authority

a Individual insurers and employers set rates competitively based on an industry or occupational class rates.

b Premium reconciliation refers to a type of bonus-penalty scheme. However, Comcare is currently reviewing its premium setting to ensure that premiums better reflect the nature and cost of claims from individual agencies (Comcare Annual Report, 1993–1994, p.28).

c Private insurers includes protection and indemnity associations, but note that no protection and indemnity association is currently active in underwriting policies.

Source: CCH, Australian Workers' Compensation Guide, Vol. 1 and various other sources.

utilise provisions to impute ‘notional earnings’ so as to reduce benefits — regardless of actual earnings.²

The point at which benefits cease varies considerably among schemes. Some impose dollar or time limits on benefits payable. Workers may be able to redeem weekly benefits as a lump sum prior to this limit being reached, subject to various restrictions among schemes. The different benefit structures relating to compensation for lost earnings is described in Table J.2.

Different weekly benefit structures among jurisdictions are inequitable: workers with the same condition are treated more generously in some jurisdictions than others.

Low benefit structures in some jurisdictions may also be inefficient — the costs of injury are shifted to varying extents onto the individual and the taxpayer, rather than being borne by the scheme.

The Commission’s view is that the best way of preventing cost-shifting to the social security system and to the individual worker is to provide workers with a comprehensive and adequate compensation package:

The Compensation package would have consistent definitions of a worker and a compensable injury or illness. This would limit the extent to which jurisdictions could shift the costs onto the community (1994a, p. 172).

Rehabilitation

Approaches to rehabilitation and return to work differ among schemes in terms of aspects such as who provides rehabilitation services, and the incentives for employees and employers to become involved.

Rehabilitation services can be provided in-house, usually overseen by rehabilitation co-ordinators employed at the workplace, or by external providers accredited by the workers’ compensation authority or a combination of both. Both external and in-house providers are subject to various guidelines and review by the authority in their jurisdiction. Workers’ compensation authorities co-ordinate and oversee the rehabilitation process to varying degrees. This ranges from the contracting of case managers and advisers to plan rehabilitation programs for injured workers, to the implementing of specific return-to-work programs. There is now an increasing emphasis on employers assuming responsibility for rehabilitation in some jurisdictions.

² ‘Notional earnings’ refers to the amount an injured worker is able to earn in ‘suitable employment’, regardless of actual earnings (defined by workers’ compensation authorities). This notional amount may be deducted from an injured worker’s weekly benefits.

Incentives for both employers and employees to become involved in the rehabilitation and return-to-work process vary among schemes. All schemes suspend an employee's benefits if they do not undertake rehabilitation once directed to do so by the scheme administrator. Employees are protected under some schemes from losing their compensation entitlement in the event that their return-to-work is unsuccessful. Some schemes also enhance weekly benefit limits for injured workers while they are undertaking rehabilitation.

Under most schemes employers are required to establish a general rehabilitation program usually in accordance with authority guidelines (the exception being the ACT scheme). In addition, the Western Australian and Tasmanian authorities reserve the right (but do not require all employers) to establish such a program. Requirements in New South Wales, Victoria, South Australia and the Commonwealth (Comcare) provide for work-trial subsidies and 'second injury' schemes as an incentive for employers to employ injured workers.³ See Table J.3 for the differing legislative provisions for rehabilitation and return-to-work.

Self-insurance

Self-insurers are large, suitably qualified, employers that have an exemption from paying workers' compensation premiums to the relevant workers' compensation authority. Under self-insurance, an employer substantially meets the costs of its workers' compensation claims on a pay-as-you-go basis. In practice, self-insurers often take out some form of 'catastrophe' insurance to limit their total liabilities. They may also be required to contribute to a 'nominal' insurance fund and meet specified prudential, claims-handling and injury prevention requirements.

The Queensland Workers' Compensation Board and the Seafarers workers' compensation scheme proscribe self-insurance.⁴ In the other jurisdictions, permission to self-insure must be obtained from the relevant authority.

The extent of self-insurance varies considerably between jurisdictions. In South Australia about 33 per cent of the workforce is employed by self-insurers, in New South Wales only about 15 per cent, and in Queensland no workers are employed by self-insurers.

³ Second injury refers to a subsequent injury. It can be either a new injury or an aggravation of a pre-existing injury.

⁴ Queensland is currently reviewing its policy on self-insurance (Queensland Workers' Compensation Board, transcript, p. 263).

Table J.2 Compensation for lost earnings, by jurisdiction, 1995

<i>Jurisdiction</i>	<i>Short term benefits</i>	<i>Long term benefits</i>	<i>Restrictions</i>
New South Wales	Normal award rate Max. \$1066 per week	> 26 weeks total incapacity 90% workers average weekly earnings (WAVE) Max. \$251 plus dependent allowance Partial incapacity WAVE minus notional earnings	Until retirement age plus one year
Victoria	95% pre-injury earnings Max. \$621 (minus notional earnings if partially incapacitated)	> 26 weeks serious injury 90% of pre-injury average weekly earnings (PIAWE) minus current weekly earnings Max. \$621 Total incapacity 70% PIAWE Max. \$621 Partial incapacity 60% PIAWE minus notional earnings Max. \$373	Two years except for serious injury or totally and permanently incapacitated
Queensland	Normal award rate	> 39 weeks \$276 plus dependent allowance	Max. \$72 680 inc. non economic loss
Western Australia	Normal weekly earnings (NWE)	NWE	Max \$100 729 ^c
South Australia	Average weekly earnings (AWE) (minus notional weekly earnings if partially incapacitated) ^a Max. \$1239	> 52 weeks 80% AWE Max. = \$1005	Age at which worker qualifies for pension ^b
Tasmania	The greater of ordinary time rate of pay and AWE	The greater of ordinary time rate of pay and AWE	Max. \$100 075
Australian Capital Territory	NWE	> 26 weeks base rate of \$278 plus dependent allowance	Max. \$85 581 except for totally and permanently incapacitated

Table J.2 Compensation for lost earnings, by jurisdiction (cont.)

<i>Jurisdiction</i>	<i>Short term benefits</i>	<i>Long term benefits</i>	<i>Restrictions</i>
Northern Territory	NWE (less any amount actually earned if partially incapacitated)	> 26 weeks 75% of NWE Max. \$952 Min. \$317 plus dependent allowance or 90% of NWE which ever is lesser	Age 65
Commonwealth	NWE (minus notional weekly earnings if partially incapacitated)	> 45 weeks 75% NWE Max. 150% average weekly ordinary time earnings of full time adults (AWOTEFA) Min. \$244 plus dependent allowance	Age 65
Seafarers	NWE	> 45 weeks 75% NWE Max. 150% AWE Min. \$260 plus dependent allowance	Age 65

a Notional earnings is rarely applied in practice in South Australia.

b Restrictions are the lesser of the pension age or the normal retiring age for the kind of employment from which the disability arose (or 70 years whichever is the lesser).

c An additional amount of \$50 000 may be granted at the discretion of the Conciliation Review Directorate.

Source: CCH, Australian Workers' Compensation Guide, vol. 1 and various other sources.

Common requirements are an employer's ability to provide service promptly and effectively, to provide statistical information to the workers' compensation authority and to demonstrate capacity to meet their financial commitments under the scheme.

In principle, self-insurance regulation should try to foster an environment where larger employers have the option of self-insuring while preserving adequate prudential controls to ensure that self-insurers are able to meet claims made on them.

Licensing criteria for self-insurance vary among jurisdictions. These are summarised in Table J.4.

Table J.3 Legislative provisions for rehabilitation and return-to-work, 1995

<i>Jurisdiction</i>	<i>Legislative provision for rehabilitation</i>	<i>Legislative provision for return-to-work</i>	<i>Employee based incentives</i>	<i>Rehabilitation provider</i>
New South Wales	Employer obligated to establish an approved program ^a	Employers obligated to provide suitable duties/employment and job search benefits Job Cover placement program ^b	Participation in a program is voluntary and benefits may be reduced or enhanced	Providers are accredited by the Authority
Victoria	Prescribed employers are obligated to establish an approved occupational rehabilitation program	Obligated to keep job open and provide suitable employment for the first 12 months on weekly payments WorkCover incentive for employers ^c Employers not liable for second injuries ^d	Rights to compensation are suspended upon refusal to undergo a program assessment	Providers are approved by the Authority
Queensland	General rehabilitation program established by Board — no requirements for employers to establish their own	No specific provision for return-to-work	As above	Provided though a network of rehabilitation staff and private providers state-wide
Western Australia	WorkCover develops individual programs for injured workers and may require employers to establish rehabilitation services	No specific provision for return to work	As above	Providers are approved by WorkCover
South Australia	The Corporation is obliged to establish or approve programs for employees and provide advisers if necessary	Employers obliged to provide suitable employment Re-employment incentive scheme ^c Second disabilities are not included in bonus–penalty adjustments	As above	The Corporation makes arrangements with approved providers

Table J.3 Legislative provisions for rehabilitation and return-to-work (cont.)

<i>Jurisdiction</i>	<i>Legislative provision for rehabilitation</i>	<i>Legislative provision for return-to-work</i>	<i>Employee based incentives</i>	<i>Rehabilitation provider</i>
Tasmania	The Board (reserves the right) may impose programs on employers	No specific provision for return to work	As above	The Board maintains a register of qualified providers
Australian Capital Territory	No provision	No provision	None	No accredited rehabilitation providers ^e
Northern Territory	Employers are obliged to provide rehabilitation	Employers are obliged to provide suitable duties/employment	Rights to compensation are suspended upon refusal to undergo program or assessment	No accreditation requirements for rehabilitation providers ^f
Commonwealth	Rehabilitation authority (usually the employer) is required to assess, and if necessary, to arrange for an employee to undertake an approved program	Obligated to take all reasonable steps to provide or assist in finding suitable employment	As above	Providers are approved by Comcare Australia
Seafarers	Employers are required to arrange assessment for rehabilitation if injured worker has, or is likely to have, 28 days incapacity	Obligated to take all reasonable steps to provide or assist in finding employment	As above	Employers are obliged to use Comcare approved providers

a WorkCover NSW has a standard rehabilitation program for small employers (20 or less employees).

b Job Cover placement program applies to second employers and includes an employment/training allowance, 12 month premium exemption, and 6 month excess exemption.

c The re-employment incentive scheme essentially offers second employers a retention bonus and wage subsidy of up to 80 per cent in SA, and a wage subsidy of up to 60 per cent in Victoria.

d An employer is not liable for initial payments where a worker previously receiving benefits, is injured within 12 months of returning to work. Nor are employers liable for the initial amount if an injury is the result of a pre-existing injury.

e Rehabilitation arrangements are made by insurers voluntarily on a case by case basis.

f Accreditation currently under consideration.

Source: CCH, Australian Workers' Compensation Guide, vol. 1 and various other sources.

Table J.4 Self-insurance provisions and coverage, by jurisdiction, 1995

<i>Jurisdiction</i>	<i>Self-Insurance Requirements</i>	<i>Magnitude/Coverage</i>
New South Wales	Min. 1000 workers Bank guarantee to secure outstanding claims liability as actuarially assessed. Must be adequately capitalised with strong financial position Group company min. 2000 workers Must have satisfactory OHS, Rehabilitation practices and programs in place	51 self-insurers 15–20 per cent of workforce employed by self-insurers
Victoria	Min. 500 full time workers Min. net asset base of \$200m Bank guarantee of liability. Safety performance and capacity to operate as a self-insurer assessed	21 self-insurers 10 per cent of workforce employed by self-insurers
Queensland	No provision for self insurance	..
Western Australia	Liability fund deposited with Treasury Scheme is under review	14 self-insurers na
South Australia	Min 200 full time equivalent workers Bank guarantee of liability. Employer's safety and rehabilitation record may be taken into account	98 self-insurers 33 per cent of workforce employed by self-insurers
Tasmania	General requirements only ^a	21 self-insurers na
Northern Territory	General requirements only ^a Need to show financial viability and other information Min \$200m net asset base	6 self-insurers 3 per cent of workforce employed by self-insurers
Australian Capital Territory	General requirements only ^a	9 self-insurers na
Commonwealth	Commonwealth authorities and corporations in competition with GBEs may apply to self administer and/or self-insure	na
Seafarers	No provision for self-insurance	..

a General requirements include the businesses assessed ability to manage claims, discharge liabilities, maintain a 'sound' safety and rehabilitation record, and provide required information to the authority.

na Not available.

.. Not applicable.

Source CCH, Australian Workers' Compensation Guide, vol. 1 and various other sources.

J.2 Workers' compensation and prevention

Employers have an incentive to improve health and safety at work when they bear a substantial portion of the costs of workplace injury and disease, and their premiums reflect the compensation costs attributable to each business.

Empirical evidence

There are several studies of the effect of the level of workers' compensation premiums and experience-rating on workplace health and safety.

Overseas experience

Two approaches have been undertaken to assess the impact of workers' compensation premiums and experience-rating on workplace health and safety. First is the approach used in the United States. This approach has generally focused on the effect of the *level* of workers' compensation premiums on workplace health and safety.

Some of these studies have also measured the impact of experience-rated premiums by investigating the effect of workers' compensation on health and safety at work across business size. The hypothesis being that if workers' compensation and experience-rating is to have an impact on workplace safety, the impact should be greater in businesses that are more highly experience-rated.

The most credible studies in the United States control for both employer size and compensation levels, while looking at the financial incentives on the business. Most of these studies have done this by looking at differences between small and large employer's responses as benefits, hence premiums, increase.

Like Australia, since the premiums of the smallest employers vary little with their claims experience, small businesses in the United States have little incentive to enhance safety as premiums increase. The opposite is true for larger, experience-rated businesses.

Although Chelius and Smith (1983) found no experience-rating effect, Butler (1994a) says that some technical problems clouded the interpretation of their results. In a refinement of their approach, using slightly more sophisticated statistical techniques, Ruser, Worrall, Appel and Butler generally find

statistically significant evidence that experience-rating reduces workers' compensation claims.⁵

However, one possible problem with these studies is that the variable used to measure safety, claims data, is still subject to claims reporting problems associated with the business. That is, large businesses could be suppressing claims rather than improving safety.

The most convincing studies use fatality rate data. This avoids the problems associated with attributing improvements in claims data to improvements in safety and/or claims management practices.

Fatality rate data is still only a proxy for measuring safety. In particular, not all work-related fatalities are included in the data since not all fatal diseases are identified as being work-related. Nevertheless, it is a better proxy than variables such as claims data or injury data since it is not subject to the same claims reporting problems mentioned above.

There is evidence from Butler (1994b), Butler and Worrall (1991), and Moore and Viscusi (1990) that suggests that higher premiums lead to lower fatality rates.

Butler (1994b) found that a 10 per cent increase in workers' compensation costs per payroll would lead to a 2 to 5 per cent fall in fatality rates. This result supported the study by Moore and Viscusi who found:

Workplace fatalities could double in the absence of workers' compensation. Workers' compensation thus represents by far the most influential government program for reducing workplace fatalities. This suggests that if the current level of safety is considered too low, one might wish to assess the degree to which some of the responsibilities of OHSA could be shifted to an injury tax approach (1990, p.135).

The alternative approach used to assess the impact of experience-rating has been tested by Bruce and Atkins (1993). The advantage of their study is that the move from industry-rating to experience-rating in the forestry and construction industries in Ontario in 1984 allowed the researchers to directly assess the impact of experience-rating on fatality rates.

Another advantage of their study is that the methodology rules out the possibility that the factor driving the better performance of large businesses could be economies of scale in safety precautions rather than experience-rating.

Bruce and Atkins found that the shift to experience-rating had a significant impact on fatalities in both industries. In the construction and forestry

⁵ See Ruser (1985, 1990, 1991), Butler and Worrall (1988), Worrall and Butler (1988), and Butler, Appel and Worrall (1991).

industries the shift to experience-rated premiums permanently reduced fatalities by about 50 per cent and 9 per cent respectively.

Australian experience

There has been no rigorous analysis of the effect of the level of workers' compensation premiums or experience-rating on workplace health and safety in Australia. This can be attributed in part to few jurisdictions having enough consistent, unbroken series of injury or claims data to analyse.

Furthermore, the shift to experience-rating and bonus-penalty schemes in Australia has occurred only recently and has coincided with many other changes both to the various compensation schemes and the underlying economic conditions.

However, some indication of the cumulative effect of changes in workers' compensation schemes over the last decade can be found by reviewing the impact they have had in the States that have changed their schemes.

Experience-rating was introduced in New South Wales in 1987. In the six years after experience-rating was introduced, there was an improvement in the claims performance of large (more experience-rated) employers relative to small and medium size employers (see Figure J.1).⁶ The NSW WorkCover Authority argued:

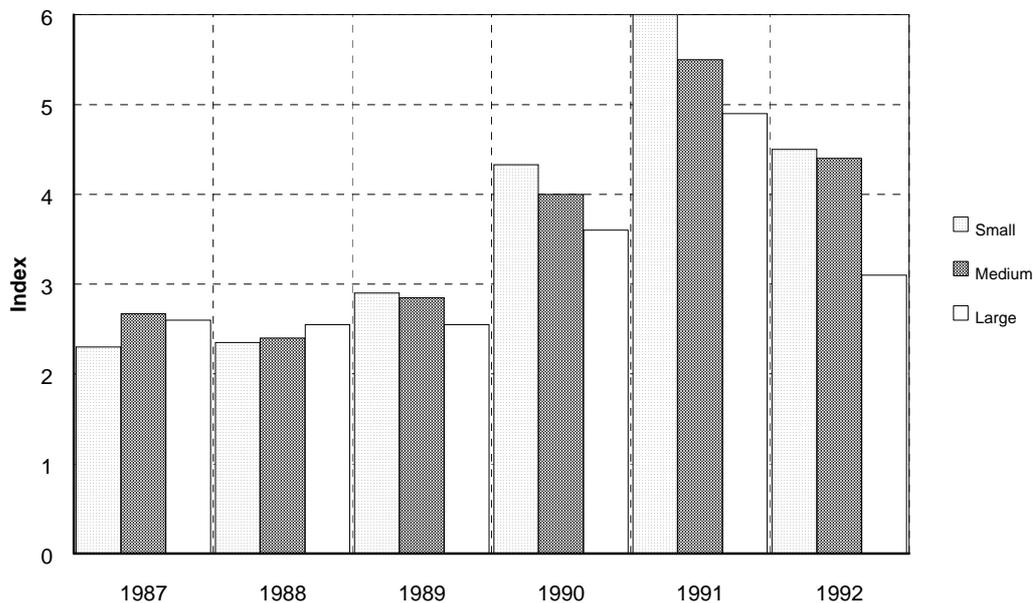
The data clearly indicates that large employers have better claims experience than small employers. After allowing for differences in industry mix they have fewer serious claims and the average cost of those serious claims is less. Furthermore, the performance of large employers appears to have improved substantially since the early years of the scheme (1993, p.3).

In Victoria, a bonus–penalty scheme was first introduced by WorkCare (now WorkCover) in July 1988. Since that time the scheme has been revised on several occasions, each time increasing the size of the bonuses and penalties. In July 1993 WorkCover experience-rated premiums. Since 1986 the Authority has also made changes to benefit entitlements, encouraged rehabilitation and excluded certain injuries from compensation, such as hearing loss of less than 7 per cent.

Since the peak of about 15 claims per 1000 employees in the first quarter of 1987, the incidence of claims has fallen considerably — to about seven claims per 1000 employees in the second quarter of 1994 (see Figure J.2). This decline may be due to many factors: the impact of the two incentive premium schemes,

⁶ Data was only available from 1987–1992.

Figure J.1 Number of 'large' claims per million dollar base tariff, NSW.



Note: Analysis was undertaken on three size groupings, small, medium and large defined as employers with a tariff premium of \$0–\$20 000, \$20 001–\$100 000 and \$100 001 or more respectively. 'Large' claims were defined as claims that incurred costs of \$10 000 or more.

Source: NSW WorkCover Authority, 1993.

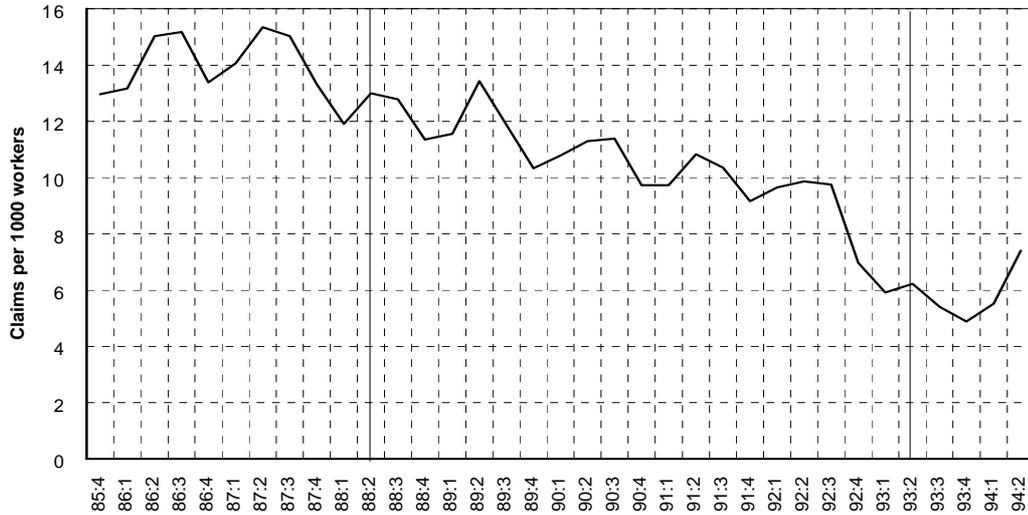
changes in entitlements to compensation, changes to benefit levels and changes to workplace health and safety legislation.⁷

A decline in claims from about 8 to 5.5 claims per 1000 employees has coincided with many changes to the South Australian scheme.

Under the South Australian scheme, there has also been a steady reduction in the average cost of claims for large businesses relative to small businesses. In 1988–89, the average claims cost for large businesses was about \$10 000. Whereas in 1993–94, the average claims cost was about \$4 000. Smaller businesses have also reduced their average claims cost, but by a smaller margin. In 1988–89 average costs were about \$8 000, whereas in 1993–94 they were about \$7 000 (see Figure J.3).

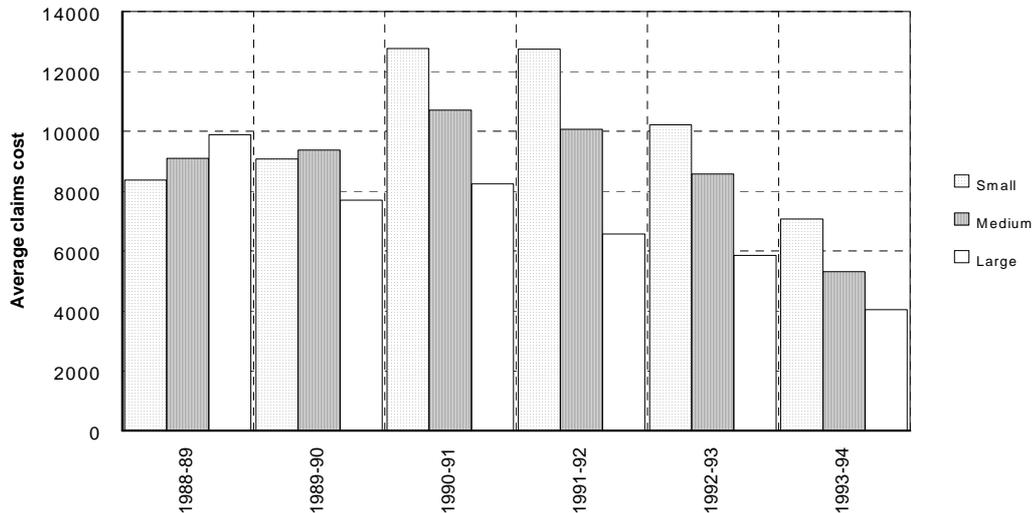
⁷ In 1994, the Victorian WorkCover Authority introduced a threshold on hearing loss claims of 7 per cent. To remove the distortion created by this change in benefit entitlements, all hearing loss claims are excluded from Figure J.2.

Figure J.2 Claims incurred per 1000 workers (excluding hearing loss), Victoria



Note: The two solid vertical lines represent the scheme changes mentioned earlier.
 Source: Victorian WorkCover Authority unpublished data, excluding hearing loss claims.
 ABS Survey of Employment and Earnings (Catalogue No. 6248.0).

Figure J.3 Average cost of claims by business size, South Australia, 1988–89 to 1993–94



Note: Small, medium and large businesses defined to have payrolls of \$0–\$20 000, \$20 001–\$1 000 000, and over \$1 000 001 respectively.
 Source: South Australian WorkCover Corporation unpublished data and Industry Commission.

Participants' views

Most participants felt that incentives, both positive and negative, are vital to getting the employer to focus on health and safety at work. For example, the Victorian Health and Safety Organisation argued:

Financial tools relate directly to the organisation's performance in the marketplace and its returns to investors. Therefore they provide a key to achieving management commitment to a positive occupational health and safety culture in the organisation (sub. 176, p. 7).

Employers reported that the high cost of WorkCover premiums and the need to reduce these by reducing accidents had played a large role in motivating management to focus on occupational health and safety issues (sub. 176, p. 19).

Similarly, the Australian Chamber of Commerce and Industry stated:

One of the most powerful motivating incentives for employers to establish new programs is the ability to be able to achieve a reduction in costs or an increase in returns (sub. 133, p. 12).

Comcare stated:

Making employers more directly responsible for the full costs of occupational injury and disease would provide a more powerful incentive towards safer and healthier workplaces than exists under the current system.

Financial incentives can also be used in a positive way to encourage employers to achieve a high level of occupational health and safety performance, where savings can be demonstrated as a result of reductions in the visible and hidden costs of occupational injury and disease (sub. 174, p. 14).

Some trade unions also agreed that workers' compensation premium incentives play a key role in improving health and safety at work. The Community and Public Sector Union argued:

[An experience rated] scheme provides strong financial incentives for the employer to initiate effective preventative and rehabilitation strategies to minimise the incidence and severity of work accidents (sub. 155, p. 1).

The Trades and Labour Council (TLC) of Western Australia stated:

... the TLC has maintained its demand for a responsive insurance premium rating system embodying incentives and penalties based on occupational health and safety and rehabilitation performance of employers. The TLC has pressed that position for some eight years (sub. 148, p. 19).

The Communication Electrical Plumbing Union agreed that financial incentives are an important motivating factor for employers:

In our experience the greater the financial costs, the greater incentive there is to address risks in the workplace. Anything that affects the operating costs and decreases profits gets more attention (sub. 40, p. 7).

However, some participants disagreed on the extent to which workers' compensation incentives provide incentives to improve safety as opposed to claims management and illegal claims suppression. The Australian Council of Trade Unions expressed a concern that workers' compensation can lead to claims suppression:

The real and obvious concerns raised by the unions [is] about claims suppression (sub. 149, p. 34).

One participant thought that claims suppression is more likely in some industries than others. Ms McKeown, from the Textile Clothing and Footwear Union said:

... suppression of claims would be a big issue for outworkers and in fact in the last five years I have probably not had more than half a dozen phone calls from outworkers and of those, I think one put a claim in and it was decided that she would withdraw it, simply because she would get no money, so it was not worth her while. So that is probably the true picture of how outworkers access compensation: they ... do not (transcript, p. 1922).

Self-insurance

Self-insurers face stronger incentives to provide safe places of work, since a greater proportion of costs are borne internally. Bruce and Atkin's model suggests that:

The socially optimal investment in safety will be more closely approximated, the more closely does the premium rating scheme approach self-insurance (1993, p.13).

Several participants agreed with this view. For example, the Self-Insurers of South Australia argued:

The most effective incentive for an employer to improve occupational health and safety performance is [if the employer] is to be required to bear the full cost of work-related injury, illness and disease arising out of the employer's workplace (sub. 41, p. 1).

Further, Amcor maintained:

The measures that would strengthen incentives for improved occupational health and safety performance would start by allowing and promoting larger employers to self-insure injury claims up to a variable ceiling which is acceptable to the appropriate workers' compensation regulatory authority. This system provides immediate dollar performance feedback which would focus management attention on securing optimal occupational health and safety performance outcomes (sub. 182, p.3).

Empirical research in the United States by Chelius and Kavanaugh (1988) supports this conclusion. They found that once employers switched to self-insurance they had fewer injury claims and the duration of claims declined even more.

Although Australian data in this area is not comprehensive, the Self-Insurers of South Australia argued:

The statistics of the overall occupational health and safety performance of exempt employers [self-insured businesses] in South Australia compared to the overall performance of non-exempt employers clearly demonstrate the benefits to be gained from the incentive offered to such employers to self manage all aspects of the process [of workplace injury] (sub. 41, p. 1).

Some participants also mentioned the cultural change within an organisation that self-insurance generates. Self-insurance means ‘ownership’ of the process of rehabilitation and return to work, and facilitates the development of an internal culture geared to minimising work-related injury and disease. Mr Hastie from the Queensland Workers’ Compensation Board said:

I guess on the face of it we see some significant advantage in some aspects of it [self-insurance] in that it creates and it develops that proprietorial interest at a workplace (transcript, p. 263).

ATTACHMENT J1

PREMIUM SETTING METHODS

There are four predominant premium setting methods in Australia: class rating, experience-rating, bonus-penalty and up-front discounts. In this attachment, these four methods are described.

Class rating

Under class rating (or manual or industry rating), premium rates are determined according to industry categories. In some schemes these industry categories are finely segregated, such as the Victorian, South Australian and Western Australian schemes, which have over 500 industry rates. In other schemes, the industry classes are broader, such as Queensland, where there are less than 200.

High risk industries or occupations have relatively high class rates. The higher the class rate the higher the total premium, for a given employer size. For example, high risk industries in Victoria such as roof tiling, batteries manufacturing, meat products manufacturing, and sheep shearing have class rates of 7 per cent of the wage bill. Whereas safer industries, such as pharmaceuticals and toiletries agencies, radio stations, optometry and optical dispensing have class rates of only 0.4 per cent.⁸

Generally, the individual employer's claims experience does not affect the class premium rate, unless the employer's claims experience is significant in comparison to the industry average. However, in an experience-rated scheme, class rates are often used as a starting point for calculating premiums.

All schemes in Australia use some form of class rate as the basis for premium setting. In some jurisdictions (Western Australia, Northern Territory, Australian Capital Territory and Tasmania), insurers may discount these base rates at will. In New South Wales and Victoria insurers are required to follow a formula when adjusting the base rate. In South Australia and Queensland the base rates are adjusted by a bonus and penalty system.

Class rates generally offer very few incentives to employers to improve workplace safety. Although an employer's efforts to invest in safety precautions may result in a lower claims bill, with class rated premiums, this will not be reflected in a lower premium the following year.

⁸ Victorian WorkCover Authority, *1994/1995 Premiums*.

Experience-rating

Experience-rating generally takes a base rate and adjusts it according to an employer's recent claims experience. For example, in Victoria the base rate is the employer's previous years premium rate. The base rate is then adjusted by the employer's claims experience over the last three years. The size of the adjustment is very important as to the incentives it gives the employer to improve workplace safety.

Generally, there are two factors that affect the size and direction of the adjustment. The first is the actual claims experience of the business. The better the experience, the more the initial premium is reduced. The second factor is the credibility or sizing factor given to the employer.⁹ Generally, more weight can be given to the claims experience of larger employers, hence they have a larger credibility factor. This means that larger employers have their premiums more closely related to their claims experience than smaller employers.

The effect is that larger businesses actually have more incentive to improve the safety of their workplaces than smaller businesses.

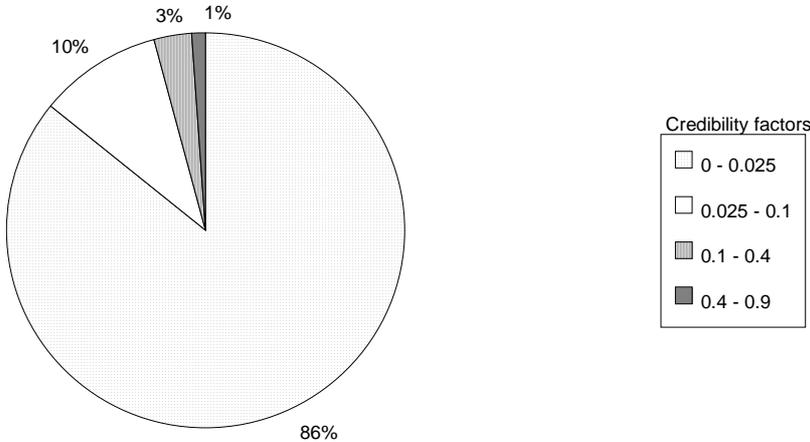
The distribution of credibility factors in Victoria across employers and the number of workers can be seen in Figures J1.1 and J1.2 respectively.

In Victoria, only about 14 per cent of employers have credibility factors over 0.025 (2.5 per cent). This means that only 14 per cent of employers have more than 2.5 per cent of their premium determined by their claims experience. For the majority of employers, individual claims experience has very little effect (less than 2.5 per cent) on their premium.

However, to get a proper indication of the scope and magnitude of experience-rating in Victoria it is necessary to identify the number of workers employed by businesses that have their premiums experience rated more than a nominal amount. Figure J1.2 reveals that businesses with very small credibility factors, that is businesses for which their claims experience determines less than 2.5 per cent of their premium, employ only about 20 per cent of the workers covered by workers' compensation. Around 50 per cent of workers are employed by businesses that have their premiums determined primarily by their recent claims experience.

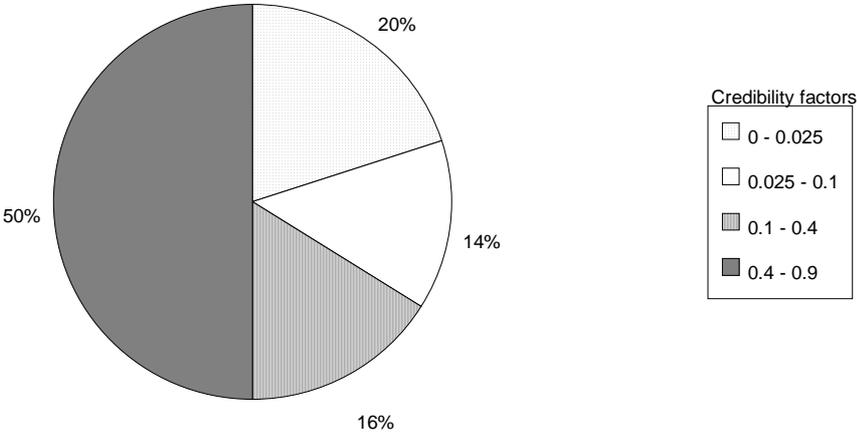
⁹ The credibility factor is a weighting factor that takes into account how large an enterprise is, in terms of employment. Statistically, the experience of large enterprises with many employees will be more reliable than the experience of small enterprises. Thus, more weight should be given to the experience of large enterprises compared with small ones. That is, the larger the enterprise, the higher the credibility factor.

Figure J1.1 Credibility factor distribution



Source: Industry Commission (1994a) amended.

Figure J1.2 Credibility factor distribution by percentage of workers, Victoria



Source: Industry Commission (1994a) amended.

Bonus and Penalty Schemes

WorkCover South Australia and the Queensland Workers' Compensation Board use a bonus and penalty scheme to reflect business claim performance instead of experience-rating.¹⁰

In the South Australian scheme, a business is given a bonus or penalty based on its claims experience compared to other businesses in its industry class over a two year period. The size of the bonus or penalty applied also depends on the size of the employer. Larger businesses can receive a maximum bonus of 30 per cent and a maximum penalty of 50 per cent of the industry rate. The very smallest employers have their bonuses and penalties capped to 20 and 33 per cent of the industry rate respectively.

In the Queensland scheme, the annual surplus from the Workers' Compensation Fund is redistributed to employers as bonuses. Bonuses (and penalties from July 1995) are awarded according to the claims-to-premium ratio of the employer. In recent years, maximum bonuses have been limited to about 50 per cent of the premium (for that year) and the new penalty system can impose a maximum 100 per cent penalty on those businesses that perform badly over a two year period.

Up-front discounts

Under this approach employers are given an up-front discount on their premiums for adopting a safe work practice or procedure.

An example of the discount principle is the South Australian Safety Achiever Bonus Scheme (SABS), which offers premium discounts to employers who set up workplace health and safety systems to prevent injuries and effectively manage them when they occur.

The main advantage of an up front discount is its immediacy. Employers know that if they implement certain changes, their premiums will be reduced now, rather than when their better experience feeds through to the experience-rating or bonus-penalty formula.

However, in its Workers' Compensation Report, the Commission noted that several problems can arise with up front discounts. Insurers may become too optimistic in their evaluation of risk reduction strategies and fail to charge premiums to cover liabilities. There is also the potential for only 'paper

¹⁰ The Queensland scheme does not come into effect until July 1995. Presently they just have a bonus scheme.

compliance' with the requirements needed to obtain the discount. There may also be monitoring and compliance problems.

K ECONOMICS OF WORKPLACE HEALTH AND SAFETY

No activity is completely safe. People face risk in almost every facet of their lives. People encounter risks while eating, travelling, working and in recreation. In most situations there is some risk that an individual will incur an adverse health outcome.

In a typical week in Australia, for example, there will be 10 workers die due to traumatic injuries at work, up to another 50 die due to work-related diseases, 39 from motor vehicle accidents, 115 due to pulmonary diseases such as asthma, emphysema and bronchitis and 600 due to cancer. When averaged over the entire population, the odds of premature death may appear to be relatively small. Unfortunately, these small probabilities may be coupled with catastrophic consequences so that these risks should not be ignored. Taken over a lifetime, or the population as a whole, the consequences of these risks are much more significant.

In this appendix, workplace safety is analysed from an economic perspective. In particular, the nature and characteristics of safety, the optimal level of safety, the case for intervention and policies to improve safety are considered.

K.1 Nature of risk and trade-offs

Risk refers to the situation where the outcome is not certain, but where the probability of each alternative outcome is known or can be estimated. Uncertainty refers to the situation where the probabilities of an outcome occurring are unknown. For example, if it is known that workers face a one-in-thirty chance of being injured, then there is said to be a risk of one-in-thirty of receiving a workplace injury. On the other hand, if it is not known what the chances of suffering a work-related injury are, there is said to be uncertainty.

Nobody intentionally puts his or her life in danger unless there is a strong reason for doing so. Indeed, there must be some trade-off, some offsetting advantage of the risky activity, that leads one to choose to engage in an activity despite its risks. The trade-off is inevitable since we cannot eliminate risk from our lives.

Safety often comes at a cost or by forgoing other characteristics of an activity or product. This is epitomised by the choice of the size of a motor car. Small cars offer a lower fuel bill — but they offer less bulk to protect passengers and to resist the impact of another vehicle. Whenever a person chooses a smaller car

to conserve energy costs, in effect, the person is making an implicit trade-off between the expected health impact and the greater fuel economy. If the person concerned is fully informed about the risks and their consequences the trade-off is explicit.

There are also trade-offs involved when we try to reduce risk. It is useful to distinguish between two types of risk trade-offs.

Risk-cost trade-offs occur where action to reduce the level of risk increases the cost (or reduces the usefulness) of the activity that causes the risk. The National Occupational Health and Safety Commission's (NOHSC) noise standard is an example of a risk-cost trade-off. The standard may reduce hearing loss attributed to noisy machinery — but it may also increase the cost of machinery.

Risk-risk trade-offs occur where action to reduce the level of risk associated with one aspect of an activity may increase other types of risk. For example, personal protective equipment such as hearing muffs may reduce the risk of hearing loss — but they may also reduce a worker's ability to communicate effectively with co-workers, or to listen to machinery and the surrounding environment, which may increase risk of an injury.

K.2 Nature of safety

Although many people have at least a basic understanding of what is meant by workplace safety, each person may define the concept differently. There are also several features of workplace safety that distinguish it from most other economic commodities. In this section the concept of safety is discussed and the characteristics of safety, as applied in this inquiry, are defined.

Intangible

Unlike many economic commodities safety is intangible and there are many contributing factors that may lead to workplace injury. Quinlan and Bohle argue:

... injuries are better understood as the culmination of a process of causation, which may include industrial, organisational, technical, and human error components (1991, p. 110).

Because of safety's intangibility and the many contributing factors to workplace injury, people may be unaware they are facing risk. For example, workers who handle hazardous substances may have little knowledge of the risks associated with the substances. The inherent information problems present with an intangible commodity like safety, suggest that government policies that adjust

for a lack of knowledge of risk may improve the safety decisions made by people.

Experience product

Before commencing employment, people often have little understanding of on-the-job risks. However, one factor that contributes to improving workers information about risk is on-the-job experience (Moore and Viscusi 1990).¹ For example, although a worker in a manufacturing plant may not understand the risks of a job prior to commencing employment, with experience, the worker will have a better understanding of the commitment of the company to workplace health and safety, the quality and safety of machinery, and the general work environment.

However, on-the-job experience contributes to informing individuals of workplace hazards only so far. One reason is because experience of serious injury itself is a rare event.

Rare events

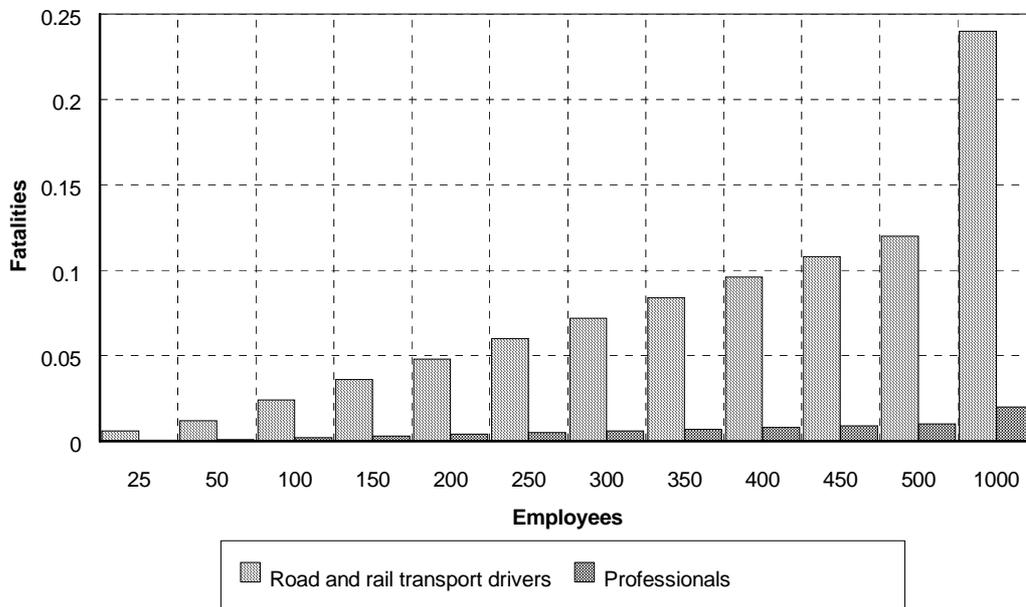
As noted by the Robens Committee, serious injuries are rare events for most individuals:

... the fact is that serious accidents are rare events in the experience of individuals. Even rarer is the personal awareness of the more subtle hazards of insidious diseases which manifest themselves long after periods of exposure in an unhealthy working environment (1972, p. 1).

In addition, the incidence of work-related injury and disease varies considerably depending on a worker's industry and occupation. For example, the probability of a fatality for road and rail transport drivers is more than 10 times as great as that for the professions. Consequently, businesses that employ road and rail drivers have a much greater likelihood of experiencing a fatality, than businesses that employ professionals. Indeed, businesses that employ 1000 road or rail drivers can expect one death about every four years. On the other hand, businesses that employ 1000 professionals can expect only one work-related death every 400 years (see Figure K.1).

¹ Moore and Viscusi (1990, p.20) find that increased risk leads to 'worker quitting' and to decreased job tenure. Moore and Viscusi's results suggest that even though workers may begin with imperfect information, workers improve their information about risk with on-the-job experience.

Figure K.1 Fatalities by professionals and road and rail transport drivers, across business size



Source: Industry Commission calculations based on Worksafe Australia data.

Joint product

Workplace safety is always produced or achieved in conjunction with other business activities. In particular, workplace safety is produced only as labour is utilised. As a result one can not buy workplace safety separately — it is bundled with the output of the business.

K.3 Safety measures

Measures to improve safety vary from enterprise to enterprise. Safety measures also last for varying lengths of time, and may cost different amounts. The characteristics of safety measures are discussed in this section.

Heterogeneity

There are often alternative methods of generating a given level of health and safety at a workplace. For example, preventing damage to hearing in a noisy environment can involve wearing ear plugs, limiting exposure to the noise, or engineering-out noise problems.

This suggests that policies to increase workplace health and safety should explicitly consider all the alternatives available to improve health and safety in a given situation. Legislation that focuses on outcomes rather than prescribing processes will promote this objective. In general, engineering-out hazards is the most effective prevention measure because it obviates the need for learned defensive behaviours.

A given activity may generate different levels of workplace health and safety depending upon the circumstances. For example, driving a truck at a given speed is more dangerous when the road is wet and the driver is under the influence of alcohol than on a dry road when sober. This suggests that safety policies should consider the context in which activities are carried out, and the characteristics of the people who carry them out.

Although most people prefer more safety to less, individuals' preferences for safety varies. For example, some people prefer risky occupations such as firefighting and racing car driving; others prefer safer jobs such as clerical work. This suggests that safety policies should foster informed decisions about risk, and should provide for choice, particularly when trade-offs are involved.

Durability

Safety can be durable. That is, some safety measures may yield a benefit over time, rather than being used up at the moment of consumption. For example, isolating noisy equipment when designing a manufacturing plant may improve the health of workers for many years. Other safety purchases are less durable. Sterile gloves worn by doctors during operations reduce the risk of infecting patients — yet they must be discarded after use. The durability of safety depends on the type of activity, the method of providing safety, and the behaviour of the person consuming it.

Cost of improving safety

The cost of improving workplace health and safety may vary significantly from one activity to another or, for that matter, between employers involved in the same activity. Some activities can be made safer at minimal cost (for example, a person reading operating instructions before using a dangerous piece of machinery). Others may cost millions of dollars (for example, installing safer plant and equipment).

Given that we cannot make activities absolutely safe — for example, even though following appropriate manual handling techniques can reduce the risk of

injury, some risk will always remain — a choice must be made on the amount of resources society devotes to making workplaces safer.

K.4 Optimal level of workplace safety

An economic analysis of workplace safety requires categorising the effects of measures to improve workplace safety as either benefits or costs. This categorisation then enables the level of resources society should devote to enhancing workplace safety to be considered.

The benefits of improved workplace safety include reduced pain, suffering and loss of income experienced by workers with a work-related injury. Employers may also benefit from improving workplace safety as injuries often lead to higher workers' compensation costs and may adversely affect the productivity of the workforce. Taxpayers and the general community also benefit from reduced work-related injury. This is especially so when workers' compensation premiums are insufficient to cover medical expenses and long-term income support.

As well as important benefits, measures to improve workplace safety also have costs. Employers incur the costs of wages for safety officers and safety meetings and the costs of workplace inspections. Work practices are often altered to meet safety requirements; costs are often incurred when employers have to comply with safety requirements; and in some cases injury prevention requires that job tasks cannot be carried out at all.

Given these costs, it will not be in society's interests to maximise safety. Rather, an optimal level of workplace safety is required, where the benefits from improving safety is just equal to the additional costs incurred.

Furthermore, employers, employees and the government are likely to hold different views as to what constitutes an optimal level of safety. These differences will relate to:

- who bears the costs and who bears the benefits (that is, expenses for employers compared to loss of health and impairment for employees); and
- differences in the value of non-traded costs and benefits, such as the value of life.

Tripartite decision making processes have been established to provide a forum in which to balance these different valuations, and to determine an optimal level of safety.

Equity and social justice considerations

Many participants recognised the importance of equity and social justice in workplace health and safety. The Department of Industrial Relations stated:

Fair and effective OHS systems require that the health and safety needs of all segments of the workforce be considered. Accordingly, strategies for the integration of social justice and access and equity principles into OHS policies and programs are being implemented at both Commonwealth and State levels (sub. 74, p. 25).

However, Don Stewart argued:

... State OHS agencies are still at risk of failing to meet the general social justice and equity obligations which are an integral part of the public interest charter of government (sub. 181, p. 3)

The most significant issue concerning equity in this inquiry is that all workers have access to a job that is as safe as practicable. National standards, to the extent that they are implemented by the States and complied with by business, provide for equitable levels of safety across Australia.

However, improving workplace safety can have other effects that can reduce equity. For example, if safety regulations impose costs on business and this leads to higher prices for goods and services, low income workers will be made worse off compared to high income workers — because price rises are generally more of a burden to low-income workers.

K.5 Economic case for intervention

Economic theory indicates that under certain conditions, what is optimal for the individual will also be optimal for society as a whole. An implication of this is that informed decision-making by individuals will result in economically efficient levels of safety. Were this the case, there would be no need, on economic efficiency grounds, for governments to intervene in workplace health and safety.

From this theoretical starting point, economic analysis examines the assumptions and conditions underlying this conclusion to determine to what extent there is a need for government action to correct the decisions made by individual employers and employees, in the interests of maximising welfare from an economy-wide perspective.

In the case of workplace safety four broad issues need to be addressed:

- Is there adequate information on the benefits and costs of safety?
- Are there uncompensated benefits or costs that spillover to other individuals or the community?

- Can the community's preferences be identified? and
- Are there any other distortions in market mechanisms that affect decisions?

These are discussed below.

Information-related problems

Economic analysis assumes in the first instance that people are fully informed and act rationally (in terms of weighing up benefits and costs of each activity undertaken) on that information. However, people often have limited information about workplace risk. The Deafness Foundation (Victoria) stated:

... it is of concern to the Foundation that the issues associated with risk and exposure may not be realistically understood by employers and employees ... (sub. 140, p. 2).

Some participants felt that employees have almost no information about workplace risk. The Women's Health in Industry Association stated:

The majority of female blue collar workers, in particular non-English speaking background women have no understanding of health risks at the workplace, including work environment and work practices. Furthermore their understanding of occupational health as a concept is very poor or nil (sub. 203, p. 2).

The extent to which employers and employees are ignorant of job risk is crucial—if they are completely ignorant there will be no incentive for employers to provide safety. In practice, although most employers and employees are not completely ignorant of risks, they do have to rely on subjective assessments of safety risk. QBE Workers' Compensation (NSW) Ltd stated:

The perceived risk of a situation can be very subjective. For example, an employee may perceive a certain situation to be very unsafe whilst the managing director of the organisation may perceive the situation at question to be a very low risk not worthy of their attention (sub. 115, p. 7).

The subjective nature of risk perceptions means that both employers' and employees' assessment of risk are not always accurate. Worksafe Australia argued:

Some safety, noise and ergonomic risks (back injury for example) appear to be commonly underestimated. Others, such as chemicals, tend to be distorted. People tend to discount long term risks and to accentuate risks where the hazards are unknown (sub. 50, p. 21).

Biases in risk perception

The evidence suggests that people tend to over-assess the fatality risks of low-probability events, such as small pox, tornadoes and botulism. In contrast, people under-assess the risks of high probability events, such as diabetes, heart disease and stroke.²

Slovic, Fischhoff and Lichtenstein (1982) note that some of the risks that are over-assessed are those that have been highly publicised. Worksafe Australia believe that the media is one factor causing such biases:

[Biased risk perceptions are] not assisted by inappropriate media coverage, which tends to focus on the sensational. This tends to cause ill-founded and ill-formed fears of some risks and not of others (sub. 50, p. 22).

The impact of biased risk perceptions is that it distorts people's perception of changes in risk. For example, people that face a specific increase in risk may perceive the increase to be lower than the actual amount. This implies that people may be less concerned than they otherwise would.

Learning about risk

Although both employers and employees often do not have complete information, learning about risk can help them make informed decisions about improving safety. Evidence from Viscusi and O'Conner (1984) suggests that people can learn and revise their initial estimates of risk. This learning may be acquired through on-the-job experience and may also be gained from the labelling of hazardous substances and general information campaigns.

However, this learning process may not be ideal. Several studies have identified a number of systematic shortcomings in the way people learn about risk and incorporate risk into their decisions.³ People tend to underestimate the knowledge they need to evaluate alternatives, ignore the underlying frequency of outcomes, and more generally fail to fully understand the laws of probability.

The implications of these shortcomings are not always clear-cut. Risks may be ignored, leading to excessive levels of risk, or they may be over-assessed, as shown in studies of small fatality risks. The nature of the problem is likely to be more complex than is captured in standard theories of decision making with limited information and may require more advanced analysis (see

² The seminal study in this area is Lichtenstein et al. (1978).

³ See Tversky and Kahneman (1974), Arrow (1982) and Fischhoff and Beyth-Marom (1983).

Attachment K1). There may be either inadequate or excessive attention to risks, depending on the particular context.⁴

Uncertainty about the level of risks

Governments may also intervene when there is uncertainty about hazards. For example, many chemicals are believed, on the basis of general tests, to be capable of causing cancer, although relatively few have been definitely shown to cause cancer in epidemiological studies. Because such cancers may only arise after a period of 20 to 40 years, and even then the excess occurrence may prove difficult to detect, contemporary practice is to be prudent in protecting against exposures to these substances.

External cost and benefits

External costs and benefits refer to the costs and benefits experienced by people other than those directly engaged in a particular activity such as working. These external costs and benefits are not accounted for when employers and workers make private decisions about the level of workplace health and safety. As a result the level of workplace health and safety chosen by workplace parties will not be optimal from society's point of view.

There are three possible external costs associated with workplace health and safety. First, workplace parties impose external costs on taxpayers if they use the social security and (subsidised) health care system for compensation for work-related injury, rather than the workers' compensation system. If some of the costs of workplace injury are not borne by employers and employees then there is less incentive for the workplace parties to provide the socially optimal level of safety.

Commission estimates suggest that a substantial portion of the costs of workplace injury and disease 'spill over' onto the taxpayer, rather than workplace parties. This cost is about 35 per cent of the total costs of work-related injury and disease or about \$7 billion. Although a portion of this estimate is due to the difficulty of proving the extent to which diseases are work-related and the fact that many work-related diseases are also characterised by a long latency period, some of the 'spill over' could be the result of workers' compensation schemes shifting the costs onto the Commonwealth taxpayer.

Several participants suggested external benefits and costs as a rationale for government involvement in health and safety at work. The Victorian OHS Authority argued that employers bear only some of the costs of workplace injury

⁴ Viscusi (1992) p. 108.

and the remainder of the costs of workplace injury (or benefits of improved health and safety) are borne by the community. The authority argued:

There is a clear public interest element in OHS which justifies the involvement of government in regulation and encouragement of community awareness and acceptance of responsibility. At the core of the public interest element is the problem that in OHS ... substantial up-front costs may be borne by employers or shareholders, while the benefits are enjoyed over the longer term by employees, the community and employers themselves, provided they are still in that business (sub. 176, p. 1).

The second external cost results from a form of moral hazard. Moral hazard refers to a situation where incentive is given, or opportunity provided, to gain (unfairly) through others expense. For example, when employers are insured for work-related injury and their premiums are not fully experience rated then they have less incentive to prevent workplace injury. The Robens Committee argued:

... the insurance principle has the effect of reducing the incentive to take positive accident-prevention measures ... flat rates mean that negligent employers are no worse off, so far as the burden of contributing to the [workers' compensation] fund is concerned, than those who reduce risks by putting great effort into their safety organisation and preventive measures (1972, p. 143).

Similarly there are moral hazard problems with respect to employees (Butler, 1994a). For example, most economic studies of workers' compensation during the last 15 years have shown that as benefits to injured and ill employees rise, employees tend to make more compensation claims and stay on any given claim for a longer duration.

The third possible type of external cost is that workers may take toxic chemicals with them on their clothes or bodies, when they leave the workplace and then expose others to those hazards. If this is the case the most likely to be affected are family members.

Problems of identifying preferences

Since a substantial portion of the costs of workplace injury and disease — about 35 per cent — is borne by taxpayers and the broader community, the community's preferences for workplace safety must be also considered. Mr Hodges from the Queensland Division of Workplace Health and Safety stated:

... I think we have to accept that there is no denying the very real and appropriate expectation in the community that government should set appropriate standards ... after extensive consultation with the parties affected (transcript, p. 240).

However, a problem in designing policy for workplace health and safety is getting participation, and identifying the preferences, of all interested parties.

For example, Mr Hodges also mentioned the difficulty of consulting with small business (transcript, p. 240). In addition, although it is generally accepted that everyone prefers more safety to less, the trade-offs people make for safety will vary and are often difficult to identify and measure.

Other market imperfections

Imperfections in other markets may also affect the level of workplace health and safety. One example is where employers have monopsony power.

Monopsony power

Monopsony power exists when an employer cannot hire as much labour as it wants at the going wage rate.⁵ This will be the case if a business is large relative to its market or if workers cannot choose freely between businesses. Where workers cannot choose freely between businesses, the job a worker chooses will not necessarily have the optimal level of safety.⁶ This point was raised by Robert Smith (1976, p. 31) and elaborated on by Viscusi (1980). Viscusi says that when labour mobility is restricted, it is the preferences of the workers that employers are trying to attract that often determine the amount of safety that is provided. This may present a problem for employers and other employees if the workers the business is trying to attract do not have the same preferences for safety as the other employees do.

In practice, several researchers (such as Smith 1976 and Viscusi 1980) have all suggested that these workers may not be typical of all workers. Both suggest that younger workers are likely to be less attached to the labour market and to particular employers and are, therefore, the most likely to be the workers employers are trying to attract. They also argue that since young workers are less likely to have a dependent family, they can more afford the interruption in their income that an injury or disease might entail. Thus, workplace safety may be inadequate and this may justify safety regulation.

K.6 Policies to improve workplace health and safety

The foregoing analysis points to several reasons why employers and employees parties, left to their own devices, will not necessarily make health and safety decisions which accord with their own best interests or those of society as a

⁵ Technically, monopsony power exists when a business does not face an infinitely elastic supply of labour.

⁶ That is, the worker's marginal rate of substitution will not necessarily equal the employer's marginal cost of providing safety.

whole. As noted earlier, this may imply a role for government to correct the decisions taken by the workplace parties.

Government measures designed to modify workplace health and safety would be justified provided the costs associated with government intervention are less than the benefits of improved safety.

Governments have a number of policy alternatives available to modify health and safety at work:

- no specific action (that is, rely on the market in conjunction with existing law);
- general liability laws (strict, negligence or no fault);
- information strategies (including product labelling or media campaigns);
- market-based instruments (including taxes, subsidies, tradeable permits);
- standards (which may be principal standards, output-based or input based);
- pre-market assessment schemes (such as listing, certification and licensing);
- post-market exclusion measures (such as bans, recalls and licence revocation provisions); and
- other mechanisms: community right to know requirements, mandatory audits, quality assurance schemes, self-regulation and co-regulation.

In the case of possible problems of individual decision-making, such as people incorrectly perceiving the health risks of a particular job or activity, or employers not knowing the benefits of safer workplaces, efficiency requires that workplace health and safety outcomes be modified in such a way that accounts for the differences between people's current decisions and those they would choose if they were adequately informed.

Governments may decide to address the information problems by providing incentives for people and business to increase their awareness of both risks and the benefits of improved workplace safety. In some cases they may decide to provide information themselves if this is efficient.

In the case of the external costs of workplace injury (that is, costs to the taxpayer), corrective actions would need to encourage levels of workplace safety that the workplace parties would themselves choose if they were taking not only their private costs but also the costs of the whole community into account. This is usually achieved by making those responsible for the costs bear the costs. For example, governments regulate workers' compensation to ensure employers bear some of the costs. Other possible instruments are injury-taxes and legislated minimum safety requirements.

The following discussion assesses the way these measures can be used to promote the objectives just described.

Provision of information

Awareness campaigns and hazardous substance labelling requirements are means through which information problems can be addressed. These measures are aimed at improving the accuracy of people's perceptions of the job risks and to inform employers of the benefits of improved safety. Worksafe Australia argued:

... by increasing a worker's level of knowledge it enables him or her to make informed decisions about control measures and it should, therefore, have a measurable impact on occupational health and safety performance (sub. 50, p. 55).

Awareness campaigns

In practice people often make decisions in an environment of incomplete information. If they are making decisions on the basis of incomplete information, misallocations of resources can occur and, as a consequence, safety outcomes may not be in people's best interests. This raises the question of whether this becomes a sufficient problem to warrant the provision of publicly funded education and other informational campaigns. In certain cases, where these problems exist, there may be a role for government to provide information about particular risks. These include cases where:

- the government has access to information that is not readily available to others;
- relevant information would not be revealed by employers for commercial reasons; or
- information is not provided because people do not know they need it and therefore do not demand it.

The provision of information in these cases is likely to contribute to economic efficiency if the benefits of providing the information — such as allowing people to be more accurately informed and therefore, better placed to make decisions that are consistent with their best interests and, ultimately, those of society — outweigh the costs of providing the information.

Hazardous substance labelling

Hazardous substance labelling is a targeted safety warning to users of dangerous substances at the moment it is to be used. It also allows purchasers to compare

products on the basis of risk. However, the effectiveness of labelling requirements depends on several factors:

- whether they are read — ideally prior to purchase;
- whether they contain accurate and readily understood information; and
- whether they are believed and acted upon.

Another type of information provision is the current requirement on employers to supply Material Safety Data Sheets (MSDS's) for chemicals and hazardous substances. MSDS's enable purchasers of certain products to know the safest methods of storing, handling and using hazardous substances.

Workers' compensation

From an economic perspective workers' compensation is like a tax on business for workplace injury and disease. It effectively ensures that employers, when making private decisions about job safety, face some of the costs of work-related injury.

If this instrument is to be fully effective, businesses need to be experience-rated and benefits to injured workers need to be as high as is practicable to ensure that a significant portion of the costs of workplace injury are borne by the employer. However, as noted in Chapter 10 it is difficult to experience-rate small employers and it is also difficult to sheet home the costs associated with many diseases to employers.

Furthermore, the moral hazard problems in workers' compensation mean that the most efficient workers' compensation arrangement will involve less than full compensation of injured workers. Because of this, and the difficulty of determining the extent to which many diseases are work-related, some of the costs of workplace injury will not be borne by the workplace parties and will spill over onto the broader community.

These complications imply that workers' compensation incentives need to be augmented with other government measures to improve workplace safety.

Government minimum safety requirements

Minimum safety requirements are more appropriate for health-related matters, such as diseases that manifest themselves over the long-term, rather than safety matters, such as injury. This is because the information-related problems and external costs associated with disease are much greater than those associated with injury. For example, evidence suggests (see for example, Viscusi 1983 and 1992) that it is more difficult for people to perceive the risks associated with

many chemicals and hazardous substances than with safety factors that normally give rise to traumatic-type injury. Furthermore, it is more difficult to determine the extent to which diseases associated with chemicals are work-related, and hence to assign liability to particular employers.

For government minimum safety requirements to be effective, two factors need to be satisfied. First, employers must have incentives to comply with the requirements. However, Commission estimates suggest that this is not always the case. For example, the estimates suggest that the expected penalty is roughly \$20 per breach of occupational health and safety requirement per workplace. Second, the minimum requirements must adequately address the causes of workplace injury and disease if they are to be successful.

Community consultation

In order for governments to explicitly consider how much the community values workplace safety, there must be adequate consultative arrangements. Consultative processes such as NOHSC are a mechanism to help promote the principle that workplace health and safety policies reflect the community's preferences. Don Stewart argued:

OHS agencies should be obliged to seek community input prior to decision-making. If such consultation is to avoid tokenism, OHS agencies must also provide adequate and detailed information to stimulate informed debate and participation by service users and their representatives. Consultation mechanisms should be defined in the enabling legislation and charter of OHS agencies, and provide for systematic and regular input (sub. 181, p. 6).

ATTACHMENT K1

CHOICES UNDER UNCERTAINTY

The standard economic theory for analysing how people make decisions when faced with uncertainty — expected utility theory — assumes that people behave and make decisions that maximise the expected value of their assets and income over time. Over the last twenty years this assumption has been studied extensively. The work has revealed that expected utility theory does not always provide a reliable predictive guide to behaviour. For example, studies show that individual choices are sometimes inconsistent, violating one or more of the basic assumptions of the theoretical model.

The implications of the literature are that choices under uncertainty are sometimes contrary to what is assumed to be rational behaviour. If these conclusions are correct, it implies that the set of effective government policies will be restricted if there is an inadequate understanding of how people respond to information about risk. For example, if people choose not to use hazard warning information, such as health risks of smoking, and cannot make sensible protective decisions after safety measures such as manual handling guidelines are prescribed, then government policies may have limited effectiveness.

In response to these problems researchers such as Kahneman and Tversky, Viscusi and O'Connor, Machina, and others have attempted to develop new theories of human behaviour.⁷

One such theory — prospective reference theory — resolves many of the challenges that have been advanced against the expected utility model.⁸ It also retains some of the attractive features of the standard model of choice under uncertainty. In fact, prospective reference theory *predicts* behaviour such as the

⁷ Three examples of new theories are prospect theory (Kahneman & Tversky 1979), prospective reference theory (Viscusi & O'Connor 1984) and amendments to the standard theory by Machina (1982).

⁸ The basic assumption driving 'prospective reference theory' is that people's attitudes toward uncertainty is influenced by a reference level of risk. The reference level of risk may involve an assumption that each outcome is equally likely or, in the case of outcomes with which the individual has some experience, the likelihoods could differ. In effect the reference risk serves as the individual's initial risk estimate. When presented with new information, the risk estimate is updated from this reference point.

Allais paradox as opposed to being potentially consistent with this type of behaviour.⁹

Prospective reference theory suggests that ‘irregular’ aspects of observed behaviour may not always reflect irrationalities in the way decisions are made, but rather may reflect a quite rational response to a world in which information about the risks we face is limited. The subsequent decisions do not, however, ensure that the optimal level of safety is provided.

⁹ The Allais paradox is an example of an experimental phenomena which contradicts one of the basic assumptions (called the substitution assumption) of the expected utility model. Allais (1953).

L EFFECTIVE REGULATION

The goal of effective regulation is the efficient achievement of stated objectives. In the area of occupational health and safety, regulation should be aimed at reducing the economic and social cost of occupational injury and disease. Inefficient regulation imposes unnecessary costs, and may reduce compliance. Therefore, it is important to identify what constitutes ‘efficient regulation’ in the field of occupational health and safety.

This appendix outlines the principles which governments follow in determining what constitutes effective regulation, the reasons for regulating occupational health and safety, and the different ways that regulatory objectives can be achieved.

L.1 General principles for effective regulation

Two documents that provide guidance on the design and review of effective regulation are currently under amendment or development by government. They will be of particular value to regulators and others concerned with government regulatory activities that have a significant effect on business.

- In April 1995, the Council of Australian Governments (COAG) agreed to the ‘Principles for National Standard Setting and Regulatory Action’ developed by the Commonwealth–State Committee on Regulatory Reform (see COAG 1995). This document sets out some guiding principles in cases where ‘national standards’ are set by Commonwealth-State Ministerial Councils and intergovernmental standard setting agencies such as National Occupational Health and Safety Commission (NOHSC).
- The Office of Regulation Review (part of the Industry Commission) has produced the ‘Guidelines For Regulation Impact Statements’(ORR 1995b). A Regulation Impact Statement (RIS) must be prepared when Commonwealth agencies put forward a proposal involving new or amended business regulation that requires Cabinet approval.

Key principles of good regulation

The key COAG principles include minimising regulation, creating predictable outcomes, regular review of regulation, creating flexible regulation, and standardising the exercise of bureaucratic discretion (see COAG 1995). The full list of principles is summarised below.

Minimising regulation

Working from an initial presumption against new or increased regulation, the overall goal is the effective enforcement of stated objectives. Regulatory measures and instruments should be the minimum required to achieve the pre-determined and desirable outcomes.

Minimising the impact on competition

Regulation should be designed to have a positive impact on competition. Although it may be necessary, for example, to regulate some aspects of commercial practice, regulation should avoid imposing barriers to entry, exit or innovation.

Predicability of outcomes

Regulation should have clearly identifiable outcomes and unless prescriptive requirements are unavoidable in order to ensure public safety in high-risk situations, performance-based requirements that specify outcomes rather than inputs or other prescriptive requirements should be used. This principle should also apply to any standards that might be referred to in regulation.

International standards and practices

Wherever possible, regulatory measures or standards should be compatible with relevant international or internationally accepted standards or practices in order to minimise the impediments to trade. Compatibility in this context does not necessarily imply uniformity, however.

Regulations should not restrict international trade

There should be no discrimination in the way regulatory measures, mandatory standards or conformity procedures are applied between domestic products or imported products, nor between imports from different supplying countries. Regulations should not be applied in a way that creates unnecessary obstacles to international trade.

Regular review of regulation

Regulation should be reviewed periodically. Review should take place at intervals of no more than ten years. This may be achieved through agreements to incorporate sunset provisions in legislative instruments.

Flexibility of standards and regulations

Specified outcomes of standards and regulatory measures should be capable of revision to enable them to be adjusted and updated as circumstances change. However, it is important to ensure that amendments to regulatory measures and instruments do not result in undue uncertainty in business operations and in so doing, impose excessive costs on that sector.

The exercise of bureaucratic discretion

Good regulation should attempt to standardise the exercise of bureaucratic discretion, so as to reduce discrepancies between government regulators, reduce uncertainty and lower compliance costs. This, however, should not preclude an appropriate degree of flexibility to permit regulators to deal quickly with exceptional or changing circumstances or recognise individual needs. Nor should it ignore the danger of administrative action effectively constituting regulation and thus avoiding disciplines of regulation review. There is a need for transparency and procedural fairness in regulation review and administrative decisions should be subject to effective review processes.

Other features of good regulation

The COAG guidelines also require that Ministerial Councils and other regulatory bodies take into account certain practical objectives when formulating national standards and regulatory measures. These include:

- minimising the regulatory burden on the public;
- minimising administrative burden;
- subjecting proposed regulation to a regulatory impact assessment process;
- accountability;
- compliance strategies which ensure the greatest degree of compliance at the lowest cost to all parties;
- consideration of secondary effects;
- referencing standards in appendices rather than in the regulatory instrument itself;
- regulatory instruments should be performance-based;
- drafting in plain language;
- planning dates of effect to ensure harmonious transition to the new regulatory requirements;
- advertising the introduction of standards and regulations; and
- public consultation.

L.2 Assessing regulatory processes

The Office of Regulation Review (ORR) conducted a survey of national agencies that undertook the analysis and regulation of safety risk (ORR 1995a). To gain greater insights into the way agencies developed regulations, it reduced the process to stages:

- the determination of the objective of a regulation, for example specifying a target risk level;
- determining the mechanism or instrument to be used to achieve that objective; and
- measuring the effectiveness of the chosen mechanism or instrument.

The way agencies respond to these stages should reflect the general principles of efficient regulation (see section L.1). This review focuses on the approach adopted by NOHSC to develop National Standards.

Regulatory objectives

In formulating regulations, NOHSC's objectives are couched in general qualitative terms, 'to reduce the risk or incidence of injuries associated with a particular product, process or problem'.

NOHSC does not specifically aim to achieve a target level of exposure. Rather, the level of exposure that it is prepared to tolerate arises from a process of consultation that implicitly measures the strength of support or opposition to a regulation. Regulations that are acceptable to a tripartite group are endorsed. Therefore the allowable exposure levels can vary depending on the outcome of the process of consultation.

Regulatory mechanisms

NOHSC is primarily concerned with promoting safe practices through the specification of national standards.

However, it regards regulations as only one component of an effective OHS strategy. Other components include the provision of information and advice and the application of sound management principles in the workplace.

NOHSC generally promulgates performance-based standards rather than detailed prescriptive standards. These are designed to give firms the flexibility to meet workplace safety objectives in the most cost-effective manner.

Where a hierarchy of control measures is prescribed, the 'as far as is reasonably practicable' test in the principal Act allows the employer flexibility.

Analysis conducted by the Office of Regulation Review of the Industry Commission has identified a link between the level of safety risk tolerated by agencies and the flexibility of the approach they take:

... there is a strong link between the processes used to set target risk levels and the size of those risk levels. Agencies clustered at the low end of the risk spectrum are those that set arbitrary risk targets. Agencies that primarily derive the appropriate level of risk from other considerations such as cost-benefit analyses and community consultations tend to tolerate higher levels of risk (ORR 1995a, p. 81).

The formation of regulation

NOHSC uses a combination of approaches in formulating regulations:

- technical research — technical or scientific research and information contributes to assessing the merits or necessary stringency of particular regulations;
- consultation — NOHSC is a tripartite forum; and
- economic assessment — forms of cost-benefit and cost-effectiveness analysis are employed.

NOHSC responds to directives from government and from the tripartite membership of its National Commission in setting its work priorities. In addition, NOHSC has developed a framework to assign priority status for standards development. Under this framework, priority status is assigned in accordance with the following criteria:

- areas of most pressing need, including those having a major impact on the severity of injuries and disease;
- capacity to enhance productivity and efficiency of industry; and
- significance in terms of achieving national uniformity, taking into account the effects of mutual recognition of OHS regulation.

NOHSC makes extensive use of tripartite working groups in developing regulatory proposals. In addition, existing regulation in the States and Territories is reviewed and inconsistencies and similarities are identified. International standards are also used where appropriate. NOHSC relies on the expertise of the tripartite expert working group (EWG) and expert review group in developing regulations. Members of these groups also consult with their constituents. All new NOHSC standards are subjected to a period of public comment during the drafting stage.

In addition, States and Territories undertake their own regulatory review process of each standard prior to adoption. It is believed that conducting a national Economic Impact Assessment during the development of each standard will eliminate the need for separate State and Territory assessments.

Tasmania, Victoria and New South Wales require Regulatory Impact Statements as part of the regulatory development process. Other States have similar but non-mandatory requirements — see Appendix E.

Measuring effectiveness

State and Territory representatives on NOHSC facilitate feedback on the adoption of national model regulations in their jurisdiction. However, systematic means of assessing the impact of safety regulations are limited. This is partly due to data deficiencies. NOHSC stated that occupational injury and disease reporting and surveillance systems recently introduced will provide data on national trends and assist in the assessment of national regulatory models.

L.3 Objectives of OHS regulation

The goal of efficient regulation is the effective achievement of stated objectives. Therefore, to assess the effectiveness of a given regulation, it is important to clearly understand its objectives.

There are both efficiency and social policy objectives for government intervention in workplace health and safety. Governments should regulate for minimum health and safety requirements to ensure efficient and equitable outcomes.

However, it should not be presumed that because an individual or group appears to bear apparently high risk levels that there are grounds for government intervention.

Regulation is not costless, and there is some evidence that regulatory costs could themselves reduce health status and longevity. A United States (US) Senate Committee on Governmental Affairs (1992) heard evidence that the impact of additional regulatory costs on wages and prices decreases the discretionary income of workers and consumers. This consequently lessens their ability to engage in ‘healthy lifestyle practices’ which contribute to a reduction in mortality rates. Evidence was presented that every (US)\$ 7.5 million dollar reduction in national income led to one premature death — implying that costly health and safety regulations with few benefits could do more harm than good.

Concern has also been expressed that OHS regulation has little practical effect at all. Gun (1992) contrasted the United Kingdom’s fatal injury rates with those of the United States since the 1970s. He found a parallel decline in both countries, although the United Kingdom (UK) adopted a ‘self-regulatory’ approach based on Robens Committee recommendations, while the US relied

mainly on detailed regulations and an active enforcement authority. He concluded that it is possible that the improvement in both countries is part of an evolutionary process independent of legislative changes.

Using statistical techniques Butler (1994), McCaffrey (1983) and Viscusi (1992) found that the effect of regulation on death rates was insignificant.

In Australia, a study comparing the incidence of fatalities and injuries in the manufacturing and construction industries in Queensland from 1977–78 to 1991–92 concluded that:

At this stage the *Workplace Health and Safety Act* does not appear to have altered pre-existing trends with the possible exception of a rise in fatalities (Gibson 1993, p. 25).

Despite these concerns about the efficacy of OHS regulation, various arguments can be mounted to justify government intervention in occupational health and safety.

Efficiency reasons

Workers have an obvious natural incentive to avoid injury and illness. Nevertheless, their actions to ensure their own safety may be influenced by a number of factors outside their control. For example, they may be insufficiently informed of workplace hazards and their health consequences, or they may lack bargaining power with which to negotiate for improved conditions.

Employers also face strong natural incentives to prevent accidents. The costs of workers' compensation insurance, plus the indirect costs associated with work-related injury and disease reinforce the general desire not to injure employees. However, the incentive effects of these costs can be dulled by an inadequate appreciation of their significance — information failures — or where part of the cost is not borne by the employer, but is passed on to the employee or a third party such as Medicare or social security — external costs.

Using National Accounts data, the Commission estimates that approximately 30 per cent of the cost of a work-related injury or disease is borne by the employer; 30 per cent by the employee; and the community bears 40 per cent of the cost (see Appendix C). This provides a strong rationale for government to regulate in the community's interest.

OHS and workers' compensation legislation have been developed to minimise the risks which create external costs, and to allocate those costs 'fairly'.

Many risks are difficult to quantify or even identify. Regulation to improve the amount, quality or distribution of information may be desirable where market

forces would not normally make such information available. Regulation may also be justified where uncertainty remains, to express community preferences about how to address that uncertainty.

Rather than duplicating efforts in developing safety strategies it may sometimes be more efficient to use regulation to disseminate a centrally developed strategy. However, these efficiencies may also be exploited by groups of employers jointly developing safety strategies, or safety experts selling their safety expertise, without requiring government regulation of workplace health and safety.

Social policy reasons

Governments also have broader 'non-economic' social policy goals which influence regulatory policy. There may be a case for regulation to prevent an unregulated market from leading to socially unacceptable outcomes.

The Department of Industrial Relations explicitly recognises the importance of equity in OHS regulation, and stated:

The National Occupational Health and Safety Commission Act 1985 ... is based on the commitment of employers, employees (and their respective organisations) and governments to an equitable system for OHS regulation based on the principles of: prevention, equity, participation, and acceptance of responsibility (sub. 74, p. 4).

It emphasised:

OHS reform is also being driven by important issues of social justice. Fair and effective OHS systems require that the health and safety needs of all segments of the workforce be considered. Accordingly, strategies for the integration of social justice and access and equity principles into OHS policies and programs are being implemented at both Commonwealth and State levels (sub. 74, p. 25).

For example, there are equity considerations involved in exposing workers to differing levels of risk, particularly if they are not compensated for that risk. Where workers lack the bargaining power to negotiate for increased safety or higher wages, community opinion may favour regulation to address those risks.

Even if wages are adjusted for risk, the community may hold a view that there is a maximum level of risk beyond which workers should not be exposed, regardless of compensation.

There may be a wider equity issue arising from the distribution of risk between the workplace and other activities. It has been argued that workplace risks tend to be concentrated in lower socio-economic groups, while other risks, for example transport, are spread more evenly across the population. If there is more pressure for safe transport than for safe work, this may be regarded as a

mis-allocation of resources and justify regulation to redistribute the resources devoted to risk abatement.

Other social policy goals of government may impact on or complement OHS regulation.

Equal Employment Opportunity (EEO) policies may require the workplace to be made safe for all workers, regardless of the susceptibilities of particular groups, even though it may be more cost-effective for employers to screen out workers who are particularly at risk. For example, the National Standard for lead exposure in the workplace was designed to protect the health and safety of all workers, and redress the exclusion of women from working in lead processes.

Industrial Democracy (ID) principles, which encourage greater employee participation in decision making within an enterprise, have particular relevance for consultative structures in OHS. ID principles hold that people have a right to be involved in decisions affecting them, particularly where those decisions affect their health and safety.

Applying the general principles of efficient regulation to social regulation ensures that the most efficient means of achieving social objectives are chosen.

Legislation

The ‘objects’ sections of the OHS Acts and the nature of primary duties — placed on employers, employees and other parties — provides an indication of Governments’ objectives with regard to OHS legislation.

A typical example is Section 3 of the Commonwealth *Occupational Health and Safety (Commonwealth Employment) Act*, which lists the objectives of the Act. They are:

- to secure the health, safety and welfare at work of employees of the Commonwealth and of Commonwealth authorities;
- to protect persons at or near workplaces from risks to health and safety arising out of the activities of such employees at work;
- to ensure that expert advice is available on occupational health and safety matters affecting employers, employees and contractors;
- to promote an occupational environment for such employees at work that is adapted to their needs relating to health and safety; and
- to foster a co-operative consultative relationship between employers and employees on the health, safety and welfare of such employees at work.

Part 2 of the Act lists the duties of various parties, including; employers, manufacturers, suppliers and employees. For example, it requires an employer

to take all reasonably practicable steps to protect the health and safety at work of the employer's employees.

Common law

The nature of the common law duty owed by employers to their employees reflects community attitudes towards the acceptability of risks to workplace health and safety.

The Courts have established an objective standard for this duty — 'what would a reasonable employer have done in the situation?' — and have identified a contemporary tendency toward 'more demanding standards'.¹

L.4 The Robens Committee report

In 1972 a UK Committee of Inquiry, chaired by Lord Robens, reported on 'the provision made for the safety and health of persons in the course of their employment'. It was the first comprehensive review of occupational health and safety regulation, and made far-reaching, fundamental criticisms of the existing structure of the legislation, and recommended a framework for a new legislative regime to remedy the defects it had identified.

Robens Committee criticisms of existing legislation

The Committee found a lack of balance between the regulatory and voluntary elements of the existing OHS system. The approach tended to encourage people to think and behave as if safety and health at work were primarily a matter of detailed regulation by external agencies.

Regulatory provisions followed a style and pattern developed in an earlier and different social and technological context. Piecemeal development had led to a haphazard mass of intricate, detailed law which was difficult to comprehend, amend and keep up to date. It paid insufficient regard to human and organisational factors, and did not cover all workers and some major hazards. It also suffered from fragmented administrative arrangements.

The Robens Committee identified four principal problems which contributed to general 'apathy' about OHS.

- The unco-ordinated proliferation of statutory requirements.

¹ *Bankstown Foundry Pty Ltd v. Braistina* (1986) 160 C.L.R. 301

- The excessive complexity of many of the requirements, often as a result of attempts to make the requirements ‘watertight’.
- Failure to keep pace with technological, social and economic change — both as to the content of requirements, and as to the range of matters which were subject to statutory regulation.
- Failure to formally and consistently involve employers and workers in the standard setting process.

Robens Committee recommendations

The Committee identified a need for ‘a more effectively self-regulating system’, and recommended that a national authority should revise, unify and administer all health and safety legislation dealing with factories, mines, agriculture, explosives, petroleum, nuclear installations and alkali works.

Existing statutory provisions should be replaced with a set of revised provisions under a new enabling Act, supported by regulations and non-statutory codes of practice. These voluntary, industry developed codes of practice were to be used wherever possible instead of statutory regulations.

There should be a general statutory obligation on employers to consult with their workers on measures for promoting safety and health.

In summary, Robens-style ‘enabling’ legislation:

- lays down general duties on employers, workers and suppliers of materials;
- establishes basic rights for workers and their representatives;
- creates new tripartite structures through which requirements may be developed; and
- reforms the administration and enforcement of the law.

Adoption of the Robens approach in Australia

In Australia, initial moves were made to adopt the Robens approach in South Australia in 1972, in Tasmania in 1977, and in Victoria in 1981. New legislation was introduced in NSW in 1983 following the recommendations of the Williams Committee. The Australian adoption of the Robens approach reached its peak with the passage of the Victorian *Occupational Health and Safety Act in 1985* (OHS Act 1985). Following a comprehensive Report from the South Australian Steering Committee on Occupational Safety, Health and Welfare in 1984, South Australia passed Robens-style legislation in 1986. In Western Australia the transition was accomplished in two steps, with the passage of legislation establishing a tripartite structure in 1984, followed by a

second step in 1987 establishing workplace structures (but retreating considerably from the positions established in Victoria). The Northern Territory in 1986 and Queensland in 1989 adopted versions of the Robens approach, and Robens-style Acts were passed in the ACT in 1989, and for Commonwealth Government employment in 1991 (Mathews 1993, p. 24).

Criticisms of the Robens approach

Brooks is one of the more outspoken critics of Robens (Brooks 1993). She argues the following.

- It seems unlikely that industry could be encouraged to introduce its own procedures for safety and to abide by them when it would not comply with procedures introduced by statute and bolstered by the threat of criminal penalties.
- Non-compliance was not necessarily due to apathy. If there was no enforcement, there may have been deliberate non-compliance.
- The mere identification of many sets of regulations may be misleading. What is important is the number of Acts relevant to a particular firm.
- If the number and complexity of regulations leads to apathy, this may be an argument for rationalising the organisation of the regulations, rather than indicate that there are too many regulations or that regulations are an inappropriate method of ensuring conformity with a desirable standard of safety.
- Addressing the faults identified by Robens does not necessarily require dismantling the existing regulatory structures.

Health and Safety Commission Review 1994

The United Kingdom Health and Safety Commission produced a major Review of Health and Safety Regulation in 1994 (see Health and Safety Commission 1994). The review aimed to achieve a simpler, clearer and more effective system, without any reduction in health and safety standards.

The review found that the current (Robens-style) system of regulation — both the legislative framework and the practical requirements — had won widespread support. However, health and safety law was still seen as voluminous, complicated and fragmented. Four particular regulatory issues were highlighted.

- The respective roles of legislation, approved codes of practice and guidance were not well understood.

- There was widespread misunderstanding of many of the provisions of modern legislation, particularly risk assessment and control, leading to misdirection of effort.
- Many unnecessary sets of regulations and associated legislation were identified.
- There was considerable scope for simplification of form-filling, record keeping and other paperwork.

The review proposed a program designed to improve compliance by making it easier for employers and others to understand what was required of them. However, the basic thrust of the Robens approach was endorsed.

L.5 Duty of care

All jurisdictions in Australia have adopted a statutory expression of the duty of care on employers, employees and others to provide healthy and safe conditions at work. The object of imposing these duties is to ensure that those with authority or control over particular aspects of the working environment exercise that authority or control in a manner that is not harmful to the health or safety of any person. For a discussion of the duties in each jurisdiction, see Appendix I.

Robens recommended the adoption of the duty of care in OHS legislation for the educational value of a statutory endorsement of the traditional common law obligation, and to encourage a broader view of responsibilities than those imposed by detailed regulations.

The duty of care allows OHS legislation to address emerging hazards as they arise, for new information to be taken into account and new technologies to be adopted as they become known. It does not depend upon specific regulation being created to address changing circumstances.

The nature of the duty of care places an onus on employers to take account of the particular circumstances and characteristics of their workforce. For example, as changes in the nature of the workforce introduce more contractors, part-time workers and casuals into the workplace, employers have a duty to ensure that everything 'reasonably practicable' is done to ensure their health and safety. Similarly, employers have a duty to do everything reasonably practicable to address the health and safety of workers who may face particular workplace health and safety problems, such as women and those from non-English speaking backgrounds.

The duty of care in Robens legislation represents a statutory expression of the traditional common law duty, and is expressed in similar terms to the common

law duty of care. However, under common law, there must be some damage to a person or property before a person may bring an action alleging a breach of the duty. Where the statutory duty appears to be breached, action can be taken to enforce the Act and make the workplace safe before injuries occur. A breach of the statutory duty does not have to be associated with an accident or injury.

Many Inquiry participants supported the idea of a regulatory regime focused on the duty of care. For example, Pasminco Metals-Sulphide Pty Ltd supported this approach (sub. 333).

Employers' duties

Employers are typically required to 'provide and maintain so far as is practicable for employees a working environment that is safe and without risks to health' (Victorian OHS Act 1985 Section 21). Employers also have a duty to ensure that the health and safety of members of the public is not affected adversely by their business activities.

The duty of care may be elaborated by specific duties which provide examples of what is necessary to comply with the duty of care. For example, in Victoria these include:

- providing and maintaining safe plant and systems of work;
- arranging safe systems of work in connection with plant and substances;
- providing a safe working environment;
- providing adequate welfare facilities; and
- providing adequate information on hazards, as well as instruction, training and supervision of employees, to enable them to work safely.

Employers are also required, as far as is practicable, to:

- monitor the health of their employees;
- keep information and records relating to the health and safety of their employees;
- employ or engage suitably qualified persons to provide advice to them in relation to the health and safety of their employees;
- nominate a person with an appropriate level of seniority to be the employer's representative when health and safety issues arise or when health and safety representatives carry out their functions under the Act;
- monitor conditions at any workplace under their control and management; and

- provide information to their employees, in such languages as are appropriate, with respect to health and safety at the workplace, including the names of persons to whom an employee may make an inquiry or complaint in relation to health and safety.

Some participants cited examples of employers not meeting their duty of care. For example, WRK International argued that some hospitals are not meeting their duty of care in relation to handling of patients (sub. 288, p. 1).

Employees' duties

All jurisdictions complement the employers' duty of care with a statement of the duties of employees. These require employees to take reasonable care of their own health and safety and of others who may be affected by acts or omissions on their part. They generally have a duty to co-operate with their employer in any action taken to comply with health and safety requirements. In addition, employees generally must not recklessly or wilfully misuse safety equipment, or wilfully put at risk the health and safety of others.

This is a statutory obligation on workers over and above their duty under the common law contract of employment to obey their employer's lawful and reasonable instructions.

The South Australian Steering Committee on Occupational Safety, Health and Welfare considered this issue as follows:

The danger in imposing a statutory duty on workers to behave responsibly (over and above the common law duty contained in the contract of employment) is that it opens the way to workers being prosecuted for unsafe acts which may have been imposed on them through direct or indirect pressures (SA Steering Committee 1984).

Lamaan Whyte Consulting (sub. 359, p. 1) and the Australian Hotels Association (sub. 180, p. 2) emphasised the need for employees to be responsible for safety, as well as the employer.

Duties of third parties

Workplace injury or disease may result from the negligence of a third party in addition to, or independent of, the actions of an employer or employee. For example, the manufacturers of faulty tools, or the designers of plant and equipment with safety flaws may be negligent.

A statutory duty of care has been placed on third parties such as manufacturers, suppliers, designers and installers. The duty is one to take reasonable care — a duty to adopt whatever reasonable and practicable precautions exist to avoid

exposing the employees of their customers or clients to foreseeable risk of injury.

The manufacturers, suppliers and importers of substances are under a similar duty. These persons may also be required to provide all necessary information about their product to ensure it is used safely and without risks to health (Victorian OSH Act 1985 Section 24).

A survey by the National Safety Council of Australia found that mechanical equipment accidents accounted for 80 per cent of workplace deaths, and a large proportion of these could be the result of defectively designed equipment. The survey found that 'hazardous equipment conditions' were common factors in 95 per cent of the injuries. In 22 per cent of cases 'wrong mechanical design' was blamed. Nearly 50 per cent of machines studied had 'inadequate guards, many had labels written in a foreign language and a lack of controls to prevent inadvertent start-ups'. The National Safety Council called for the introduction of Plant Safety Data Sheets for hazardous machinery in much the same way Material Safety Data Sheets already exist for hazardous substances.

Worksafe Australia's study of Work-Related Traumatic Fatalities found that around 50 per cent of workplace deaths in the period 1982–84 were due to mechanical equipment (sub. 395, p. 20).

Disciplines such as engineering have been undergoing a gradual move towards recognising the health and safety component of their work, as shown by the Australian Standard on 'safeguarding of machinery':

3.1 GENERAL. Since machinery will be used or maintained by people, human factors, that is, ergonomics, shall be included in the primary design criteria. Accidents with machines have often been attributed to 'unsafe acts', when a more thorough study would have revealed a design deficiency which did not allow for typical human characteristics or behaviour. Some general ergonomic principles which are relevant to the design of safe person-machine systems are discussed in this section (AS4024.1 (Int)-1992).

The Medical Industry Association of Australia commented that in some instances hospitals are putting suppliers or their employees at risk by returning contaminated goods, and not decontaminating capital equipment items that need to be repaired by supplier service personnel (sub. 20, p. 2).

'Reasonably practicable'

The duty of care in the OHS Act is qualified by the term 'so far as is reasonably practicable', or words to that effect. NOHSC has adopted the term 'workable'. Victoria, Western Australia and the Northern Territory use 'practicable', and New South Wales, Tasmania and South Australia refer to 'reasonably

practicable' in their legislation. In Queensland, if there is neither a compliance nor advisory standard applicable to a situation, a person needs to 'take reasonable precautions and exercise due diligence' in order to discharge their obligations under the *Workplace Health and Safety Act 1995*.

The Western Australian Occupational Health, Safety and Welfare Commission publishes a Guidance Note on the General Duty of Care. In relation to the meaning of 'practicable' it states:

If something is practicable it is physically possible or capable of being done. The question of whether it is also reasonable takes some other factors into account:

1. the severity of any injury or harm to health that may occur;
2. the degree of risk or probability of that injury or harm occurring;
3. how much is known about the hazard and ways of reducing, eliminating or controlling it;
4. the availability, suitability and cost of the safeguards.

The cost has to do with the expense and inconvenience necessary to put the safeguards in place measured against the consequences of failing to do so. It is not a measure of whether the employer can afford to put the necessary safeguards in place.

Employers would be expected to incur greater expense and inconvenience in the provision of safeguards against those risks which could result in serious injuries from time-to-time, against those which could result in frequent injuries even though they may be less serious (Western Australian Occupational Health, Safety and Welfare Commission 1993, p.13)

The Queensland 'Plant' Code of Practice has a more succinct definition:

(1) the duty of care should be carried out as far as is practicable. This means that the degree of risk in a particular activity or environment can be balanced against the:

- time;
- trouble; and
- cost

of taking measures to control the risk.

If the measures are so disproportionate to the risk that it would be unreasonable for the people concerned to have to incur them to control the risk, they are not obliged to do so (Queensland Government 1993).

Ultimately, the issue of 'reasonably practicable' involves a value judgement. The correct standard is that of the reasonable and prudent employer. There is no objective and abstract definition of how such an employer will act. That must be determined on the particular facts of each case.

Faced with this difficulty, the law has turned to 'the safety of numbers' (Brooks 1993, p. 82). It will generally be assumed that if a certain method of work is a common practice in the industry, then to follow that practice is not unreasonable or imprudent. This is not an incontrovertible presumption, but an inference which can be displaced.

Where employers can show they have complied with common practice, employees will find themselves making their claim 'in the teeth of the evidence'.² It is possible, although difficult, to show that common practice is unreasonable, that the industry is dominated by unreasonable employers, and that the reasonable employer would have acted differently.

In the end, each case comes down to a decision on its facts. Brooks states:

Apart from the identification of what is foreseeable and what is reasonable, these cases are purely contests of evidence, and, as we have seen, even the foreseeable and reasonable are identified more by commonsense and guesswork than by the force of clear legal principle (Brooks 1993, p. 87).

'Reasonably practicable' and regulations

If there is a risk in a particular job against which no precaution can be devised, then there can be no liability on an employer if a worker suffers an injury. This is the only remaining area of risk which a worker may be said to have voluntarily accepted. A risk which is unpreventable must be a necessary one. If it could be eliminated only by discontinuing the operation, this is something the common law does not require of employers.

Particular requirements and procedures may be included in subordinate legislation (regulations) that are additional to the duty of care. The 'reasonably practicable' test only applies to these requirements and procedures if it is explicitly restated in relation to them. Otherwise they have a strict liability, and all employers must meet these requirements.

The Western Australian Occupational Health, Safety and Welfare Commission

² *Paris v Stepney Borough Council* [1951] A.C. 383

Guidance Note on the General Duty of Care states:

Where a regulation does exist, the regulation must be complied with as a minimum requirement. ... This is a minimum requirement, which is not qualified by the phrase 'in so far as practicable', and it must be complied with in all workplaces covered by the Act (The Western Australian Occupational Health, Safety and Welfare Commission 1993, p. 16).

M R Phillips expressed the rationale for treating regulations and the duty of care differently as follows:

The argument that regulations are redundant when legislation contains duty-of-care provisions fails to recognise an important difference between the two. It is necessary that duty-of-care obligations should be conditional. ... [It] would be impossible to achieve if it were not qualified by the phrase 'so far as is reasonably practicable'. The reason for this necessity is that no-one can foresee all possible hazards nor can they completely eradicate all possible risk. Because regulations are more specific it is possible to make them unconditional, that is subject to strict liability. ... What then is the role for regulations? This should be to ensure a minimum standard of care which is not subject to practicability. ... unfortunately the crucial role of regulations in ensuring the maintenance of minimum standards has frequently been misunderstood. So too has been the obligation imposed by duty of care provisions to provide better than minimum standards where practicability allows (sub. 34, pp. 2–3).

However, whilst regulations must be complied with, the overriding responsibility is to comply with the duty of care in the Act. Compliance with a regulation does not necessarily mean that everything which is required by the duty of care has been fulfilled. As a general rule, whenever a hazard exists and persons at the workplace could be exposed to unacceptable risk of injury or harm to their health, the general duties as set out in the Act and any relevant regulations should be taken into account.

If hazards exist and there are no relevant regulations, employers still have a duty to reduce, eliminate or control the hazards. Consultation and co-operation between employers and employees can lead to the development of health and safety procedures which suit their particular work situations.

L.6 Employee representation

Each jurisdiction has different legislative provisions for employee representation (see Appendix I). The rights and responsibilities of health and safety representatives and committees also differ between jurisdictions.

The ACTU proposed that the functions of *joint OHS committees* should include:

- to consider workplace accident and disease statistics to identify problem areas and make recommendations for corrective action;

- to consider the results of all environmental and personal monitoring carried out in the workplace;
- to investigate the causes of unacceptably high risks to employees and to consider recommendations for their elimination or reduction;
- to consider aggregate results of all medical monitoring carried out on employees in the workplace and to make recommendations arising from these results;
- to consider all available data on new chemicals, physical agents, installations or processes which are proposed to be introduced into the workplace, to evaluate their potential health and safety effects on employees, and to determine whether, or with what modifications or safety procedures, they should be introduced into the workplace;
- to develop prevention policies and control strategies for all workplace hazards recognising existing regulations and codes of practice as the minimum standards;
- to consider selection and engagement of consultants to inquire into and make recommendations on workplace hazards;
- to monitor and review compliance with general duties imposed on the employer under legislation; and
- to consider matters raised by any member of the committee (sub. 336, Attachment 2).

The ACTU proposed the following rights and functions for *health and safety representatives*:

- to inspect the workplace;
- to have access to all health and safety information relating to the workplace;
- to call in a government inspector and to accompany an inspector during an inspection;
- to initiate prosecutions through the union, in respect of breaches of regulations, where the inspectorate fails to act;
- to stop work and order workers and others at risk out of areas where an immediate threat to health and safety is suspected (with no loss of wages) pending the arbitration of an inspector;
- to initiate improvement notices on any plant or process;
- to be informed of any accident or hazardous event immediately and to carry out an emergency inspection of the site, and to be given copies of accident reports;

- to represent workers in health and safety disputes or internal inquiries after accidents;
- to be consulted by the employer on all changes to the workplace which may have implications for the health and safety of the workers they represent;
- to perform all their activities on paid time, and to have adequate facilities;
- to call in consultants and advisers to the workplace at any time, after notifying the employer, and at the employer's expense;
- to be able to carry out their duties without incurring additional legal responsibility; and
- to be able to perform these duties during working hours without loss of pay or other entitlements (sub. 336, Attachment 2).

The Workers' Health Centre expressed concern that there is only limited consultation and workers' participation at the workplace, even though its importance had been stressed by the Robens Committee (sub. 331, p. 2).

The National Union of Workers said that in its experience where there are elected and active health and safety representatives, the workplace will also have a more formal approach to occupational health and safety, including an active OHS Committee and resources set aside for occupational health and safety (sub. 130, p. 4).

L.7 'Self-regulation'

A chief finding of the Robens Committee's was that:

The most fundamental conclusion to which our investigations have led us is this. There are severe practical limits on the extent to which progressively better standards of safety and health at work can be brought about through negative regulation by external agencies. *We need a more effectively self-regulating system.* This calls for the acceptance and exercise of appropriate responsibilities at all levels within industry and commerce. It calls for better systems of safety organisation, for more management initiatives, and for more involvement of workpeople themselves. The objectives of future policy must therefore include not only increasing the effectiveness of the state's contribution to safety and health at work but also, and more importantly, creating the conditions for more effective self-regulation (Robens Committee 1972, p. 12).

The Robens Committee did not define 'self-regulation', but did state that the

role of legislation should be:

... predominantly concerned not with detailed prescriptions for innumerable day to day circumstances but with influencing attitudes and with creating a framework for better safety and health organisation and action by industry itself (Robens Committee 1972, p. 7).

‘Better safety and health organisation and action by industry itself’ can be encouraged through the following mechanisms:

- performance-based requirements — the replacement of detailed ‘process’ requirements with broad outcome-oriented requirements; and
- industry developed codes of practice — practical guidance about how to meet performance-based requirements devised by the workplace parties.

Performance-based requirements

Performance-based requirements are regarded as an important element of efficient regulation.

Many people use the term ‘performance-based requirements’ or ‘performance-based standards’ but there is some inconsistency in what is meant by the term.

It is therefore helpful to distinguish three approaches to OHS regulation:

- *Principle-based requirements* — duty of care provisions such as ‘an employer must ensure the health, safety and welfare of employees at work’ may be regarded as principle based.
- *Performance-based requirements* — require that an employer meet a certain broad outcome, for example exposure limits such as a maximum noise level of 85 decibels, that leave open the mechanism or process by which the employer meets that limit.
- *Prescriptive rules* — specify the manner whereby hazards are to be managed, for example, all machines of a certain type must be insulated with a certain grade of sound-proofing material.

For example, Worksafe Australia stated that:

Exposure standards and other standards relating to chemicals are prescriptive in that they set down specific values. In this specialist area these prescriptive standards are accepted as both efficient and sensible, as determining safe exposure levels is a resource intensive process beyond the scope of individual businesses (sub. 50, p. 46).

Worksafe Australia appears to regard only ‘principle-based requirements’ as being performance-based, but this is a narrow interpretation of the term ‘performance-based’. Performance-based requirements are broad statements of

expected outcomes that do not mandate the means of compliance. Even quite detailed requirements can be expressed in performance terms if outcomes rather than processes are the subject of the regulation. A specific exposure level may be prescriptive in the sense that a particular outcome is mandated — but the means of achieving that outcome (the means of ‘performance’) are not prescribed.

Rationale for performance-based requirements

Performance-based requirements are designed to place the emphasis on achieving desirable outcomes, rather than prescribing processes which may achieve the desired objectives.

Requirements that prescribe particular processes impose high compliance costs, stifle innovation, prevent the evolution of best practice and contradict the notion of continuous improvement. They are efficient in only limited circumstances.

An example of overly prescriptive requirements is the First Aid regulations in New South Wales (see Box L.1).

Governments, OHS authorities and employers are largely in favour of performance-based approaches.

The South Australian Government commented:

A performance-based approach which focuses on the outcomes sought, rather than the precise hazards to be controlled and means of controlling them, is a practical and useful legislative framework for requiring appropriate attention to changing workplace hazards (sub. 147, p. 20).

The Victorian Government said:

Performance-based regulations can therefore be expected to deliver similar or higher levels of health and safety as equivalent prescriptive regulations, but at lower net cost (Victorian Health and Safety Organisation, sub. 176, p. 11).

Employers were also generally in favour of a performance-based approach.

The ACCI said it:

... believe[s] that the current legislative approach of performance standards combined with guidelines and fewer specification standards is without doubt the most appropriate means of legislating for OHS. The theory behind such an approach is that responsibility and the knowledge for deciding the best course of action in each workplace lies within each workplace (sub. 133, p. 26).

The Victorian Farmers' Federation said:

We recommend that performance-based regulations backed up by codes of practice are the most appropriate form of OHS regulation (sub. 129, p. 2).

The South Australian Chamber of Commerce and Industry commented:

It is our belief that appropriate or relevant performance-based regulations will do the most to bring about the highest standard of safety in Australian workplaces (sub. 95 p. 11).

Pioneer International considered:

It is important that companies be allowed to design their organisations and systems to satisfy their own particular situation, rather than being forced to follow specific regulations (such as statutory positions) which are not appropriate to the organisation (sub. 15, p. 3).

Australia Post said it:

... has supported the trend in recent years for OHS legislative requirements to be more performance-based than prescriptive. Performance-based requirements enable the Corporation to meet the legislative requirements in a manner which best suits the operations of the business (sub. 86, p. 6).

Esso said:

OHS legislation should be fundamentally performance-based, broad in application and provide for flexibility in implementation (sub. 70, Att. 2, p. 1).

The Safety Institute of Australia Inc (ACT Division) (sub. 56, p. 4) and Mt Isa Mines (sub. 103, p. 3) also support performance-based regulation.

Mr Geoff Neely argued that OHS improvements in the mining industry were due to responsibilities shifting from government to industry (sub. 237, p. 1).

An overly prescriptive approach will, other things being equal, increase the volume of legislation unnecessarily thus increasing the costs of understanding and complying with the legislation. Many participants cited the large volume of legislation as a problem. For example, Ms Virginia Pascall said:

An overwhelming quantity of legislation means that many employers, particularly small businesses, are unaware, or knowingly avoid implementing practices to conform with the legislation (sub. 13, p. 2).

The Engineering Employers Association of South Australia also complained about an excessive volume of OHS legislation (sub. 167, p. 2).

Limits to the use of performance-based requirements

Some participants, particularly trade unions, argued that there are limits to the use of performance-based requirements.

The Tasmanian Trades and Labour Council stated:

The trade union movement would endorse the performance-based approach if it was convinced workplaces were equipped to deal with the issues. The fact that the basic minimum requirements of the Act are often not complied with makes us sceptical that things could improve if the prescriptive approach were abandoned (sub. 88, p. 2).

The Labour Council of New South Wales argued that:

... the performance-based approach to OHS law, in NSW, has not been managed well. We have concerns that there is a continued push for more performance-based regulation when there is little evidence to show that the necessary cultural change required ... has emerged (sub. 145, p. 4).

The Shop, Distributive and Allied Employees' Association stated:

There has been some erosion of past OHS gains in the current process which is too oriented to performance-based standards (sub. 156, p. 3).

There have been concerns about the certainty and enforceability of performance-based requirements. Professor J Spickett stated:

Performance-based measures are probably vague as perceived by many and hence there will be difficulties with compliance (sub. 37, p. 1).

Mr Farr (Queensland University of Technology) stated that:

The move by government away from prescriptive to performance-based regulation, while consistent with the concept of the duty of care, has produced some difficulties. Although the intent of this approach is to remove obstacles which would obscure the overall aim of achieving healthy and safe working environments, in practice it has proved difficult to enforce (sub. 78, p. 3).

The National Safety Council had similar concerns:

There is a danger that enforcement prosecution of performance-based regulations will only be initiated after a serious injury/illness as proof of inadequacy of performance-based systems. Enforcement will be almost as exclusively reactive as it is now (sub 89, p. 12).

There is also concern that the same level of control is not appropriate across the whole spectrum of risks or different types of industry. Worksafe Australia

stated:

Often there will be very good practical reasons why business will need prescribed standards operating alongside performance-based standards. For example the model regulations for hazardous substances require employers to comply with prescribed exposure standards for listed specific substances in the context of performance-based assessment and training. Obviously it is not practical for each business to determine what is a safe level of exposure to the chemicals they use, but it is practical for business to analyse overall performance in providing a safe workplace. In this case the prescribed exposure standards provide a practical measurement tool for business (sub. 50, pp. 44-48).

The CFMEU Construction and General Division states that industries dominated by small firm size, high labour mobility and low training expenditure lack core OHS expertise. The capacity of these firms to understand their responsibilities under performance-based regimes was questioned. The CFMEU opposes the broad performance-based approach in the Victorian Plant Regulations. The CFMEU submitted that:

... the structure of the construction industry is particularly ill-suited to the performance-based approaches now being adopted and that fundamental, regulatory prescription must remain an important foundation of OHS in this industry (sub. 183, p. 2).

The Newcastle Trades Hall Council considers that construction, manufacturing and agriculture are in need of more prescriptive regulation (sub. 384, p. 7). The Springvale Community Health Centre questioned whether the shift to performance based regulation had resulted in improved levels of occupational health and safety (sub. 172, p. 5).

The Finance Sector Union (National Branch) argued that prescriptive regulation is more appropriate if employers are uncertain and uncomfortable with self regulation, and when hazards are highly technical and complicated, thus requiring minimum standards to be established (sub. 127, p. 2).

Mr Eric Roberts, a boiler maker, considered that self-regulation has been ineffective, and supports the need for a mandatory risk management program (sub. 1, p. 5).

The Safety Institute of Australia (Inc) stated that smaller employers generally need more guidance:

... this [performance-based] approach may leave the smaller employers without guidance or sufficient knowledge of risk management in their specific operations (sub. 151, p. 2).

The South Australian Government argued that 'performance-based and prescriptive standards are not mutually exclusive. A standard may combine

both elements but should be structured so as to identify the purpose of each component' and added:

There are circumstances where a prescriptive approach may be needed, or the incorporation of prescriptive elements within a performance framework. These circumstances arise where there is a known high degree of risk and specific controls which are applicable to all circumstances where the risk occurs are essential to control the risk. ... A South Australian example is the development of the state's *Logging Regulations* where specific hazards and controls were sought by the industry as recently as 1991 when these regulations were introduced (sub. 147, p. 21).

Implementation of performance-based requirements

Despite the amount of interest in performance-based requirements, many participants share the view that 'the shift from prescriptive to performance-based regulation is more imagined than real' (Mobil Oil Australia, sub. 65, p. 3).

Quinlan and Bohle noted that:

...the Robens Report advocated that more emphasis be placed on codes of practice voluntarily entered into by employers and employees, rather than statutory regulation. The role of statutory regulation was to establish broad standards, while codes of practice would fill in much of the detail in a more flexible and participatory fashion than had been possible under earlier legislation. At best, this ideal received a lukewarm reception in Australia. State legislatures have preferred not simply to maintain but significantly to extend quite detailed sets of regulations covering particular hazards, industries, or specific procedural requirements (1991, p. 211).

In its preliminary submission, the South Australian Government stated that it had not yet introduced performance-based requirements to 'any significant extent':

...whilst there has been a trend to favour performance-based regulations for the philosophical reasons outlined above, these are not yet in place to any significant extent. For this reason it may be concluded, at least for this state, that regulations are still too prescriptive but in reaching this view it must be realised that the process to reform from prescription to performance is not completed (sub. 147, p. 21).

South Australia introduced the consolidated OHS regulations in April 1995. These incorporated several of the NOHSC national standards, which contain performance-based requirements.

Professor Cross noted that this is also true for New South Wales:

It is too early to judge the effect of performance-based legislation because, at least in NSW it has not really been implemented in practice (sub. 19, p. 1).

In its preliminary submission, the Victorian Occupational Health and Safety Authority (now the Health and Safety Organisation) stated that the Victorian Government has undertaken a major reform program to ensure that OHS

regulation reflects a performance-based approach, although this process is not yet completed:

Victoria has already introduced performance-based regulations for manual handling, noise and asbestos, and has recently released for public comment draft performance-based regulations for the certification of plant operators and for plant. The latter regulations ... will replace three prescriptive, equipment-specific Acts and 34 associated regulations. Victoria is also planning to introduce over the next 12 months, performance-based regulations to deal with the risks posed by confined spaces, hazardous substances, the storage and handling of dangerous goods and major hazard facilities (sub. 176, p. 11).

In July 1995, the national standard for plant was introduced in Victoria.

The Western Australian Chamber of Commerce and Industry submitted that the State's shift toward performance-based requirements is being frustrated by national developments:

While conceptually the performance-based system has now been adopted in all jurisdictions what has occurred at a national level is the development of a number of standards which, if adopted at State level in their current form, will in fact detract from a true performance-based philosophy (sub. 165, p. 18).

Performance-based requirements in other areas of regulation

There are many parallels between the proposed use of performance-based requirements in OHS regulation and the systems operating in other regulatory environments in Australia.

Accredited licencees under the Environmental Protection Act

In 1994 the Victorian Government passed the *Environment Protection (General Amendment) Act*. The amendments enable the Environment Protection Authority (EPA) to grant companies with a proven capability and commitment to environment protection the status of 'Accredited Licensees'.

Accredited Licensees have a greater scope to manage their environmental performance for a site in the most cost-effective manner. They are granted a streamlined licence which outlines broad performance criteria for the site as a whole.

To approve an applicant the EPA must consider:

- whether the applicant has a suitable environmental management system in place which is certified by a person approved by the EPA;
- whether the applicant is undertaking an environmental audit program approved by the EPA with the participation of an environmental auditor appointed under the Act; and

- whether the applicant has prepared or is preparing an environment improvement plan in accordance with the provisions of the Act which is approved or is likely to be approved by the EPA.

Accredited licensees must submit annual performance reports to the EPA. The EPA may review this accreditation at any time and must do so at least every five years.

Building Code of Australia

A second example is the *Building Code of Australia*. This code marries performance-based legal requirements with approved deemed-to-comply solutions. Australian Standards stated:

... the Australian Uniform Building Regulatory Coordination Council (the counterpart of NOHSC) opted to take a 'horizontal' approach and developed a mutually consistent regulatory model which would only cover the high-level performance-based legal requirements. The second-tier requirements were then dealt with by reference to the relevant Australian Standards, largely funded and resourced separately (sub. 108, p. 6).

Codes of practice

Typically, performance-based requirements are supported by codes of practice. Codes are used to assist in the transition from prescriptive regulation by providing non-mandatory guidance as to how to meet performance-based requirements.

Governments, employers and unions support the use of codes of practice, but have identified problems with existing codes.

The South Australian Employers Chamber of Commerce and Industry supports the use of codes of practice:

It is our view that the code of practice model, which is more of a flexible guidance approach (but with legal status) is a useful strategy and can play an important role in reducing some of the uncertainties associated with performance-based regulation (sub. 95, p. 14)¹ .

As does the South Australian Government:

Once a comprehensive framework of (hazard specific) performance-based standards has been developed, codes of practice which provide guidance for specific industries may be developed. This would facilitate understanding of the performance-based approach in the circumstances of specific industries. Industry codes must necessarily follow hazard-based standards to ensure a consistent base of standards for all industries and business sectors. These can be complemented by industry specific information and training programs (sub. 147, p. 22).

The Metal Trades Industry Association stated:

Performance or outcome-based regulations, if supported by practicable and comprehensible supportive material (codes of practice, guidance notes) that are capable of implementation have the support of employers (sub. 143, p. 2).

The Metal Roofing and Cladding Association of Australia Ltd emphasised the importance of codes of practice that contain a clear statement of the responsibility of all parties involved (sub. 226, p. 2).

In each jurisdiction, the principal occupational health and safety statute sets out the legal status of codes of practice within that jurisdiction (see Appendix I).

Criticisms of the use of codes of practice

Existing codes of practice have become subject to similar criticisms to those levelled at the traditional regulatory approach to occupational health and safety. The main criticisms were that codes have become defacto regulation, and that many do not provide the right type of guidance for workplaces.

For example, the Shell Company of Australia Limited said:

In general, the codes of practice have become too detailed, and their application, in practice, has become mandatory. In the workplace ... the code of practice has the same regulatory status as the regulation ... The prescriptive and mandatory emphasis of codes of practice stifles enterprise and efficiency on the part of employers' compliance activities ... Additionally, it promotes a compliance mentality — that compliance with regulations and codes of practice are the extent of OHS management. ... There is little inclination to extend programs beyond the minimum to avoid prosecution (sub. 67, pp. 9–10).

Western Mining Corporation commented:

The development of codes of practice has had the effect of deterring local managers and workers from seeking to find their own solutions to OHS hazard control requirements. They have also had the effect of distorting the allocation of time and effort toward addressing issues which have become the subject of codes of practice, to the neglect of other, perhaps more serious issues ... a reversal of onus of proof has had the effect of making Approved Codes of Practice into defacto regulations (sub. 47, p. 3).

Mr Farr (Queensland University of Technology) stated that:

One of the difficulties of many of the codes of practice which have been issued by government is that they tend to be limited to a restatement of the performance standard outlined in legislation. As such most codes of practice fail to provide employers with sufficient guidance on ways in which they might meet the requirements of performance-based regulations (sub. 78, p. 4).

The ACCI said that:

At present Codes of Practice, and in particular those developed nationally, often do not provide the detailed guidance required to interpret the legislative requirements in regulations. They are often not written in user friendly terms and due to their generic nature it is often difficult for individual workplaces to translate this to their particular operations (sub. 133, p. 28).

Skills for Caring Pty Ltd (sub. 44, p. 2) and several other participants commented on the inappropriateness of the national code of practice for manual handling in the health industry. Several industries are developing their own approaches to dealing with manual handling hazards.

The Department of Industrial Relations argued that the role of codes of practice has been misunderstood. It said that codes of practice in the new regulatory approach are not mandatory — they provide only one way in which regulatory requirements can be met. It said that the NOHSC codes:

provide a very general basis for workplaces and industry groups to develop an approach which is suitable for their particular circumstances. Codes are not intended to 'translate' regulations into ready-made solutions for every workplace. This translation or adaptation has to occur at the workplace (sub. 395, p. 20).

Industry level developments — government

In an attempt to overcome these problems, OHS agencies have begun taking a greater industry focus.

Safety Case regime

The Safety Case regime is a form of co-regulation between government regulators and operators of petroleum leases or permits, developed in response to the findings of the Consultative Committee on Safety in the Offshore Petroleum Industry (COSOP). The Safety Case regime (also referred to as Oilsafe) promotes safety in the off-shore oil and gas industry.

The Commonwealth *Petroleum (Submerged Lands) Act 1967* controls all off-shore oil and gas exploration and production in Australian waters more than

three nautical miles offshore.³ The Act is supported by a series of performance-based regulations that set the standards to be achieved by the operator. A number of safety regulations are enacted under the Act — one of these requires operators to submit a Safety Case. Similar provisions are contained in corresponding petroleum legislation in some states and the Northern Territory (these apply to petroleum facilities within State or Territory coastal waters).

The National Oil and Gas Safety Advisory Committee — with tripartite involvement — advises the Commonwealth Minister for Resources on the operation of the regime.

The Safety Case requires operators to demonstrate via a written description that they have a Safety Management System (SMS) that is capable of continually and systematically identifying hazards, assessing the likelihood and consequences of the hazard and, in so far as is reasonably practicable, eliminating or controlling the risk to personnel at the facility. The SMS must be capable of managing the risk to personnel over the life of the facility, from design, through construction, commissioning, operation to abandonment.

Content

The Safety Case should contain:

- a description of the facility;
- details of the Safety Management System; and
- a formal safety assessment.

The Safety Management System should cover:

- policy and objectives;
- organisation and responsibility;
- risk assessment and risk management;
- employee involvement;
- employee selection, competency, and training;
- contractors and support services;
- design, construction and commissioning;

³. Under a 1979 agreement between the Commonwealth and the states, Commonwealth legislation applies beyond the three nautical mile coastal waters, and State or Territory legislation within the three nautical mile coastal waters. The relevant State or Territory Government is responsible for day-to-day administration of both the Commonwealth and state legislation. There are currently offshore petroleum facilities in Western Australia, Victoria, and the Northern Territory.

- safe operational procedures;
- maintenance, inspection, testing and modification;
- management of change;
- health system;
- emergency response;
- incident investigation and reporting; and
- performance audit and review.

The SMS is expected to reflect the principles of quality management in the AS3900 series quality standards.

Assessment

The written Safety Case is given an initial ‘desk top’ or ‘paper’ audit. Once formally accepted, the Safety Case becomes a set of recognised legal requirements against which operators are assessed.

The document ‘Guidelines for Preparation and Submission of Safety Cases’ provides guidance to operators (see Department of Primary Industries and Energy 1995). The document also serves as a guideline for the Designated Authority administering the Act by providing a semi-structured assessment methodology for assessing Safety Cases. These guidelines are reviewed periodically by a tripartite group to form part of a continually improving safety regime.

For the Safety Management System, the assessment guidance is provided on two levels:

- to help assess if basic safety management systems are in place; and
- to help assess that the systems devised and implemented by the operator are properly planned, organised, led and controlled in such a way as to ensure a dynamic state of review and improvement of safety at the facility level.

Part of the Safety Case itself is provision for ongoing internal audit and review. The regulator also conducts regular on-site audits against the Safety Case, to ensure the elements of the Safety Case are in place. The regulator also conducts in-depth ‘compliance audits’ into the system which closely examine the detailed implementation of selected aspects of the Safety Case.

Worksafe Australia Industry Development Program

Worksafe Australia began an Industry OHS Development Program in 1992. Its objective is to improve OHS performance in selected industries. Worksafe

Australia has stated 'industries are best able to recognise their own specific OHS needs and how to address them' (Worksafe Australia 1993g) The program targets several national industries as priority industries for assistance: printing; textiles; footwear and clothing; agriculture; mining; hospitality; construction and forestry.

Altona Chemical Complex

Six Victorian regulatory bodies have reached agreement with five petrochemical companies in the Altona Chemical Complex to simplify the regulation of the industry. The new system will set down agreed performance measures for the companies in environmental, safety and health areas and commit the government to a co-ordinated approach to regulation and legislation. A statement of core principles and an action plan to control the future performance of all parties has been drafted. The agreement requires the Victorian Government to implement performance-based management systems in preference to prescriptive regulatory systems, and ensures that these requirements are in line with emerging national standards.

Industry level developments — voluntary

Other successful industry level plans have been voluntary initiatives of employer associations, although they have involved the support and assistance of various OHS authorities in developing their codes.

There are several examples of voluntary industry developed codes, although they differ in terms of their coverage, level of detail and compliance incentives.

PACIA's Responsible Care program

The Plastics and Chemicals Industries Association (PACIA) gives OHS a very high priority — member chemical companies have their own performance improvement programs and these are backed by PACIA's Responsible Care Program, in which eight codes of practice define the performance practices for each company's operations and products.

'Responsible Care' is an initiative of the international chemical industry to improve its health, safety and environmental performance.

The eight codes of practice define the performance practices for each company's operations and products. The codes were developed by the companies themselves in conjunction with a National Community Advisory Panel consisting of 15 people with community, health, environmental, emergency services and scientific backgrounds. The codes of practice

themselves go beyond current regulatory requirements, particularly in respect to management systems and relationships with the community.

Codes of practice exist for:

- Community right to know;
- Research and development;
- Manufacturing;
- Emergency response and community awareness;
- Waste management;
- Warehousing and storage;
- Transportation; and
- Product stewardship.

OHS issues are particularly addressed in the Manufacturing and Product Stewardship codes of practice.

Participating companies are working towards compliance with the codes of practice by the end of 1997. The companies undertake self assessments at regular intervals. An external verification process has been developed and is scheduled to commence in 1995.

The PACIA incident rate for 'reportable' injuries of 5.4 incidents per 1000 employees in 1993 compares with the latest Worksafe Australia statistics of about 41 for manufacturing and 26 for all industries (see Appendix B). However, the Worksafe Australia statistics are taken from workers' compensation data which includes some incidents such as bad backs, RSI and other occupational illnesses not necessarily picked up by the PACIA survey.

The Western Australian Fishing Industry Council

The Western Australian Fishing Industry Council, (WAFIC) with the support and assistance of the Department of Occupational Health, Safety and Welfare of Western Australia, has developed a voluntary code of practice which relates specifically to the fishing industry.

WAFIC initiated the development of 'a comprehensive OHS program, policies and health and safety code for the prawn and scallop trawling industry', as part of a complete WAFIC OHS code. The code is endorsed and recommended for use by trawl fishermen from four local Associations.

The code establishes guidelines for what the industry believe are acceptable standards. One of the main objectives of the code is 'to enable the fishing industry to self-regulate occupational health safety and welfare in line with the legislation'.

The code comprises two parts. The first part details how requirements can be met in line with the Western Australian *Occupational Health, Safety and Welfare Act 1984* and the Marine Act for either share fishermen, or those in an employee and employer relationship. The second part contains details concerning crew accommodation, emergency equipment and procedures, training, alcohol and drugs etc which apply to all trawl fishermen throughout Western Australia.

The Victorian Association of Forest Industries

The Victorian Association of Forest Industries (VAFI) has produced a comprehensive voluntary risk control manual to assist members in meeting the anticipated national OHS standards.

VAFI explicitly note in the foreword to the manual that the development of national uniform OHS standards will involve much more generalised and less prescriptive regulation. It recognises that employers and suppliers of plant and equipment will have much greater responsibility to understand and implement effective OHS practices. The manual was produced to assist members in meeting these objectives.

The manual takes a comprehensive approach to managing OHS, with detailed guidance on:

- establishing a health and safety program;
- training methods and standards;
- using a safety audit system;
- risk control data sheets for major sawmilling tasks;
- job hazard analysis;
- machinery hazards;
- isolation (lock-out)(tag-out) systems;
- control of noise; and
- return to work, rehabilitation and claims management practices.

Industry based approaches to manual handling

Several industries have developed their own approaches to dealing with manual handling hazards (see sub. 395). Some of these approaches have relied on guidance provided by the National Manual Handling Standard and Code developed by NOHSC.

- In the food industry, the Food Unions' Health and Safety Centre combined with McCain's, Kraft and Herbert Adams to develop a manual handling program.
- In the health industry, the Queensland Nurses' Union and the Mater Misericordiae Public Hospitals jointly conducted a three-year intervention program to develop and evaluate a back injury prevention program.
- The mining industry has conducted an 18-month project to develop advice to workplaces on the control of manual handling hazards.
- Worksafe Australia's *Guidance Note for Manual Handling in the Retail Industry* was developed with the assistance of the Allied Employees' Association, the Retail Traders' Association, Coles Supermarkets, and the Victorian Health and Safety Organisation.
- The South Australian Mining and Quarrying Health and Safety Committee initiated and funded a six-month project to examine manual handling in the quarrying industry.
- The CIG manual handling program was initiated in 1989, due to a number of incidents related to manual handling. It involves a manual handling steering committee, a project team, a performance standard, code of practice, a train-the-trainer package and audit tools.
- The Department of Occupational Health, Safety and Welfare of Western Australia has developed a strategy to raise awareness of manual handling problems and solutions in high risk industries, including in nursing homes, local councils and the meat industry.

L.8 Australian Standards

The Standards Association of Australia (Standards Australia) is a significant supplier of standards referred to in occupational health and safety legislation in Australia. It has been involved with the development of national standards with an OHS component since its foundation in the 1920s. A 1991 survey of State OHS regulations and associated instruments conducted by Standards Australia found that over 200 Australian Standards were referenced as either having the force of a regulation or an approved code of practice.

The Standards referenced cover the whole field of occupational health and safety including dangerous goods, selection, use and design of personal protective equipment, safe work practices, equipment design, occupational health and safety management and a range of other issues — but not exposure limits, which are regarded as the responsibility of Worksafe Australia.

There is a Memorandum of Understanding between Standards Australia and NOHSC to attempt to avoid duplication of effort. Standards Australia was itself recently subject to a review by the Committee of Inquiry into Australia's Standards and Conformance Infrastructure (1995).

The South Australian Government sees a significant role for Australian Standards supporting performance-based regulations:

... detailed standards are set out in Australian Standards which should be an integral, supporting element of performance-based regulations ... (sub. 147, p. 21).

Other participants have been ambivalent about referencing Australian Standards in OHS subordinate legislation or codes of practice. Pioneer International stated:

Australian Standards provide an excellent framework for physical plant and equipment safety and they are seen as the final arbitrators. Unfortunately, they are often very inflexible ... (sub. 15, p. 7).

The Western Australian Chamber of Commerce and Industry believes that Australian Standards undermine the performance-based regulations, and stated:

Despite the fact that the national standards themselves could be described as performance-based, the Australian Standards to which they refer are extremely complex and highly prescriptive. ... the body of law relating to occupational health and safety is actually increasing and the inherently desirable aspects of self-regulation are gradually being lost rather than enhanced (sub. 165, p. 18).

The Victorian Employers' Chamber of Commerce and Industry opposes the use of Australian Standards in OHS and stated:

... VECCI is strongly opposed to referencing Australian Standards in regulation as it then tends to make the standard a quasi-regulation which is prescriptive in terms of compliance. Australian Standards were developed for different purposes as best practice standards not minimum standards and should not be incorporated in OHS regulations (sub. 97, p. 8).

Mr Thatcher, a lecturer at the University of Western Australia also questions

whether Australian Standards should be given legislative force:

Australian standards mirror the distinctiveness of international standards and have the characteristic of not having originated as legislation. Such standards, including international standards, generally lack legislative force and serve in an advisory capacity. However, Australian legislatures have incorporated some Australian standards in legislation, therefore, making the observation of the standards compulsory (sub. 10, p. 9).

The Queensland Chamber of Commerce and Industry questioned the appropriateness of calling up entire standards into codes of practice which have evidentiary status:

[Ongoing problems include...] the practice of calling up Australian Standards (in their entirety) within a Code of Practice thereby giving legislative effect to many clauses within the Australian Standard that are not required (or intended) within the Code of Practice (sub. 100, p. 4).

Professor Cross stated similar concerns:

There are situations where current Australian Standards which are written to ensure safety in all cases are an overkill for the particular circumstance (sub. 19, pp. 1-2).

The Occupational Health, Safety and Rehabilitation Council of NSW was concerned at the lack of tripartite participation in the development of Australian Standards:

Council expresses its concerns at the processes adopted by Standards Australia, where Australian Standards are frequently called up through other regulatory provision. Council is particularly concerned that these Standards can be changed without the tripartite representation and consultation processes which operate in other occupational health and safety areas (sub. 105, p. 7).

The National Farmers' Federation also criticised the standard setting process, including the role of Standards Australia:

It came to NFF's attention (almost inadvertently) that Standards Australia was developing a standard for safeguarding machinery, the terms of which were fundamentally flawed, due to lack of consultation with industry (sub. 184, p. 10).

However, the Victorian Farmers' Federation supports the use of Australian Standards:

We recommend that performance-based regulations backed up by codes of practice and Australian Standards are the most appropriate form of OHS regulation (sub. 129, p. 2).

The Building Owners and Managers Association of Australia summarised many

participants concerns about the use of Australian Standards:

BOMA is concerned about the willingness of many regulators to call up inappropriate codes of practice and Australian Standards. Standards and codes are prepared for guidance only, are not subject to ordinary regulatory review procedures, and are often of questionable relevance or validity. Compliance with many Australian Standards is almost impossible to objectively measure, especially for officers in regulatory agencies unfamiliar with technical requirements in building standards.

In many cases, Australian Standards simply do not offer a clear technical definition of compliance, preferring to define a technical standard as whatever the relevant regulatory agency may determine.

In addition, calling up Australian Standards undermines the performance-based approach to regulation, as most standards are prescriptive in nature (sub. 110, p. 10).

The Local Government Association of South Australia complained about the financial burden on local government authorities of complying with a large number of Australian Standards referenced in legislation (sub. 271, p. 5).

M ENFORCEMENT AND PENALTIES

Enforcement refers to deterrence and persuasion strategies used by inspectorates to bring about compliance with occupational health and safety (OHS) legislation. Inspectorates are government agencies charged with the responsibility of enforcing OHS legislation. Existing enforcement arrangements are characterised more by persuasion than deterrence. The Commission's analysis identifies considerable scope for reform of existing enforcement arrangements to support and complement the Commission's proposed regulatory approach.

M.1 Existing arrangements

In Australia, each state and territory has its own OHS legislation and accompanying enforcement arrangements. Overlaying these are three Commonwealth regimes for Commonwealth employees and the maritime and off-shore petroleum industries. The mining industry is enforced separately from other industries in New South Wales, Queensland, Western Australia and the Northern Territory.

The law relating to enforcement

There are two major areas of legal liability relating to the area of occupational health and safety: criminal (statutory) offences and civil offences. Enforcement of OHS legislation is concerned with statutory offences, which arise where employers (and others) breach the duty of care imposed on them by OHS legislation. Serious breaches may also give rise to criminal liability under the Crimes Acts.

Enforcement coverage

Virtually all workplaces covered under OHS legislation are potentially subject to enforcement. Exceptions include:

- the Crown in some jurisdictions, which is obliged to comply with OHS legislation in all jurisdictions, but not liable to prosecution in all jurisdictions; and
- industries covered by federal industrial awards, for example the vehicle building industry in Victoria and South Australia.

Enforcement provisions

Inspectorates are charged with the responsibility of enforcing compliance when OHS legislation is not voluntary on the part of employers (and others).

Corporations and individuals are bound by (and potentially liable under) OHS legislation. There is provision in most jurisdictions for individuals concerned in the management of a corporation, or nominated 'responsible officers' in some jurisdictions, to be prosecuted for offences committed by the corporation. In most jurisdictions individuals are not liable if it can be shown that they had no knowledge of the corporation's offence(s), or exercised due diligence in preventing the corporation's offence.

Workplace inspectors are empowered to conduct inspections and enforce OHS legislation. The enforcement powers of inspectors are similar in most jurisdictions. Generally they include:

- the powers of entry, inspection and examination of any workplace at any time; and
- the power to issue sanctions for breaches of OHS legislation.

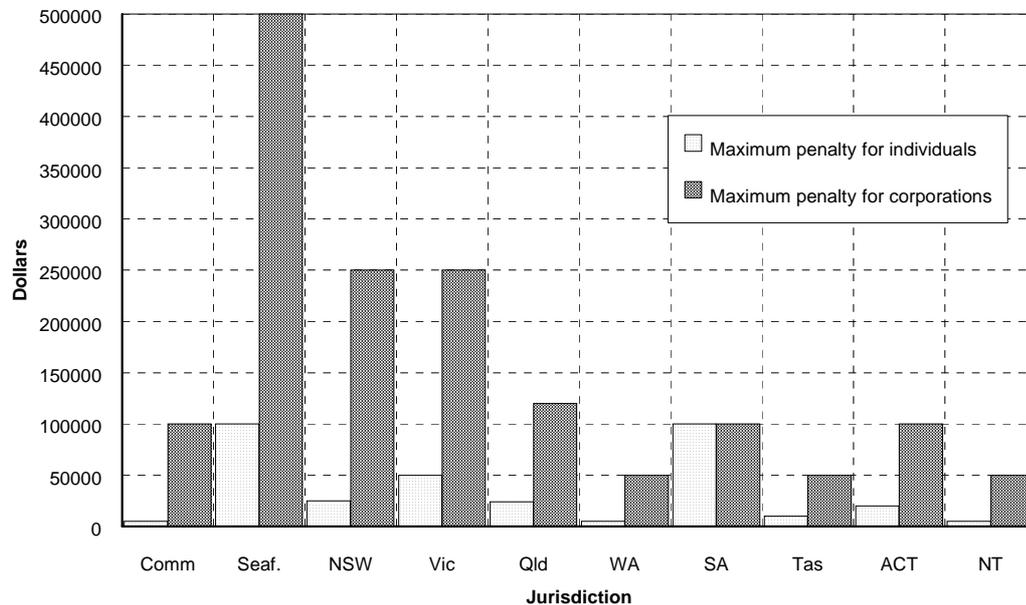
A range of sanctions are provided for under OHS legislation. A system of improvement and prohibition notices is provided for in all jurisdictions. Provision for on-the-spot fines exist in several jurisdictions, but has only been used in New South Wales to date. Penalty provisions (court imposed fines) vary considerably across jurisdictions. In some jurisdictions, individuals can be imprisoned for serious offences (see Figure M.1 for maximum fine levels across jurisdictions).

Institutional arrangements

Inspectorates

Occupational Health and Safety legislation is enforced by general inspectorates which operate as divisions of OHS authorities in most jurisdictions. Certain industries and hazardous activities, such as mining and the use of radiation, are served by specialist inspectorates in a number of jurisdictions. Other agencies also assist in the enforcement of OHS legislation, for example Departments of Health.

Figure M.1 Maximum penalty levels across jurisdictions, as at 1 July 1995



Source: Information provided by the OHS authorities in each jurisdiction.

Employee representatives

Employee representatives play an important role in enforcement. This role is given affect through health and safety representative (HSR) and health and safety committee (HSC) provisions in OHS legislation in most jurisdictions. Employee representatives are empowered to act as inspectors of their own workplace through the power to issue provisional improvement notices (PIN) and stop work in some jurisdictions (see Table M.1).

Court system

Court penalties for offences against OHS legislation are imposed through the court system in each jurisdiction. Prosecutions are brought by inspectorates (inspectors) or Crown Prosecutors, and are heard in a Magistrates Court and higher court in each jurisdiction. Generally, OHS cases are heard summarily in the Magistrates Court and appealed to the higher court in their jurisdiction. However where provided for in legislation, indictable offences (or more serious offences) may go straight to a higher court in some jurisdictions (see Table M.2).

Table M.1 Employee representation, as at 1 July 1995

<i>Jurisdiction</i>	<i>Provision for HSRs</i>	<i>Provision for HSCs</i>	<i>Power to issue PINs</i>	<i>Power to stop work</i>
C'wealth ^a	yes	yes	yes	yes
Seafarers	yes	yes	yes	yes
NSW	no	yes	no	yes
Vic	yes	yes	yes	yes
Qld	yes	yes	no	no
WA	yes	yes	no	no
SA	yes	yes	no	yes
Tas ^b	yes	no	no	no
ACT ^c	yes	yes	yes	yes
NT	no	yes	no	yes

a The power to stop work only exists in an emergency and only where the supervisor is unavailable.

b Passage of the Workplace Health and Safety (Amendments) Bill 1995 would provide for health and safety committees in Tasmania.

c All workers have the power to stop work under the Act.

Note: Provision for the power to stop is not the same as the common law right to refuse to engage in unsafe work practices.

Source: Information provided by the OHS authorities in each jurisdiction.

Table M.2 Court system, as at 1 July 1995

<i>Jurisdiction</i>	<i>Lower Court</i>	<i>Higher court</i>
C'wealth ^a	Industrial Relations Commission / Magistrates Court	Federal / Supreme Court
Seafarers	Industrial Relations Commission	Supreme Court
NSW ^b	Industrial Magistrate	Industrial Court
Vic ^c	Magistrates Court	County Court
Qld ^d	Industrial Magistrate	Industrial Court
WA ^e	Magistrate	Supreme Court
SA ^f	Industrial Magistrates Court	Full Bench, Industrial Court
Tas ^g	Magistrate	Supreme Court
ACT	Magistrates Court	Supreme court
NT ^h	Magistrates Court	Supreme Court

a Appeals against investigators' decisions go to the Industrial Relations Commission and Federal Court, while prosecutions proceed to the Magistrates Court and Supreme Court.

b Provision for indictable offences to go directly to the Industrial Court.

c Provision for indictable offences to go directly to the County Court.

d All offences are heard summarily before the Industrial Magistrate.

e All offences are heard summarily before the Industrial Magistrate.

f All offences are heard summarily before the Industrial Magistrates Court.

g All offences are heard summarily before a Magistrate.

h All offences are heard summarily before a Magistrate.

Source: Information provided by the OHS authorities in each jurisdiction.

Approaches to enforcement

Current approaches to enforcement have gone a long way to accommodating the Robens philosophy of 'self regulation'. As expressed in the compliance policy of the Work Health Authority (Northern Territory Government):

Self regulation is the placing of responsibility for complying ... upon the party who has direct control over the workplace or activity ... The approach reflects the national and international direction of occupational health and safety...

This means the ... parties must actively manage their Occupational Health and Safety function, rather than relying on an external body, such as the Authority ... (1994).

The Department of Employment, Vocational Education, Training and Industrial Relations of Queensland (DEVETIR) stated:

Workplaces are encouraged to self audit so as to meet compliance requirements without the need for intervention by an inspector.

Where effective self-regulation of health and safety at the workplace level fails and health and safety is threatened, it is necessary to seek compliance with legislation through the inspectorate (sub. 79, p. 25, 27).

Persuasion

Traditionally and currently, approaches to enforcement of OHS legislation in Australia, have been predominantly based on persuasion — seldom resorting to deterrence in an effort to secure compliance. Inspectorates generally use an escalated response to non-compliance. For the majority of offences persuasion — through the use of advice and compliance notices — is used as a first response. Prosecution is typically only used as a first response in the case of a death or traumatic injury. Where persuasion fails, inspectorates graduate their response to prosecution.

Enforcement generally reflects a hierarchy of measures incorporating the following elements:

- verbal advice and direction by inspectors;
- improvement and prohibition notices;
- penalty notices (in New South Wales only);
- formal warning of prosecution; and
- prosecution.

Sanctions

Inspectorates employ a range of sanctions, both financial and non-financial, when enforcing (securing) compliance. Provision and use of these measures varies amongst jurisdictions.

Non-financial sanctions

Non-punitive sanctions are most commonly used by inspectorates. Non-financial sanctions aim to secure compliance by persuasion, without punishing offenders. They include:

- education and advice given informally;
- repeated inspection of suspected offender;
- written directions or improvement notices requiring a person to remedy a breach of OHS legislation within a specified time;
- publicity used in a preventive way by alerting other businesses to hazards and the potential for financial sanctions; and
- warning of prosecution, formally or informally.

Financial sanctions

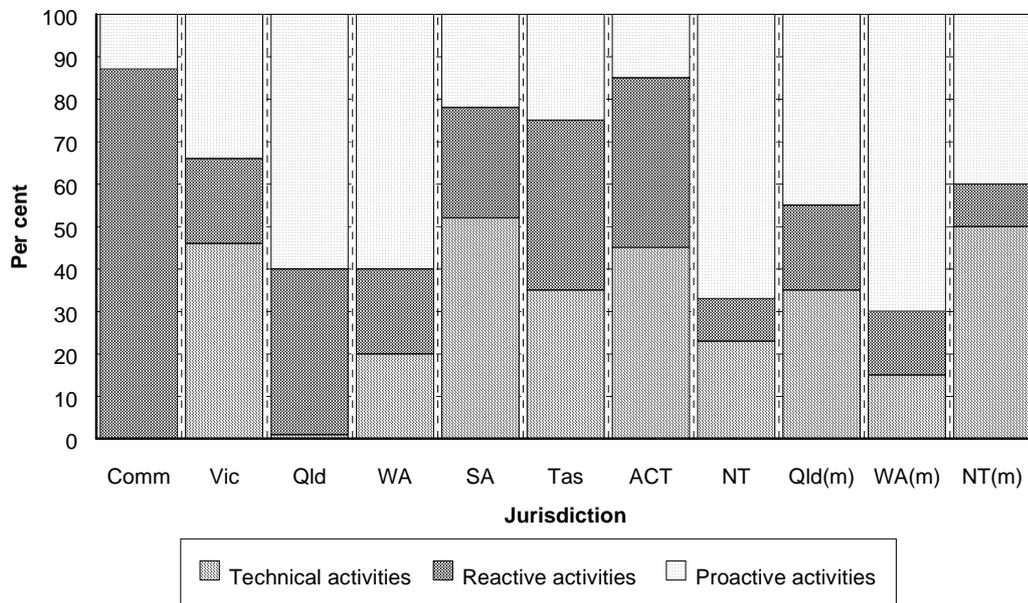
Financial sanctions aim to secure compliance by punishing offenders and creating general deterrence against offending. They include:

- adverse publicity to stigmatise offenders;
- on-the-spot-fines which give offenders the option of paying a fine or being prosecuted in the courts;
- prosecution by the inspectorate (or Crown Prosecutor) which may result in a conviction, financial penalty, imprisonment, or all three; and
- license suspension or revocation which prevent offenders from operating.

Inspectorate activity

Inspectorates can be divided into technical activities, reactive activities and proactive activities, all of which involve some degree of advisory activity. The proportion of inspectorate resources (inspections) devoted to each class of activity varies among jurisdiction (see Figure M.2 and Table M.3).

Figure M.2 Inspectorate activities as a proportion of inspections, 1993–94



Notes: New South Wales WorkCover was unable to provide data in the required form.
 The New South Wales Department of Minerals did not provide the data requested.
 The letter (m) denotes mining inspectorate jurisdictions within States and Territories.
 Source: Information provided by the OHS Authorities and Mining Departments in each jurisdiction.

Technical activities

Statutory or regulatory inspections are required by legislation, and primarily relate to requirements in older style legislation, such as Boiler and Pressure Vessels Acts and Lifts and Cranes Acts in Victoria and South Australia.

This type of inspection activity has diminished with the repeal of a lot of prescriptive legislation and the gradual adoption of performance based legislation, although most jurisdictions still maintain some degree of statutory inspection activity.

Most inspectorates undertake certification and licensing activities to ensure that regulations concerning particular workplace hardware and competencies are complied with. Activities generally include:

- registering hazardous equipment and machinery;
- issuing certificates of competency to operators of specific machinery and equipment; and

- ensuring that specific machinery and equipment and plant is manufactured and installed in accordance with OHS legislation.

In some jurisdictions, for example Western Australia, a number of these activities are being performed by ‘competent persons’ in the private sector, who are reviewed by the inspectorate (Western Australian Government 1994).

Reactive activities

Investigations into fatalities and specified categories of serious incidents are conducted by inspectorates in all jurisdictions. Investigations can occur in response to a number of sources, for example, (DEVETIR) commences investigations when its inspectorate receive:

- a complaint;
- appropriate notification by an employer;
- media reports regarding incidents at workplaces;
- notifications from other sources, for example, the police or the Division of Workers’ Compensation; or
- information as a result of an audit or contact by an inspector (sub. 79, p. 29).

The aim of investigations is to ‘determine what happened and why, and how to prevent a re-occurrence or a similar incident or near miss in the workplace concerned or in other workplaces’ (Western Australian Government 1994).

Subsequent action may include follow-up visits, issuing of notices or the initiation of a prosecution. In addition, the information gained in investigations is fed into internal information systems and often publicised. In Western Australia for example, information is disseminated through media releases, magazine articles and the ‘Significant Incident Summary’ (Department of Occupational Health, Safety and Welfare of Western Australia 1993).

Inspectorates can be called upon and generally are obliged to assist in the resolution of health and safety issues at the workplace. Issues often centre around disputes between employers and health and safety representatives (HSR). Inspectors can be called in to uphold, modify or cancel Provisional Improvement Notices (PIN) issued by HSR and contested by employers. Inspectors can also be called in to settle disputes (and take enforcement action where necessary) where occupational health and safety cannot be resolved between the employer and the HSR (Mathews 1993).

Inspectorate activity also involves follow-up inspections to workplaces which have been directed (verbally or formally through notices) to rectify breaches.

Proactive activities

Random inspections, where workplaces are selected for inspection purely on a random basis, are conducted in relatively few jurisdictions. DEVETIR has recently begun a 'Random Audit Program' to:

- create awareness;
- provide a deterrent; and
- provide statistically valid management information to further refine the approach and to more effectively target industries and workplaces which are likely not to comply (sub. 79, p. 28).

Targeted activities (programs) are designed to focus inspectorate efforts on poor OHS performers. Industries (or hazards and regulations associated with industries) are largely targeted on the basis of workers' compensation claims data. For example, major targeted programs for WorkCover in New South Wales in 1994–95 are plant safety, hazardous substances, certification, back injuries, the timber industry, safety plans and workers compensation compliance (New South Wales Government 1994).

Targeted visits may be structured where targeted workplaces and the inspectorate work together to implement a compliance program specific to the industry or hazard being targeted. Targeted visits may also be conducted randomly where targeted industries are fore-warned that their industry is being targeted in a given year, and then inspected without warning.

Targeted operations often involve inspectorates developing, assisting and advising on the implementation of a safety management system in a workplace. For example, the Safety Management Assessment Program (SafetyMAP) developed by the Victorian Health and Safety Organisation (HSO) (formerly the Occupational Health and Safety Authority of Victoria) establishes a standard of OHS management systems consistent with the requirements of OHS legislation and the principles of total quality management (based on Australian Standards) (Occupational Health and Safety Authority 1994).

Inspectors

Under current enforcement arrangements inspectors have a dual role as 'advisers' and 'enforcers' of OHS legislation. Inspectorates typically employ general inspectors and a range of specialist inspectors. General inspectors are usually organised on either a central, regional or industry basis, and supported by specialist inspectors with various technical expertise.

Table M.3 Inspectorate activities as a proportion of inspections, 1993–94, (%)

<i>Jurisdiction</i>	<i>Technical</i>	<i>Reactive</i>	<i>Proactive</i>
<i>General inspectorates</i>			
C'wealth	..	87	13
Vic	45	21	34
Qld	1	39	60
WA	20	20	60
SA	52	26	22
Tas	35	40	25
ACT	45	40	15
NT	23	10	67
<i>Mining inspectorates</i>			
Qld	35	20	45
WA	15	15	70
NT	50	10	40
National average	30	30	40

Notes: Percentages are indicative only, as classification of activities may differ slightly between jurisdictions.

New South Wales WorkCover was unable to provide data in the required form.

The New South Wales Department of Minerals did not provide the data requested.

.. Not applicable.

na Not available.

Source: Information provided by the OHS Authorities and Mining Departments in each jurisdiction.

The employment characteristics of inspectors indicate that:

- remuneration for inspectors is similar across jurisdictions, ranging from around \$35 000 to \$60 000;
- work experience of inspectors is similar across jurisdictions, ranging from around seven to 20 years;
- employment turnover of inspectors is similar across jurisdictions, ranging from around zero to 10 per cent per year;
- the proportion of inspectors with tertiary qualifications ranges from four per cent to 100 per cent across jurisdictions;
- the proportion of inspectors with qualifications specific to occupational health and safety ranges from zero to 75 per cent of inspectors in each jurisdiction; and
- most inspectors have had formal in-house training (see Table M.4).

Table M.4 Employment characteristics of inspectors per cent, 1993–94

<i>Year</i>	<i>Vic</i>	<i>Qld</i>	<i>NSW</i>	<i>WA</i>	<i>SA</i>	<i>Tas</i>	<i>ACT</i>	<i>NT</i>	<i>Qld</i> (m) ^a	<i>WA</i> (m) ^a	<i>NT</i> (m) ^a
Avg remun'n (\$000) ^b	34.9	39.8	38	43.8	38	36	37.8	45	60	52	50
Avg years exp. (no.) ^c	7.5	7.45	12	6.3	9	11	9	8	10	8.5	20
Employment turnover	7	6	5	0	10	5	0	10	10	8	10
No formal training	24	0.9	0	6	0	5	0	0	0	8	0
Trade qualific'n ^d	45	68	80	31	80	35	40	60	0	26	10
Tertiary qualific'n ^e	22	54	79	52	30	4	80	80	100	66	40
OHS qualific'n ^f	14	44	75	32	25	10	70	70	0	16	0
In-house training ^g	100	100	100	100	100	100	100	100	100	95	10

a The letter (m) denotes mining jurisdiction.

b Average total remuneration (including bonuses) per inspector.

c Averages years of experience per inspector.

d Proportion of inspectors holding a qualification(s) in relevant trades, for example electrical trades.

e Proportion of inspectors holding a degree or diploma of any description (including those in progress).

f Proportion of inspectors holding a qualification specific to OHS (including those in progress).

g Proportion of inspectors having participated in work-based and internal training courses.

Notes: The New South Wales Department of Minerals was not provide the data requested.

Inspectors includes those appointed as inspectors.

Source: Information provided by the OHS Authorities and Mining Departments in each jurisdiction.

M.2 Patterns of enforcement

Patterns of enforcement refer to the allocation of inspectorate resources and the distribution of enforcement responses. These patterns provide an indication of how, and to what extent, OHS legislation is being enforced in Australia (see Attachment M2).^{1 2}

Enforcement expenditure

Enforcement activities account for around 60 per cent of total OHS expenditure across all jurisdictions — although this proportion varies considerably among jurisdictions. In 1993–94 enforcement expenditure as a proportion of total OHS expenditure ranged from 24 per cent in Tasmania to 88 per cent in the Northern

¹ The totals, averages and proportions derived from raw data are not absolutely accurate as some jurisdictions were unable to provide the number of sanctions and inspections for all periods from 1990-91 to 1993-94. See Attachment M2.

² All but one jurisdiction provided most of the data requested. New South Wales mining was not included in this analysis as the New South Wales Department of Minerals was not prepared to provide the data requested.

Territory. Enforcement expenditure per employee ranged from four dollars under the Commonwealth, to \$28 in the Northern Territory.

Inspectorial resources

From 1990–91 to 1993–94, the average number of inspectors employed in each jurisdiction, and the average number of workplace inspections conducted each year, as a proportion of workplaces, varied considerably across jurisdictions. This variance appears even greater when comparing levels from individual years as opposed to average levels over the four years; and when comparing absolute numbers of inspectors and inspections (see Tables M.5, M.17 and M.18).

From 1990–91 to 1993–94, there was an average of one workplace inspection conducted per year for every 5.6 workplaces in Victoria and Western Australia, compared with an average of 15 workplace inspections for every one mine (or group of mines) in Western Australia. The average for all jurisdictions (excluding mining) over this period was one inspection for every 4.1 workplaces per year (see Figure M.3).

From 1990–91 to 1993–94 there was an average of one inspector for every 1713 workplaces in Victoria; compared with an average of one inspector for every 4 mines (or group of mines) in the Northern Territory and Western Australia. The average for all jurisdictions (excluding mining) over this period was one inspector for every 1042 workplaces (see Figure M.4).

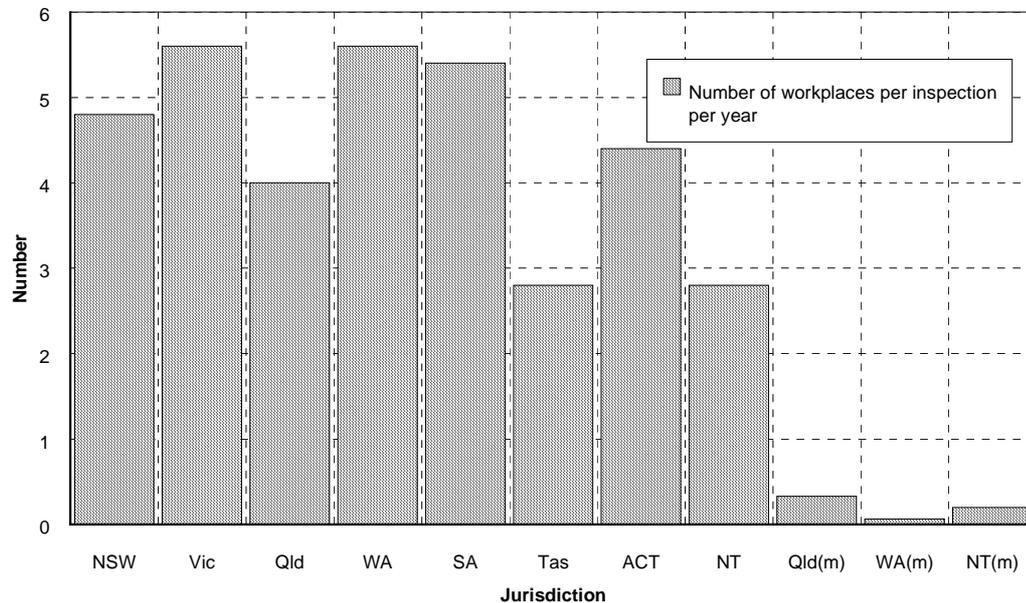
Levels of enforcement

The frequency of sanctions varied considerably across jurisdictions between 1990–91 to 1993–94. Tables M.6 to M.16 show the number of improvement notices, prohibition notices, on-the-spot fines and prosecutions as a proportion of total sanctions and inspections for jurisdiction.

Pattern of sanctions

A 'pyramid' pattern of sanctions is apparent for each State and Territory between 1990–91 to 1993–94. That is, the less punitive sanctions were used the most often, while the most financial sanctions were least often used. A pyramid is formed when the number of each type of sanction used is expressed as a proportion of the total number of sanctions (See Figure M.5 and Figure M.9).

Figure M.3 The average number of workplaces per inspection, per year by Jurisdiction



Notes: Figures used are averages from 1990–91 to 1993–94. Refer to Table M.17 and M.18 for raw data.

The New South Wales Department of Minerals was did not provide the data requested.

The letter (m) denotes mining inspectorate jurisdictions within States and Territories.

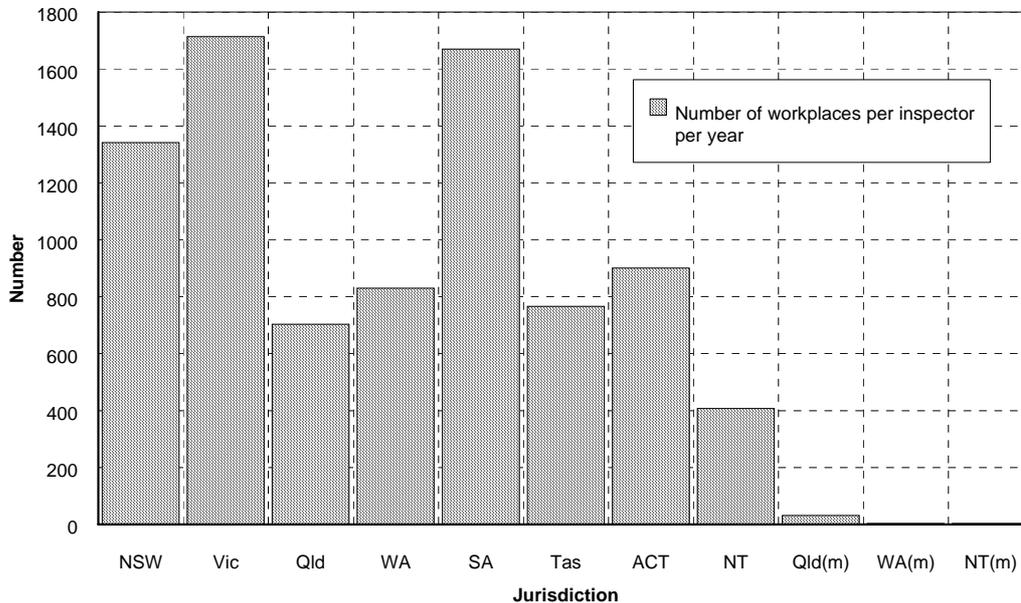
Source: Information provided by the OHS Authorities and Mining Departments in each jurisdiction.

Improvement notices which form the base of the pyramid, were the most often used sanction in all jurisdictions, ranging from an average of 65 per cent in Queensland, to an average of 97 per cent in the Northern Territory (mining) from 1990–91 to 1993–94.

Prohibition notices, forming the mid section of the pyramid, were the next most commonly used sanction; ranging from an average of 1 per cent in the Northern Territory (mining), to an average of 31.2 per cent in Victoria, from 1990–91 to 1993–94.

From 1990–91 to 1993–94, only New South Wales had used on-the-spot fines, issuing 2529 fines. In the case of New South Wales, penalty notices formed the upper mid section (7.7 per cent) of the pyramid.

Figure M.4 The average number of workplaces per inspector, workplace per year by Jurisdiction



Note: Figures used are averages from 1990–91 to 1993–94. Refer to Table M.17 and M.18 for raw data. The New South Wales Department of Minerals was did not provide the data requested. The letter (m) denotes mining inspectorate jurisdictions within States and Territories.
 Source: Information provided by the OHS Authorities and Mining Departments in each jurisdiction.

Prosecutions, forming the tip of the pyramid, were the most seldom used sanction in all jurisdictions except Queensland and South Australia, where there were more prosecutions mounted than prohibition notices issued.³ Prosecutions ranged from 0.7 per cent in the Australian Capital Territory to 21.8 per cent in Queensland.

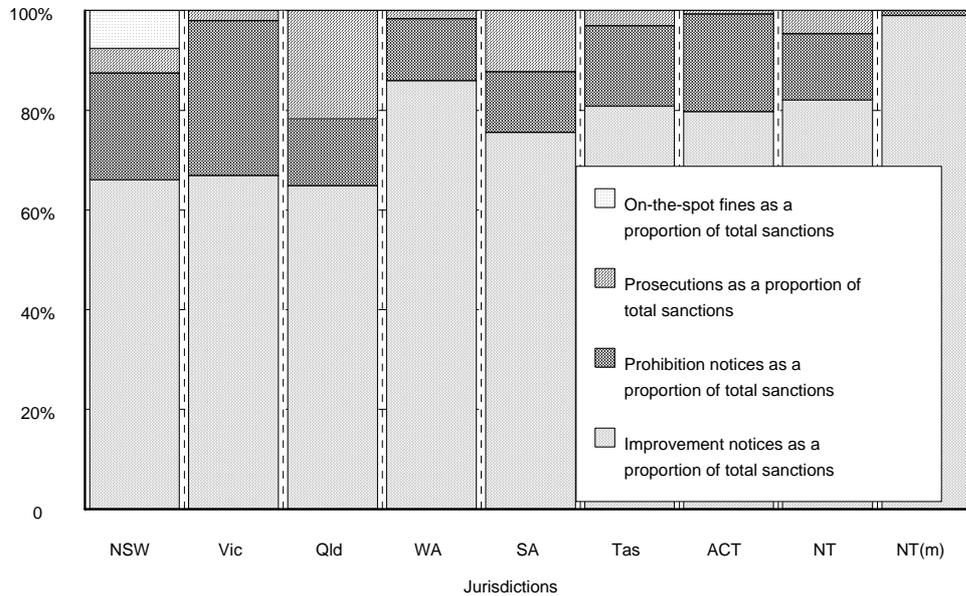
From 1990–91 to 1993–94, for all jurisdictions, there were a total of 85 000 formal sanctions imposed (including improvement notices, prohibition notices, on-the-spot fines and prosecutions). Of total sanctions imposed, 5170 carried a penalty — that is, 2622 convictions and 2529 on-the-spot fines occurred.

Sanctions as a proportion of inspections

The large majority of inspections (workplace visits) do not result in the use of any formal sanctioning (see Figure M.6). There is no record (available) of the number of informal sanctions used over this period.

³ Prosecutions would be the most seldom used sanction in Queensland if prosecutions for failing to register workplaces and notify notifiable programs were excluded.

Figure M.5 Improvement notices, prohibition notices, on-the-spot fines and prosecutions as a proportion of total sanctions by State



Notes: Figures used are averages from 1990–91 to 1993–94. Refer to Table M.6 to M.16 for raw data. The New South Wales Department of Minerals was did not provide the data requested. The Queensland and Western Australian mining jurisdictions were unable to provide sufficient data for inclusion in the figure. The letter (m) denotes mining inspectorate jurisdictions within the Northern Territory.

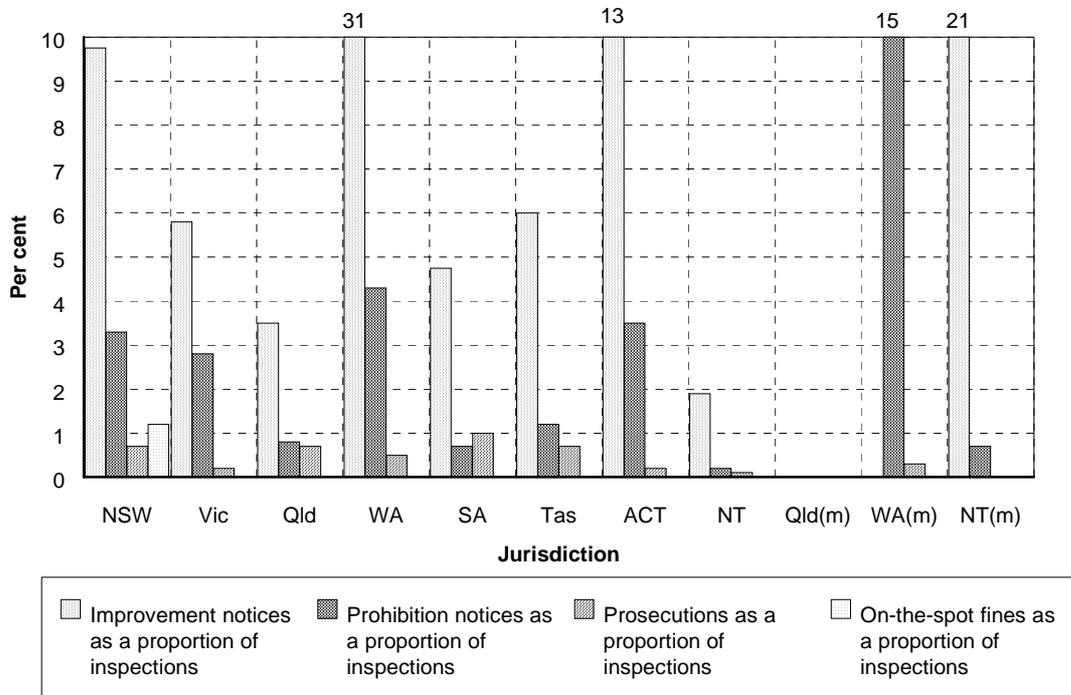
Source: Information provided by the OHS Authorities and Mining Departments in each jurisdiction.

From 1990–91 to 1993–94, the total number of sanctions as a proportion of inspections ranged from an average of 1 for every 100 inspections in the Northern Territory, to 35.3 for every 100 inspections in Western Australia. For all jurisdictions, over this period, the total number of sanctions as a proportion of inspections was 8.4 for every 100 inspections.

From 1990–91 to 1993–94, improvement notices as a proportion of inspections, range from an average of 1.9 for every 100 inspections in the Northern Territory, to an average of 30.6 for every 100 inspections in Western Australia.

From 1990–91 to 1993–94, prohibition notices as a proportion of inspections, range from an average of 2 for every 1000 inspections in the Northern Territory, to 43 for every 1000 inspections in Western Australia.

Figure M.6 Improvement notices, prohibition notices, prosecutions and on-the-spot fines as a proportion of inspections by Jurisdictions.



Notes: Figures used are averages from 1990–91 to 1993–94. Refer to Table M.6 to M.16 for raw data. The New South Wales Department of Minerals was did not provide the data requested. The number of improvement notices in the Queensland and Western Australian mining jurisdictions were not available. The letter (m) denotes mining inspectorate jurisdictions within States and Territories.

Source: Information provided by the OHS Authorities and Mining Departments in each jurisdiction.

Prosecutions

The frequency of prosecutions and severity of penalties has traditionally been considered low (see Braithwaite and Grabosky 1985 for the pattern of convictions and fines from the mid 1970s to the mid 1980s across Australian jurisdictions). Table M.19 shows the number of prosecutions and convictions in each State and Territory from 1990–91 to 1993–94. Table M.20 shows the average and maximum level of fines in each jurisdiction from 1990–91 to 1993–94.

Rate of Prosecution

From 1990–91 to 1993–94, prosecutions (successful and unsuccessful) ranged from none in Queensland (mining) and Northern Territory (mining) to, ten for every 1000 inspections in South Australia. The average rate for all jurisdictions was 3.6 prosecutions for every 1000 inspections.

Rate of conviction

From 1990–91 to 1993–94, the rate of conviction ranged from no convictions under the Commonwealth, Queensland (mining) and Northern Territory (mining), to five convictions for every 1000 inspections in Queensland and New South Wales. The rate for all jurisdictions was three for every 1000 inspections (see Figure M.6). The conviction rate (measured as the number of convictions divided by the number of prosecutions) ranged from 36 per cent in South Australia, to 100 per cent in the Northern Territory.

Level of Penalties

From 1990–91 to 1993–94, the average court fine imposed ranged from \$500 in Western Australia (mining) to \$8004 in Victoria. The average for all jurisdictions was \$3347 (see Figure M.8).

From 1990–91 to 1993–94, the average on-the-spot fine imposed in New South Wales was \$849.⁴ The average for all fines (court fines and on-the-spot fines) for all jurisdictions was \$2 480.

From 1990–91 to 1992–93, maximum fines imposed ranged from \$720 in Queensland (mining), to \$120 000 in Victoria. A prison sentence has never resulted from an OHS violation in Australia, despite its availability as a sanction in some jurisdictions.

Expected penalty

The expected penalty (or deterrent) facing a potential offender is determined by:

- the likelihood of being inspected;
- the likelihood of a breach being detected, prosecuted and convicted; and
- the average penalty imposed.

⁴ The average on-the-spot fine equals the total amount of on-the-spot fines imposed from 1990–91 to 1992–93; divided by the number of on-the-spot fines imposed from 1990–91 to 1992–93. The total amount of on-the-spot fines is equal to the number of employees fined, multiplied by the fine amount for employees; plus the number of employers fined, multiplied by the fine amount for employers.

Figure M.7 Average number of prosecutions and convictions, by jurisdiction

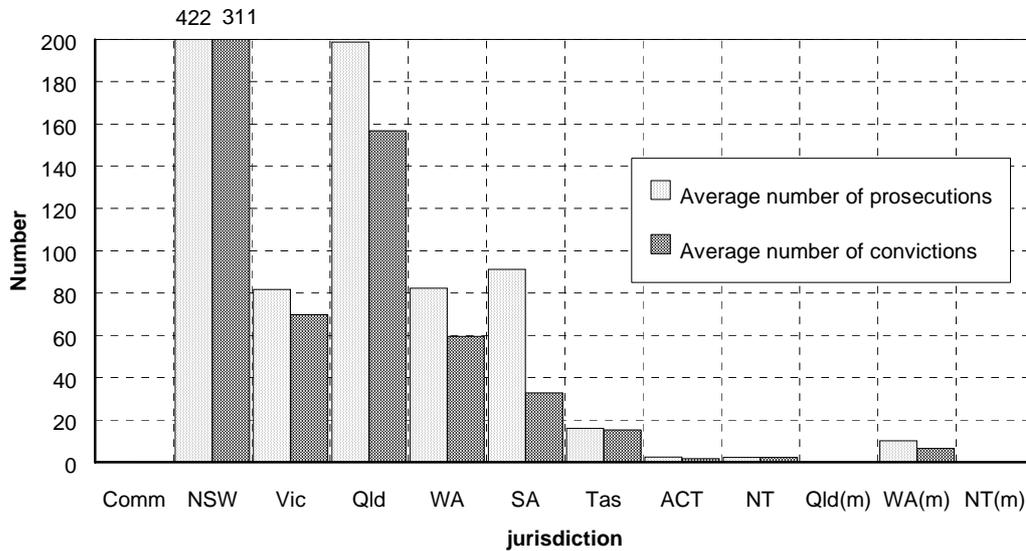
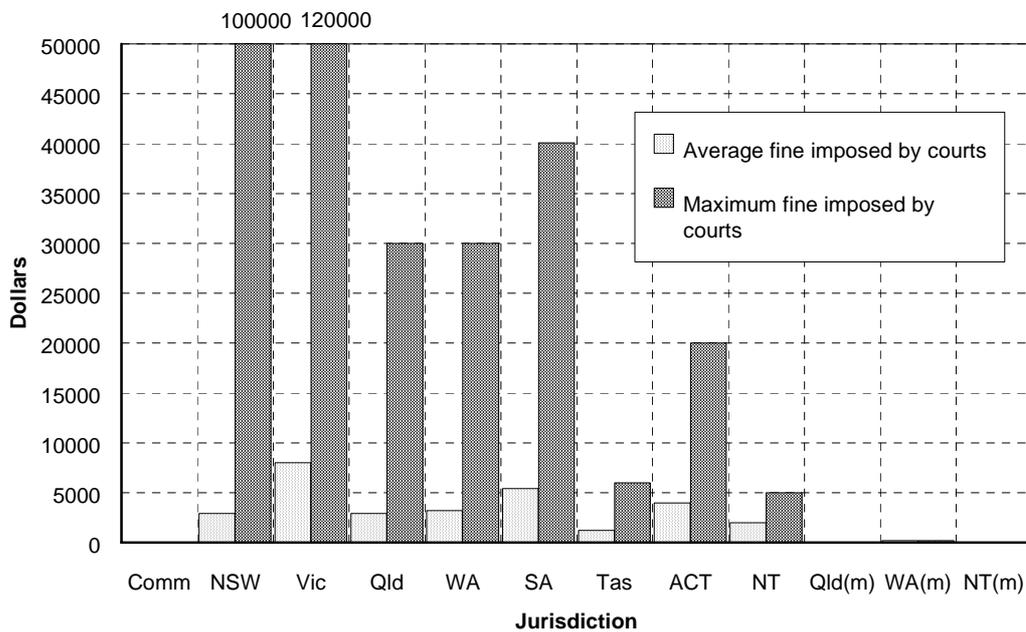


Figure M.8 Average fines and maximum fines, by jurisdiction



Notes: Figures used are averages from 1990–91 to 1993–94. Refer to Table M.21 Refer to Table M.19 for raw data.

The New South Wales Department of Minerals was did not provide the data requested.

The letter (m) denotes separate mining inspectorate jurisdictions within States and Territories.

Source: Information provided by the OHS Authorities and Mining Departments in each jurisdiction.

See Attachment M2 for the raw data used to calculate the following probabilities. Prohibition notices have not been counted as financial penalties for the purposes of this analysis because of the difficulty associated with estimating such penalties. However, their inclusion could have the effect of increasing deterrence.

The likelihood of inspection

The number of inspections as a proportion of workplaces provides an estimate of the probability (P_i) of a workplace being inspected in a given year. The data in Table M.7, suggests that on average from 1990–91 to 1993–94 for all States and Territories, a workplace will be visited approximately once every 4.6 years (or 22 inspections for every 100 workplaces).⁵ This method provides an over-estimate of the likelihood of being inspected because:

- the number of workplaces actually inspected, is lower than the number of inspections conducted. The data used does not show how many inspections were follow-up (repeat) inspections to the same workplace;
- the number of inspections includes workplace visits conducted exclusively to provide information, advice and assistance, without the possibility of punishment for breaches; and
- relatively few inspections are randomly conducted — most workplaces will only be inspected if they are targeted, request an inspector’s services, have a serious accident, or operate technical equipment which is subject to statutory inspection. Other workplaces will face very low or zero probability of inspection.

The likelihood of being penalised

The number of convictions and on-the-spot fines as a proportion of total sanctions provides an estimate of the probability (P_p) of a workplaces being penalised if inspected (assuming all breaches are identified and sanctioned upon inspection). The data in Attachment M2, suggests that on average there are 6.1 penalties imposed (3.1 convictions and 3.0 on-the-spot fines) for every 100 formal sanctions imposed for all States and Territories.⁶ There are a two main reasons why this measure overstates the likelihood of being penalised:

⁵ The probability of a workplace being inspected equals the total number of inspections divided by the total number of workplaces (for all States and Territories from 1990–91 to 1993–94).

⁶ The average number of convictions per 100 sanctions equals total convictions divided by total sanctions for all States and Territories from 1990–91 to 1993–94. The average number of on-the-spot fines per 100 sanctions equals total on-the-spot divided by total sanctions for all States and Territories jurisdictions from 1990–91 to 1993–94.

- prosecution and convictions are generally only imposed for breaches which have resulted in serious harm. In most cases, the majority of breaches — resulting in minor or no harm — face a zero probability of punishment; and
- the number of breaches in workplaces that are inspected is likely to be a lot higher than those detected and formally sanctioned. There are no measures of the total number of breaches per workplaces inspected or the number of in-formal sanctions imposed per inspection.

The average penalty imposed

The average fine imposed (court fines and on-the-spot fines) provides an estimate of the penalty facing offenders if inspected and convicted. The average fine imposed (on-the-spot fines and court imposed fines) for all States and Territories from 1990–91 to 1993–94 was \$2480.⁷

Estimated expected penalty

Based on the above estimates, an indicative expected penalty facing a potential offender can be expressed as follows:

$$P_i(0.220) \times P_p(0.061) \times 2480 = \$33$$

Given that the method for calculating the likelihood of being inspected and penalised provides an over-estimate, the financial deterrence facing potential offenders is unlikely to exceed a magnitude indicated by this estimate, and is probably much lower in most cases.

Expected penalties levels under the Commission proposal

Under the Commission's proposed enforcement arrangements, expected penalty levels are likely to increase substantially. Such increases depend on the adoption and effectiveness of proposed enforcement arrangements. The following expected penalty level scenarios are based on the presumption that:

⁷ The average fine imposed equals the total fine amount (on-the-spot and court imposed) divided by the total number of convictions and on-the-spot fines imposed from 1990–91 to 1993–94.

- technical inspection resources — currently around a third of total inspection resources — will be devoted to proactive inspections (increasing the rate of inspection to about one in three);⁸
- all jurisdictions adopt a system of on-the-spot fines; and
- if a workplace has committed a significant offence, the probability of being punished (once inspected) is 100 per cent.⁹

If the average fine doubles, to equal around \$5000, the average expected penalty will equal \$1666.

If the average fine triples, to equal around \$7500, the average expected penalty will equal \$2475.

If the average fine increases ten-fold, to equal around \$25 000, the average expected penalty will equal \$8250.

Average fine levels are dependent on the size of on-the-spot fines, and the size of court imposed penalties.

Expected penalty levels will vary depending on the offence committed, as rational workplaces will expect substantially different fines for minor and serious offences. These could range from around a third of the lowest on-the-spot fine to a third of the maximum court fine.¹⁰

Given a probability of inspection of around a third, and a probability of punishment (if in breach) of a 100 per cent, specific deterrence will always be 3 times higher than the general deterrence (or the expected penalty level).

M.3 The impact of enforcement

The actual and potential impact of enforcement on OHS outcomes is largely uncertain because:

- general levels of compliance are largely unknown;
- the relationship between levels of compliance and levels of injury, illness, and disease is also largely unknown; and
- the impact of enforcement on compliance levels is largely unknown.

⁸ A third of the current probability of inspection (22 per cent) is 7.3 per cent, which when added to 22 per cent, equals 29 per cent (just under a third).

⁹ Based on these presumptions about the outcome of the Commission's proposed enforcement approach, the expected penalty equation is specified as follows:

$$P_i(0.33) \times P_p(1.0) \times \$F = \$EP$$

¹⁰ A third refers to the probability of inspection under the Commission's proposed enforcement approach.

Estimating compliance

General levels of compliance with OHS legislation are inherently difficult to estimate. The current inspection process is not an entirely effective vehicle for estimating general levels of compliance. On average, workplaces are visited less than once every four years. In addition, the non-random nature of most inspection activity detracts from the statistical validity of partial compliance levels detected through inspections. Moreover, the inspection process is not always able to detect all non-compliance.

Some participants have argued that the assessment of compliance in the workplace is becoming increasingly difficult, with the shift toward performance based legislation. For example, the Health and Safety Organisation (formerly the Victorian Occupational Health and Safety Authority) stated that:

Estimation of levels of compliance is somewhat easier in relation to what may be described as 'product-type' compliance — for example, the compliance of high risk boilers with prescriptive statutory requirements is very high. Estimation of levels of compliance is most difficult in relation to 'process-type' compliance, such as hazard identification, the provision of information to employees and the resolution of issues, where the requirement is expressed in legislation in performance-standard terms (sub. 176, p. 30).

Available estimates

Patterns of enforcement — although not a precise measure for reasons discussed above — provide an indicative lower estimate of the level of non-compliance. From 1990–91 to 1993–94 all sanctions as a proportion of inspections was around 12 per cent. An estimate of 12 per cent largely understates general levels of non-compliance because the number of sanctions ignores the number of breaches which receive an informal sanction, receive no sanction, or go undetected.

Partial estimates of non-compliance also indicate that levels of non-compliance are substantially higher than 12 per cent. For example, a study into Compliance of Commercial Health and Fitness Centres conducted by the Queensland University of Technology in 1993, found that of those surveyed, larger establishments had a non-compliance level of 25 per cent (Queensland Government 1994).

Partial studies of awareness of occupational health and safety also indicate high levels of non-compliance with particular regulations. For example, a survey by Worksafe and WorkCover New South Wales indicated that many suppliers of industrial solvent are either ignorant or apathetic about their OHS responsibilities. The survey found that 82 per cent of workplaces had not been supplied with material safety data sheets (MSDS) (sub. 50, p. 126).

Anecdotal evidence given by participants suggests that the level of non-compliance is far greater than the figure of 12 per cent would suggest. For example, the Department of State Development and Resources of Tasmania estimated (for 1992–93) that around 95 per cent of workplaces inspected were not complying fully with their OHS obligations (Tasmanian Government 1994).

The results of a study into the extent and cost of compliance by Deloitte Touche Tomatsu, engaged by the Commission, suggest a significant level of non-compliance in workplaces of varying size across varying industries (see Box M.1).

The relationship between compliance and workplace health and safety outcomes

Available study results on the extent to which injury illness and disease can be prevented by compliance with occupational health and safety legislation, vary considerably. Braithwaite summarises the relationship between compliance and OHS outcomes as follows:

... a minority of more minor work injuries (for example, back strains) may be due to employer criminality, while a majority of more serious incidents (notably fatalities) result from employer offences (1985, p. 5)

Study results

A range of results were referred to in Viscusi, reflecting the potential impact of compliance with OSHA regulation on accident rates in the US:

One recent statistical analysis estimated that if there were full compliance with OSHA standards, workplace accidents would drop by just under ten per cent ... A recent detailed analysis of workplace accidents in California [found that] ... At most 50 per cent of all fatal accidents were contributed to by violations of OSHA standards that potentially could have been detected by an OSHA investigator visiting the day before (1986, p. 146).

Similarly, a range of results — using data from the United Kingdom (UK), the US and Australia — were referred to in Braithwaite:

American studies have variously estimated that between 10 per cent and 30 per cent of injuries are caused by violations of the Occupational Health and Safety Act (Mendeloff, 1979, p. 86–7) ... Studies of fatalities, rather than more minor accidents in the mining industry, however, produce higher percentages of over 70 per cent (1985, p. 4).

Research into the patterns of inspection in Victoria between 1980 and 1989 found that around two thirds of investigated factory accidents revealed violations of legislation (Johnstone, 1994). However, it is not known whether

compliance in these situations would necessarily have prevented the injury or fatality from occurring.

Box M.1 Deloitte Touche Tomatsu: Overall rating of Compliance

The Commission engaged a study by Deloitte Touche Tomatsu, *Investigation into the Extent and Cost of Compliance with Occupational Health and Safety Standards* (1995), with a view to determining the level of compliance with duty of care. The study surveyed a sample of 56 employers of varying sizes across a number of industries. Levels of compliance were categorised as follows:

- High level of compliance: demonstrated through discussions with the project team, that they had systems in place to ensure that they were attempting to provide a workplace which is safe and without risks to health. This view was supported by the site tour which indicated that appropriate risk control measures were in place within the workplace.
- Medium level of compliance: demonstrated through discussions with the project team, that the organisation was undertaking some activities associated with providing a workplace which is safe and without risks to health. The site tour indicated that there were no obviously significant risks to the health and safety of employees.
- Low level of compliance: employers in this category indicated that they had little knowledge of the risks associated with their activities or regulations and codes of practice which applied to their operations. A site tour confirmed this assessment.

The results of the survey indicate that only 28 per cent of employers had a high level of compliance, 38 per cent had medium level compliance and 24 per cent had low level compliance. Of those achieving low level compliance, 50 per cent were small workplaces (that is, employing less than 30 employees). Note that 21 per cent of the sample were unable to be categorised (p. 34–35).

Impact of enforcement on compliance and OHS outcomes

Given the difficulties associated with estimating compliance levels, very few studies have looked at the relationship between enforcement and compliance levels. As a result, most studies on the impact of enforcement have assessed the impact of enforcement on injury rates.

Enforcement in Australia

Relatively little research has been done on the impact of enforcement in Australian jurisdictions. Andrew Hopkins stated that:

There is good evidence that the enforcement activity of regulatory agencies does reduce injury and thus compensation data ... In 1987 the inspectorate embarked on a two year program to reduce accidents and the health problems in the northern NSW cotton gins. ... The result was a fall in the accident rate from one accident for every 5 operators in 1986 to one in every 40 in 1988 (1994, p. 10).

The Health and Safety Organisation of Victoria (formerly the Occupational Health and Safety Authority of Victoria) suggested that enforcement of prescriptive legislation has been ineffectual in some situations:

A study recently carried out by OHSA of 25 organisations which have been prosecuted demonstrated that there had been no significant difference in accident rates before and after prosecution ... despite the number of notices that have been issued and successful prosecutions that have been undertaken in regard to inadequate guarding, it is still a problem in workplaces (sub. 176, p. 6).

A study by McLean involved a survey of organisations to measure accident rates before and after prosecution. The survey measured specific deterrence rather than general deterrence, among a sample of possibly recidivist organisations — 30 per cent of which had prior convictions — with little compulsion to comply with health and safety legislation. The study concluded that:

... there is a degree of recidivist behaviour among organisations that have previously been prosecuted. An approach of persuasion would be of no value in gaining compliance at these organisations. Such organisations would require frequent inspections with any identified non-compliance leading to prosecution (1993, p. 16).

A number of participants gave anecdotal evidence of the impact of enforcement on compliance. For example, the Tasmanian Farmers and Graziers' Association stated:

Three years ago less than 10 per cent of sheds had guards on their grinding machines. Following an intensive publicity campaign and random check inspections by OHS inspectors we now have in excess of 95 per cent compliance (sub. 61, p. 6).

Available studies generally indicate that the impact of enforcement varies among jurisdictions, industries and with regard to different regulations.

Enforcement in the United States

There is a relatively large volume of research available on the impact of enforcement on injury rates in the United States (US). Viscusi refers to his own econometric

studies on the impact of enforcement on OHS investment and injuries levels in the US:

Econometric studies of OSHA's performance throughout the mid 1970s have failed to identify any substantial impact of the OSHA enforcement effort. An update of these analyses through the 1982 period indicates, somewhat surprisingly, that there is a statistically significant impact of OSHA enforcement on workplace safety even after taking into account cyclical factors and industry-specific conditions (1986, pp. 147-148).

Oregon in the US tripled the amount it charged in penalties from 1987 to 1992 — in addition to a number of other changes to its enforcement program, workers' compensation program and other prevention programs. From 1988 to 1992, workers' compensation claims decreased by over 30 per cent and fatalities fell by 22 per cent (although employment increased by over 10 per cent). The lost workday cases incidence rate fell by over 21 per cent from 1988 to 1991. Workers' compensation premiums fell by over 30 per cent from 1991 to 1993, taking Oregon from the sixth most expensive US state for workers' compensation premiums in 1986 to the twenty-second highest in 1986. However, it is unclear to what extent other factors such as changes in claimant eligibility, in the economy and industry mix, and insurer claims management practices also contributed to the accident downturn (Department of Insurance and Finance 1993).

More recently, research by Gray and Scholz indicated that OSHA has had a substantial impact on injuries in the US:

Using data on injuries and OSHA inspections for 6842 large manufacturing plants between 1979 and 1985, we find evidence that OSHA inspections significantly reduce injuries. Plants which are inspected (and penalised) in a given year experience a 22 per cent decline in their injuries during the following few years. In our sample total OSHA enforcement is predicted to have reduced injuries by about 2 per cent (1991, Abstract).

Findings from an empirical study by Scholz and Gray (1990) on the impact of OSHA in the US (from 1979 to 1985) indicates the importance of general deterrence and certainty of punishment in deterring injuries. In reviewing the results of this study Brown stated:

... this study estimates that a 10 per cent increase in the number of penalties would reduce the number of injuries by 1.61 per cent and that a similar increase in the average size of penalties would reduce injuries by 0.93 per cent. In other words, both the severity and certainty influence injuries but certainty has a substantially stronger effect than severity. The research also found that penalties prevented more injuries by altering the conduct of employers who have not themselves been penalised than influencing the performance of penalised employers. In other words, general deterrence is a more potent force than specific deterrence in preventing injuries (1992, p. 705).

M.4 Alternative approaches

Current approaches to enforcement of OHS legislation in Australia are most similar to those in the UK and arguably most dissimilar to those in the US (in most States), which are deterrent oriented (see Box M.2). Approaches in Sweden and Denmark are arguably more compliance (persuasion)-oriented than in Australia, while approaches in the Canadian Provinces of Ontario and British Columbia are arguably more deterrence oriented than Australia (see Gunningham 1994).

United Kingdom

OHS legislation in UK, upon which OHS legislation in Australia is based, is enforced through a system of improvement notices and prohibition notices for the majority of breaches detected. Prosecution is typically reserved for serious breaches involving gross negligence. From 1986–87 to 1992–93, around 86 per cent of total sanctions (notices and prosecutions) were improvement notices and prohibition notices.

United States

The OSHA in the US takes formal legal action for the vast majority of breaches identified through inspections of workplaces. In 1990–91, the imposition of a fine followed 63 per cent of inspections in the US. Fines imposed under the administrative penalty system used in the US have ranged from \$500 to more than \$1 million (see Box M.2). High penalties reflect total fines for multiple offences, and circumstances where fines are imposed per day of breach.

Sweden and Denmark

Inspectorates in Denmark and Sweden operate informally to a large extent, giving verbal instructions and offering verbal advice. A system of legally binding notices and the option to prosecute offenders — similar to that which exists in Australia — is available in Denmark and Sweden, but rarely relied upon to secure compliance. However, more recently in Sweden, the inspectorate has become increasingly willing to use injunctions and prohibition orders in problem workplaces.

Box M.2 Comparing administrative penalties with criminal penalties

A study by Brown (1992) compared administrative penalty systems in the US and British Columbia, to the criminal system of imposing penalties in Ontario. The study concluded:

- The probability of being punished is substantially greater in the US and British Columbia, than in Ontario. For example, in 1990–91 prosecutions followed 0.9 per cent of all inspections in Ontario, whereas an administrative penalty followed 1.8 per cent of all inspections in British Columbia and 63 per cent of all inspections in the US.
- Despite typically higher average penalty amounts in Ontario, total penalty amounts in the US and British Columbia are greater. For example, in 1990–91 total penalties amounted to 2.2 million in Ontario, whereas total penalties amounted to 4.9 million in British Columbia and 91.7 million in the US.
- As a result of a stricter standard of proof for imposing criminal penalties, penalties can be more readily imposed in the US and British Columbia, than in Ontario.
- An offender's compliance history — a reliable basis for identifying due diligence — is used in the US and British Columbia as a basis for imposing a vast majority of penalties. Compliance history is not admissible under criminal proceedings in Ontario.
- The vast majority of penalties in the US and British Columbia are imposed for offences causing risk, but not harm. In Ontario, between 30 per cent and 40 per cent all penalties are imposed after harm has occurred.
- A system of administrative penalties is faster than a system of criminal penalties. For example, in 1990–91 the average delay between the detection of a violation and laying charges was around 250 days in Ontario; compared to 30 days between inspection and penalty citation in the US.
- A system of administrative penalties is less costly than a criminal system of penalties. Criminal systems are more labour intensive; employ highly paid staff and are more likely to induce defendants to mount costly defences and contest penalties.

Ontario and British Columbia

Ontario applies penalties through the court, as is the case in Australia, while British Columbia uses an administrative system similar to that used in the US. In both of these Canadian Provinces, workplace inspections are more likely to result in a penalty being imposed, than in most Australia jurisdictions. For example, in 1990–91 penalties followed 0.9 per cent of all inspections in Ontario and 1.8 per cent of all inspections in British Columbia; compared to an average of 0.5 per cent of all inspections for all jurisdictions in Australia, from 1990–91 to 1992–93.

M.5 Improving enforcement

OHS enforcement agencies predominantly use persuasion to achieve compliance — rarely resorting to deterrence. Advice, verbal direction and compliance notices are applied for the majority of offences. Relatively few offences are punished through on-the-spot fines and prosecutions. Of those participants who commented on enforcement, the majority argued for greater deterrence in enforcing compliance.¹¹ For example the Department of Defence (Canberra) stated:

While Defence is not currently subject to financial penalties for breaches under the *Occupational Health and Safety (Commonwealth Employment Act) 1991*, it does recognise the importance of a deterrence-focussed program as proposed by the Commission, to support an effective and efficient legislative base (sub. 299, p. 1).

However, some participants also argued that greater deterrence will not improve workplace health and safety. For example, the New South Wales Farmers (Industrial) Association stated:

A system which emphasises punishment for violation of occupational health and safety laws will not achieve the aim of improved safety. If legislation is too onerous or costly, it will be ignored (sub. 118, p. 1).

Many participants, whether advocates of a deterrence or persuasion approach to enforcement, feel that, currently, OHS legislation is not being adequately enforced. For example, the Australian Association of Audiologists in Private

¹¹ Other participants in favour of a more deterrence oriented approach include submission Tasmanian Association of Vocational Rehabilitation Providers (sub. 136), Dr C. Mayhew (sub. 142), Mr P. Knott (sub. 281), Mr S. Graeme (sub. 360)

Practice argue that:

It does not matter how good your health and safety regulations are if they are not enforced. Tasmania is a classic example of this. Tasmania has quite reasonable regulations for noise exposure. However they have never been enforced and are totally ignored by many employers (sub. 162, p. 5).

Enforcement resources

Many participants are concerned about current levels of resources devoted to enforcement. For example, the Shop Distributive and Allied Employees Association (Queensland Branch) stated:

There is inadequate enforcement of the legislation by the Queensland Division of Workplace Health and Safety ... I believe the reason for this is twofold. Firstly, the emphasis of the Division and its inspectors is on educating rather than on prosecuting and secondly, there is a lack of resources available to the inspectorate. There are too few inspectors to go around and coverage of Queensland workplaces is inadequate (sub. 71, p. 2).

M.R. Phillips of Curtin University of Technology stated:

There has been a long tradition of poor enforcement of occupational health and safety provisions in Australia as in other countries. A simple comparison of the resources devoted to enforcement of traffic safety would illustrate the point. In Western Australia over the past few years there has been a reduction in the number of field inspectors, though this has been hidden by the reclassification of technical staff as inspectors by the Department (sub. 34, p. 6).

Inspectorate activities

Many participants express concern over the mix of activities — enforcement and advisory related — performed by inspectorates. For example, as stated by the Labor Council of New South Wales:

Historically, the Inspectorate role was confined to enforcement only and, over the years, we have seen this Division absorb other roles, including advisory functions and project work.

The NSW Labor Council supports the expansion of the Inspectorate role, provided this expansion is not to the detriment of the Inspectorate's primary and essential roles, which are workplace inspection and enforcement of the NSW OHS legislation (sub. 145, p. 8).

Some participants argued that the provision of advice and enforcement should be conducted independently. For example, the Australian Chamber of

Manufactures stated:

An inspector can be a 'policeman' or a 'resource', but not both. No business is ever going to voluntarily call in an inspector for advice if there is a chance of a prosecution being laid. One does not present one's motor vehicle to a police station for advice on roadworthiness. On the other hand, a service station assesses it and the owner retains use of it while arranging repairs (sub. 128, p. 8).

Some participants argue that enforcement and advice can be effectively conducted by inspectorates. For example, the Trades and Labour Council of the Australian Capital Territory argued:

The experience of the ACT TLC is that strong enforcement of OHS standards does not undermine a co-operative approach to OHS. A determined inspectorate increases the motivation of employers for a co-operative approach (sub. 75, p. 4).

Some participants recommended that some inspectorate functions be undertaken by accredited providers to free-up inspectorate resources for enforcement. For example, GIO Australia stated:

Employers could be required to submit a compliance plan to the regulator on a annual or bi-annual basis, similar to the existing process used by the Affirmative Action agencies. These plans could be audited by independent accredited auditors. This could help free up the official inspectorate to concentrate on education and training and prosecutions (sub. 114, p. 7).

Some inspectorates have begun externalising some of their activities. For example, the Department of Occupational Health, Safety and Welfare (Western Australian Government) explained:

The move toward performance based assessments has also been supported by a move towards external review of plant and design and assessment of candidates for certificates of competency. Following reviews of the Occupational Health, Safety and Welfare Regulations, it has been made possible for competent persons to review plant designs, which must be lodged with the Department, and to assess candidates. The activities of these groups is regularly reviewed by the Department ... (1994).

Enforcement targeting

Many participants have criticised the use of workers' compensation data and OHS data for targeting workplace inspection. For example, the Northern

Territory Government stated:

There are limitations however in using workers' compensation claims experience as an indicator of occupational health and safety performance or for use in targeting enterprises for audits or inspections purposes. Recent findings by the Queensland Division of Workplace Health and Safety reinforce earlier reservations towards the usefulness and accuracy of workers' compensation data.

Significant numbers of workers together with the self-employed are not covered for workers' compensation and many injured workers who are eligible do not claim for a variety of reasons. Significant numbers of work-related diseases are not reflected in workers' compensation figures as the occupational causal link is not recognised or established.

Finally, the number of injuries (compensable or not) may not be a particularly accurate indicator of the overall safety environment of a workplace. Whether or not an accident results in an injury it is determined largely by chance (sub. 43, p. 10).

Queensland has begun measuring the levels of non-compliance in an effort to target workplaces more effectively. The Division of Workplace Health and Safety (Queensland Government) explained:

The random audit component involves the direct measurement of compliance and avoids reliance on the traditional indirect indicators of compliance such as injury rates and workers compensation data. By utilising a sampling methodology the Division will be able to identify the levels of compliance across the major sectors and from there refine targeting aided by a much clearer picture of compliance performance across both the State and various industry sectors (1994).

Enforcement response

Some participants argued for persuasion as a first enforcement response. For example, the Victorian Employers Chamber Commerce and Industry stated that:

... education rather than enforcement should be the main focus of ensuring compliance with OHS legislation. Enforcement should only be a last option. Persuasion should first be considered prior to enforcement (sub. 97, p. 13).

However, other participants criticised the use of prosecutions only where serious harm has occurred, and not for breaches where harm did not occur. For example, Professor Cross of the Department of Safety Science, University of New South Wales argued that:

Prosecutions should be for unsafe conditions and procedures not as the result of a fatality. A workplace which has a fatality is already going to fix things up. The law must be used as a lever for those who have not yet had a fatality to force them to improve the workplace before the worst happens (sub. 49, p. 2).

On-the-spot fines

Many participants are in favour of on-the-spot fines and a number of jurisdictions are currently considering their introduction. For example, the State Public Services Federation of Tasmania stated that:

On-the-spot fines would assist inspectorates through avoiding long and often unsuccessful prosecution of employers who may evade responsibility through technical means (sub. 45, p. 5).

Evidence by Brown (1992) comparing the administrative penalty systems in the US and British Columbia, with the criminal system in Ontario strongly suggested that a system of on-the-spot fines is an effective mechanism for creating deterrence (see Box M.2).

Anecdotal evidence by Hopkins suggested that despite relatively small monetary amounts typically associated with a system of on-the-spot fines, credible deterrence can still be created:

Senior management told me they were normally unaware of visits by OHS inspectors where such visits did not result in any formal notices. They were very much aware, however, when inspectors issued on-the-spot fines. I was told by the manager of one very large company that on-the-spot fines gain management attention just as effectively as major prosecutions (1995, p. 90).

Evidence on the impact of OSHA in the US suggests that the size of the fine is not as important as the act of being punished. On the basis of empirical studies conducted in the US by Scholz and Gray, Hopkins concluded that:

... OSHA inspections are surprisingly effective in focusing management attention on OHS, with a resulting reduction in injury rates. Moreover they show that an important part of this affect is achieved by the punitive component of these inspections. This is not because the penalties are significant from a financial point of view. Rather it is because the mere fact of being penalised is something of a moral shock to company management and serves to focus attention on OHS in a way which inspections without penalty normally fail to do (1995, p. 91).

Some participants had concerns with the use of on-the-spot fines. For example, the Australian Manufacturing Workers Union (Western Australia) argued:

The AMWU has grave concerns for the use of on-the-spot fines. Those at the bottom of the pecking order [employees] are always the softest target. An inspectorate whose performance might easily be judged on its ability to identify breaches to legislation could score easy points in this way (sub. 287, p. 4).

The Victorian Automobile Chamber of Commerce argued that:

We cannot foresee a use for on-the-spot fines where trivial breaches are not prosecuted. It is an area in particular, that advise, persuasion and, ultimately, prosecution serves a more useful and logical function (sub. 314, p. 7).

Mr Taylor of Curtin University argued that:

... on-the-spot fines contradict, to some extent, Robens' philosophy in respect of administrative notices ... Such fines also make the inspector a policeman, judge and jury (sub. 342, p. 9)

Prosecution

Many participants expressed concern over the limited number and range of OHS offences being prosecuted. For example the ACTU (Queensland Branch) stated:

The Queensland experience to date is that there has been an absence of prosecutions under the Act. Where prosecutions do occur they tend to be in relation to accidents or deaths that have occurred, and not in relation to the breaches themselves. Fines that reflect the seriousness of contraventions of the law should be consistently applied for breaches of duty of care, preferably before workers are harmed. Companies and individuals should also be subject to criminal proceedings in serious circumstances where it can be demonstrated that they were responsible for, and had knowledge of, the breach. This approach would have a deterrent effect on recalcitrant employers and those ignorant of the law, through increased industry awareness of the provisions of the legislation and the requirement that concerned parties meet their duty of care (sub. 77, p. 13)

However, the number and range of prosecutions has increased markedly in some jurisdictions over the past decade. For example, in New South Wales the number of prosecution initiated has increased from 175 in 1988–89 to 492 in 1993–94. Again in New South Wales, a company was recently fined \$50 000 for an offence which posed the potential for harm, without actual harm. In Victoria the average number of convictions for machine guarding offences declined from an average of 46 between 1983 and 1987 to an average of 24 between 1987 and 1991. Over the same period, convictions for breaches of the duty of care increased from one to 29 (Johnstone 1994).

Anecdotal evidence suggests that OHS prosecutions can create both specific and general deterrence. On the basis of a series of case studies on OHS prosecutions in New South Wales, Hopkins drew the following conclusions about specific

deterrence:

First, it seems likely that repeat prosecutions of a company do not have the same impact as first time prosecutions. First time prosecutions are a shock. They are threatening because they involve the unknown ...

Second, the level of fines is not sufficient to have a significant deterrent effect on larger companies ...

Third, top managers are often very concerned about possible adverse publicity flowing from prosecutions ...

Fourth, prosecutions can be regarded as having a significant impact if the organisations respond by making fundamental changes in the way safety is managed ...

Fifth, prosecutions of companies are likely to have a greater impact if the prosecutors can find ways of getting senior managers into court. The unpleasantness of this experience is likely to focus the minds of senior management on the problem and provide a real and very personal incentive to avoid repeat occurrences (1995, pp. 102–3).

In regard to general deterrence, Hopkins stated:

Many small employers are largely unaware of the existence of regulation and have certainly never heard of the general duty to maintain a safe and healthy workplace. They may be quite ignorant of prosecutions launched by the regulatory authorities.

Most managements of larger firms I spoke with were dimly aware of prosecutions but this awareness was sufficient to create the belief that violations may have legal consequence and that it was therefore expedient to comply. This belief is evidence of the general preventive effects of prosecutions ...

In several cases I studied, the position of health and safety officer had been created in response to new legislation ... It is fear of the legal consequences of non-compliance which motivated these changes ... this is precisely what is meant by the general preventive effects of prosecution (1995, pp. 103–4).

On the basis of interviews with companies prosecuted in New South Wales, Hopkins stated:

The response of senior company officers who are concerned to avoid personal liability is to set in place management systems which promote workplace health and safety and to audit these systems ...

It is ... personal liability about which directors express most concern and which, I was told, motivates the compliance program more than anything else. The regulatory affairs manager needs to be able to report to every meeting of the board that for each area of concern: “we are substantially in compliance”.

According to the manager of another health, safety and the environment of another large company, the personal liability of directors is by far the most effective pressure on the company to take worker health and safety seriously (1994, p. 106).

Several participants put forward views on who should be prosecuted for OHS offences. For example, the Safety Institute of Australia (Health Care industry Branch) argued:

... that liability attach to individuals only if they:

1. know or ought to have known of a danger;
2. had the responsibility and duty to manage the area;
3. were grossly negligent (sub. 315, p. 3).

Criminal justice system

Many participants have criticised the low level of fines imposed by the courts for OHS offences. The ACTU stated:

It is unacceptable to the ACTU that a company found guilty of a breach of the OHS legislation which has led to the serious injury of a worker is only fined \$3000 (for example: ACI Operations Pty Ltd was fined \$3000 plus \$1200 costs on 17 December 1993 in the Broadmeadow's Magistrate's Court after it was found that the defendant failed to provide a safe system of work and an employee was seriously injured when he fell 3.5 metres). Or cases where the death of a worker attracts a fine of not very much more. A recent example of this is a case heard at Geelong Magistrate's Court in December 1993. In April 1991, at the Shell Refinery in Corio an employee of World Services and Construction Pty Ltd was killed when he fell 10 metres through an unsecured grid mesh. Both defendants were found guilty of breaches of the OHS Act. World Services and Construction Pty Ltd was fined \$15 000 plus \$1800 costs. The Shell Company of Australia was fined \$3000 plus \$7341.90 costs (sub. 149, p. 29).

The Community and Public Sector Union stated:

... the judiciary seem to have double standards when it comes to occupational injury as opposed to physical assault. A blatant safety breach by a knowing employer which results in a court action because someone was badly injured or killed, is more than likely to be found in favour of the defendant. And if the improbable occurs and the defendant is found guilty, only a minimal fine is usually imposed.

CPSU believes the judiciary does not apply the law in a way that parliament intended nor in a way that the community wants (sub. 72, p. 7).

The Australian Liquor, Hospitality and Miscellaneous Workers Union stated:

The continuing attitude of the judiciary to OHS breaches as equating to parking tickets is not acceptable. Developments introducing concepts of criminal negligence are long overdue. If manslaughter and murder are unacceptable in the general community, they should be no less unacceptable in industry (sub. 91, p. 5).

Participants have called for education of the judiciary — among other measures — to overcome the reluctance of the courts to impose higher fines.

The ACTU stated:

The penalties for breaches of OHS legislation are low because the judiciary has tended to impose fines well below the maximum allowable, often citing the company's 'good record to date' as justification. This situation could be rectified by setting higher 'minimum' penalties, by providing the judiciary with an OHS education, and by more widely disseminating information on breaches and prosecutions (sub. 149, p. 30).

A study Dr Johnstone (1994) — the only comprehensive Australian study of its kind — examines the role of the criminal justice system in occupational health and safety in Victoria (see Box M.3). Johnstone argued that 'the central problem with the prosecution of occupational health and safety offences is the form of criminal law utilised', the elements of which 'explain why fines for occupational and safety offences tend to be low, and thus not a serious deterrent' (1994, p. 537, 541). Further to this argument, Johnstone challenged the Robens Committee view of the role of criminal law in occupational health and safety:

Where the report took a wrong turning was not in its diagnosis that the existing form of criminal law was inappropriate for occupational health and safety offences, but in its unwillingness to contribute towards the development of a new criminal law form, focusing not on events perpetrated with traditional *mens rae* by individuals, but on work organised by business organisations which do not intend to cause harm, but who fail to take sufficient care to organise production so as to minimise risk to employees. ...

Instead of contributing to the development of a new form of criminal law to deal effectively with corporate behaviour, the Robens Report entrenched the traditional form of criminal law, and explicitly argued against its rigorous application to health and safety at work. This self-fulfilling prophesy renders the criminal law ineffective in regulating corporate crime, and masks the resulting unequal application of criminal sanction as between corporations and individual street crime (1994, p. 538).

Johnstone concluded that despite its limitations, 'existing laws need to be fully utilised, for much can be achieved even within the confines of the existing form of law' and that 'a new law needs to be developed, so that workplace crimes can be stigmatised in the same manner as are street crimes' (1994, p. 552).

Box M.3: Problems with the court system and occupational health and safety in Victoria

In *The Court and the Factory: The Legal Construction of Occupational Health and Safety Offences in Victoria* (1994), Johnstone examines the criminal justice system in relation to occupational health and safety in Victoria.

A feature of the development of occupational health and safety legislation in Australia 'was the "ambiguity" of occupational health and safety crime, where despite its enactment in criminal form, it came to be regarded as "quasi criminal", and not really a crime at all' (p. 519). Fines imposed on occupational health and safety offenders in Victoria between 1983 and 1991 were low when expressed as a percentage of maximum fines available (p. 520).

The existing form of criminal law serves to reduce the liability of OHS offenders (usually corporations). The central argument in this thesis is that the form of criminal law underpinning the prosecution of OHS offences focused prosecutions on detailed examination of the specific circumstances of the event giving rise to the prosecution, and away from the broader workplace context. This was particularly marked in the sentencing process, where, through a number of techniques, defence counsel, facilitated by the broad sentencing discretions conferred on courts, were able to use detailed examination of the event, and the defendants' behaviour before and after the event, to isolate the event from issues to do with the general organisation of the workplace, and to shift blame for the incident onto workers, inspectors and other parties. By thus sanitising the matters leading to prosecution, and by transforming issues to do with systems of work into event focused analysis of individual responsibility, the culpability of the defendant was reduced for sentencing purposes (1994, Abstract).

OHS offences are trivialised by the use of magistrates' courts. The magistrates courts are at the lowest level of the judicial hierarchy, and traditionally adjudicated "petty crime". Most crime coming before these courts consists in street crime in both senses, traditional crime and traffic crime, where defendants are individuals. Cases are decided quickly and routinely. ... A magistrate could hear up to 20 cases in a normal day. Most important of all, magistrates are just not used to imposing largely penalties on corporations. The other consequence of cases being prosecuted in the magistrates' court is that a large number of magistrates hear the relatively few prosecutions conducted, and very few magistrates build up experience of occupational health and safety issues (1994, p. 539–541).

ATTACHMENT M1

PRINCIPLES AND CONCEPTS IN ENFORCEMENT

Enforcement is one strategy adopted by governments to achieve compliance with OHS legislation. Compliance is defined as the ultimate goal of any enforcement program while enforcement is defined as a set of legal tools, both informal and formal, designed to compel compliance (Tietenberg, 1992). Gunningham emphasised the importance of enforcement:

Legislation that is not enforced seldom fulfils its social objectives, and effective enforcement is vital to the successful implementation of occupational health and safety legislation (1994, p. 32).

The following section discusses principles and concepts relevant to enforcement.

Rational enforcement

The goal of rational enforcement policy is to achieve an affordable level of compliance. Theoretically, if enforcement was costless, full compliance with legislation would be possible. For example, with more inspectors conducting more inspections, more breaches could be deterred (Stigler 1970). However, as explained by Diver, as enforcement is not costless, compliance beyond an affordable level is counter productive:

The marginal cost of deterring a particular harmful violation may exceed the harm that would be thereby avoided. That is, the rational regulator will concentrate his efforts initially on violations that involve substantial risk of harm but are reasonably easy to detect and prove ... As the scale of enforcement activity expands, the agency will be forced to seek out violations less readily observed or less harmful. At some point, the rising marginal cost curve and the falling marginal benefit curve presumably intersect. Beyond that point further deterrence is counter productive (1980, p. 264).

A rational policy of enforcement of OHS legislation, would only seek to deter offenders (or offences for which) where the benefits of compliance were greater than the costs of deterring offences.

Optimal compliance

Optimal compliance with legislation is not necessarily maximum compliance. The Industry Commission's Office of Regulation and Review (ORR) argued that one reason why absolute compliance is not always desirable is because

legislative requirements often lack the flexibility to cope with different variables or conditions which affect optimality.

To some degree, OHS legislation implicitly adheres to a principle of optimal compliance rather than maximum compliance. The legal doctrine of practicability is designed *inter alia*, to consider optimality over strict application of legislative requirements. For example, in the event of a breach of a legislative requirements, the courts will take into account the costs of avoiding the breach.

Given that the legislation incorporates a principle of optimal compliance, the immediate aim of enforcement should be maximum compliance. It should be left to the court to decide whether or not maximum compliance is optimal.

Penalties

Several economists have argued that maximum uniform penalties are the most cost effective means of achieving deterrence — given that increasing penalty levels is virtually costless relative to increasing the chance of being detected. These arguments generally assert, that by setting penalties for offences as high as possible, and then adjusting the probability of being detected and punished so that penalties have the appropriate deterrence effect, compliance can be achieved at least cost (see Becker 1968).

More recently, other economists have argued that maximum fines are not always effective in achieving deterrence due to the reactions of offenders (and potential offenders):

Polinsky and Shavell (1979) show that less than maximal penalties are efficient when there are offences in which the private benefit to the criminal exceeds the social cost of the criminal activity. ... Kaplow (1989), who shows that maximal penalties may be undesirable because they increase the social cost of risk-bearing by those who are not deterred. Rubinfeld and Sappington (1987) show that lower penalties will reduce the social cost of legal expenditures by defendants and prosecutors, while Malik (1990) shows that lower penalties decrease the social cost of apprehending offenders (Andreoni 1991, pp. 386–387).

The above arguments generally contend that costs imposed on society from criminal activity may not always be higher than the costs associated with imposing maximum penalties for those offences. However, where the costs of criminal activity far outweigh the costs associated with imposing penalties, higher penalties may be more cost effective in deterring offenders.

The deterrent effect of penalties may be severely lessened if enforcers — including inspectors, prosecutors and judiciaries — are reluctant to prosecute, convict and impose the maximum penalty available. Actually delivering

punishment is as important as detecting an offence, in deterring potential offenders.

Ayres and Braithwaite argued that:

When regulatory agencies have maximum deterrents that are beyond their capacity to deliver, firms are not likely to take note of the maximum ... (1992, p. 52).

Andreoni showed that increasing penalties may, under some circumstances, actually encourage offences if judges or jurors are unwilling to convict:

Jurors are very sensitive to the potential penalties that defendants may pay, with higher penalties leading to lower probabilities of conviction.

... it is possible that the increased permissiveness of the courts may dominate the harshness of the penalty. Therefore increasing penalties may actually increase crime rates. These results are consistent with several empirical studies of juries and of criminal deterrence (1991, pp. 385, 393).

Andreoni (1991) concluded that maximal deterrence will be obtained with fines that rise with the severity of the crime.

Models of regulation

Regulatory strategies based on a balance between deterrence and compliance models of regulation are likely to be more effective, than regulatory strategies based purely on deterrence or compliance models. Deterrence models essentially rely on punishment to achieve compliance, based on the assumption that regulatees are rational and competent actors who are economically motivated to comply with regulation. Compliance models essentially rely on persuasion to achieve compliance, based on the assumption that regulatees are often irrational and incompetent actors, motivated to comply with regulation by a sense of responsibility, among other non-financial factors (Ayres and Braithwaite, 1992)

The rationale underpinning a balanced approach are discussed extensively in Ayres and Braithwaite:

So Braithwaite concluded in *To Punish or Persuade* that you could not develop a sound regulatory enforcement policy unless you understood the fact that sometimes business actors were powerfully motivated by making money and sometimes they were powerfully motivated by a sense of social responsibility. He therefore rejected a regulatory strategy based totally on persuasion and a strategy based totally on punishment (1992, p. 24).

A purely deterrence or compliance approach may be ignoring the motivational complexity of regulatees (individuals and firms). Some individuals will only comply with regulation if it is in their economic interests to do so; some will

comply with law because they are intrinsically law abiding. A further complexity arises in the case of firms which are:

... bundles of contradictory commitments to values about economic rationality, law abidingness, and business responsibility. Business executives have profit maximising selves and law abiding selves, at different moments, in different contexts, the different selves prevail (Ayres and Braithwaite, 1992, p. 19).

An enforcement strategy based purely on persuasion will be exploited when regulatees are motivated by economic rationality. In the absence of an expected penalty (deterrent) such regulatees will not respond to advice and information where it is not already in their economic interests to do so (Ayres and Braithwaite, 1992). Gunningham points out that:

... there are also dangers in adopting a pure “compliance” oriented strategy of enforcement, which can easily degenerate into intolerable laxity (Gunningham 1987). Significantly, a rise in the incidence of fatalities and major injuries in the UK in the first half of the 1980s, occurred at a time when inspection and enforcement activity fell significantly, due to a combination of increased workload and staff cuts (James 1992, p 97) (1994, p. 36).

An enforcement strategy based purely on punishment will undermine the good will of regulatees when they are motivated by a sense of responsibility. Regulatees willing to comply, will respond to advice and information, but if penalised, may be less inclined (or harder to persuade) in the future (Ayres and Braithwaite, 1992, ch. 2). Gunningham pointed out that:

... if regulators assumed all firms... require threatening with a big stick in order to bring them into compliance, then they will unnecessarily alienate, (and impose unnecessary costs on) those who would willingly comply voluntarily, thereby generating a culture of resistance to regulation (Bardach and Kagan 1982) (1994, p. 36).

A purely deterrence or compliance approach may amount to a waste of limited enforcement resources (Ayres and Braithwaite, 1992).

Pure compliance models are only likely to be effective for socially motivated regulatees if non-compliance is directly enforced. In the absence of any deterrent effect, a costly inspection program would be required to visit each regulatee to detect non-compliance and persuade non-compliers to comply. Resources would be wasted when persuasion was exploited by the economically motivated.

Pure deterrence models are only likely to be effective for economically motivated regulatees if the deterrent effect is sufficient to indirectly enforce compliance. The costs of establishing a credible deterrent would be far less in terms of inspection programs, but very large in terms of legal resources. Resources would be wasted when punishment is counter-productive to the motivations of the socially responsible.

The appropriate balance between compliance and deterrence models of regulation will depend largely on the complex and multiple motives of regulatees. The dilemma for regulators' enforcement strategies is identifying these motives and responding as cost effectively as possible. As Gunningham explains:

It follows that regulators must invoke enforcement strategies which successfully deter egregious offenders, while at the same time encouraging and helping the majority of employers to comply voluntarily. Thus good regulation means invoking different strategies depending upon whether or not business has a self-interest in improving OHS outcomes. However, the dilemma for regulators is that it is rarely possible to be confident in advance, of which classification a regulated firm falls into and still less to distinguish rational economic actors (who consciously calculate costs and benefits in terms of their self interest) from the irrational or incompetent (who may have self-interest in improved OHS but do not recognise or act upon it) (1994, p. 36).

Responsive regulation

The concept of 'responsive regulation', advanced in Ayres and Braithwaite, offers a general approach to enforcement of regulation which:

is distinguished (from other strategies of market governance) both in what triggers a regulatory response and what the regulatory response will be. We suggest that regulation be responsive to industry structure in that different structures will be conducive to different degrees and forms of regulation. Government should also be attuned to differing motivations of regulators. ... regulation should respond to industry conduct, to how effectively industry is making private regulation work (1992, p. 4).

Tit-for-tat strategy

A 'tit-for-tat' (TFT) enforcement strategy established by Scholz (1984a), predicated on an application of game theory, is one which is contingently co-operative and punitive, or 'at once vengeful and forgiving' (Ayres and Braithwaite, 1992, p. 60).¹² That is:

the regulator refrains from a deterrent response as long as the firm is co-operating; but when the firm yields to the temptation to exploit the co-operative posture of the regulator and cheats on compliance, then the regulator shifts from a co-operative to a deterrent response (1992, p. 21).

¹² Game theory is essentially concerned with the question of whether, in the various situations of conflict and co-operation, self-seeking behaviour by the players will lead to a determinate equilibrium (Bannock, 1985). In this case, the firm must choose whether to comply with or evade the regulations; the agency must choose whether to adopt a co-operative or deterrence enforcement strategy (Ayres and Braithwaite, 1992). (See John Scholz, 1984 a and b).

The game played out between regulator and regulatee involves each choosing whether to co-operate or resort to punishment (in the case of the regulator) or evasion (in the case of the regulatee). 'The social optimum is reached if both agency and regulated firm co-operate' (Ayres and Braithwaite, 1992 p. 60).

Ayres and Braithwaite conclude that:

TFT resolves the contradictions of punishment versus persuasion ... By co-operating with firms until they cheat, regulators avert the counter productivity of undermining the good faith of socially responsible actors. By getting tough with cheaters, actors are made to suffer when they are motivated by money alone; they are given reason to favour their socially responsible, law-abiding selves over their venal selves (1992, p. 27).

The enforcement pyramid

Pyramidal forms of enforcement (regulation) are applied in varying forms by regulatory agencies in many different regulatory arenas. Braithwaite's enforcement pyramid represents a hierarchy of sanctions commencing with co-operation (persuasion) and escalating if necessary, through a range of increasingly punitive sanctions (see Figure M.9). The enforcement pyramid is relevant at both the agency–enterprise level, and Government–industry level. The theory underpinning the enforcement pyramid approach is essentially the same at both levels:

The key contention of this regulatory theory is that the existence of the gradients and peaks of the two enforcement pyramids channel most of the regulatory action to the base of the pyramid — in the realms of persuasion and self-regulation. The irony proposed was that the existence and signalling of the capacity to get as tough as needed can usher in a regulatory climate that is more voluntaristic and non-litigious than is possible when the State rules out adversariness and punitiveness as an option. Lop the tops off the enforcement pyramids and there is less prospect of self-regulation, less prospect of persuasion as an alternative to punishment (Ayres, 1992, p. 39).

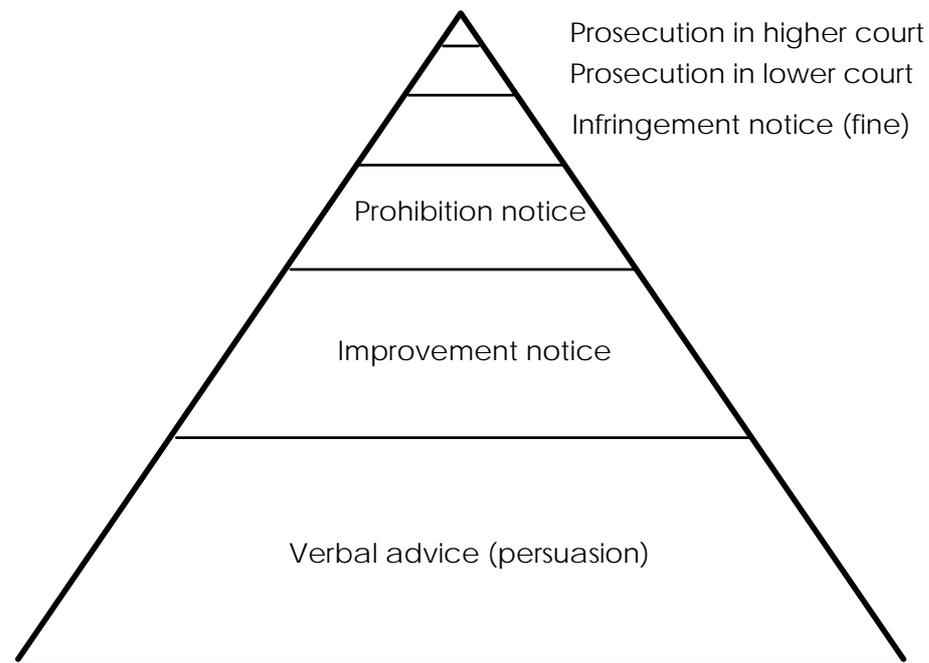
Ayres and Braithwaite (1992) essentially argue that compliance strategies utilising persuasion and relying on cooperation, will be far more effective if regulators display an explicit enforcement pyramid (and the willingness to escalate up that pyramid).

Figure M.9 is an example of an enforcement pyramid exhibited by OHS agencies. The regulator (inspectorate) responds to the vast majority of violations (usually minor technical breaches) with verbal advice. Where verbal advice is inadequate — for example, for more serious or blatant breaches of legislation, or where previously advice had failed to result in compliance — a

number of sanctions are available to the inspectorate:

- The most common response is an improvement notice which specifies a time period for compliance to occur, signalling the potential for punitive action if not complied with.
- The next most common response a prohibition notices which prohibits continuation of a dangerous activity (implicitly carrying a financial penalty, that is, lost productivity) also signalling the potential for punitive action if not complied with.
- Seldom used are infringement notices which impose relatively small on-the-spot fines for violation without prosecution in the Courts. These notices can be used to reinforce other improvement and prohibition notices or as a further level of escalation.
- Very seldom employed are the ‘big sticks’ in the pyramid, where violations can be prosecuted in the courts, and relatively large penalties (including imprisonment and revocation of licence) are imposed.

Figure M.9 OHS enforcement pyramid



Source: Adapted from Ayres and Braithwaite 1992, p. 35.

ATTACHMENT M2

PATTERNS OF ENFORCEMENT

Table M.5 The ratio of inspectors and inspections to workplaces across jurisdictions, 1990–91 to 1993–94

<i>Jurisdiction</i>	<i>1990–91</i>	<i>1991–92</i>	<i>1992–93</i>	<i>1993–94</i>
NSW				
- ratio of inspectors to workplaces	1/1 210	1/1 099	na	1/1715
- ratio of inspections to workplaces	1/6.4	1/5.3	1/3.9	1/3.8
Vic				
- ratio of inspectors to workplaces	1/1 972	1/1 981	1/1 735	1/1165
- ratio of inspections to workplaces	1/8.0	1/6.6	1/5.0	1/2.8
Qld				
- ratio of inspectors to workplaces	1/566	1/632	1/769	1/848
- ratio of inspections to workplaces	1/3.0	1/2.0	1/4.8	1/6.3
Qld (m)				
- ratio of inspectors to workplaces	1/30	1/30	1/32	1/35
- ratio of inspections to workplaces	1/0.3	1/0.3	1/0.4	na
WA ^a				
- ratio of inspectors to workplaces	na	1/808	1/859	1/824
- ratio of inspections to workplaces	1/4.2	1/5.1	1/5.5	1/7.5
WA (m)				
- ratio of inspectors to workplaces	1/4	1/4	1/4	1/4
- ratio of inspections to workplaces	na	na	na	1/0.7
SA				
- ratio of inspectors to workplaces	1/1 630	1/1 692	1/1 690	1/1667
- ratio of inspections to workplaces	na	1/5.3	1/5.2	1/5.7
Tas ^b				
- ratio of inspectors to workplaces	1/774	1/855	1/822	1/616
- ratio of inspections to workplaces	1/3.9	1/1.8	1/2.8	na
ACT ^c				
- ratio of inspectors to workplaces	1/900	1/900	1/900	1/900
- ratio of inspections to workplaces	1/1.5	1/2.8	1/3.5	1/9.8
NT				
- ratio of inspectors to workplaces	1/400	1/411	1/425	1/391
- ratio of inspections to workplaces	1/4.1	1/2.9	1/2.3	1/1.7
NT (m)				
- ratio of inspectors to workplaces	1/5	1/3	1/4	1/4
- ratio of inspections to workplaces	1/0.2	1/0.2	1/0.2	1/0.2

a The Department of Occupational Health, Safety and Welfare (Western Australia) was unable to provide the number of workplaces for 1990–91 and 1991–92. Estimates of the number of business locations (provided by the ABS) for July 1990 and August 1992 were used as proxies.

b The Department of State Development and Resources (Tasmania) was unable to provide the number of workplaces for 1990–91, 1991–92 and 1992–93. The number of business locations (provided by the ABS) for July 1990, August 1992 and March 1994 were used as proxies.

c The Australian Capital Territory WorkCover was unable to provide the number of workplaces for 1993–94. The number for 1993–92 was used a proxy for 1993–94.

na Not available.

Notes: Table M.5 is only indicative of the proportion of inspectors and inspection across jurisdictions.

All percentages are rounded off to the nearest decimal point.

See Tables M.17 and M.18 for absolute numbers of *inspectors*, *inspections* and *workplaces*.

Inconsistencies in the definitions of inspector, inspection and workplace, may account for some of the variance across jurisdictions and years, although an attempt has been made to correct for these inconsistencies where identified.

The letter (m) denotes separate mining inspectorate jurisdictions within States and Territories

The New South Wales Department of Minerals was did not provide the data requested.

Source: Raw data supplied by the OHS Authorities in each jurisdiction.

Table M.6 Use of sanctions in New South Wales, 1990–91 to 1993–94

Year Sanction	1990-91		1991-92		1992-93		1993-94	
	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b
Imp. notices	71.0	8.6	66.0	10.8	70.0	12.2	62.8	8.2
Pro. notices	21.0	2.6	22.0	3.7	22.0	3.8	22.7	3.2
OTS fines	..	..	7.0	1.1	6.3	1.1	10.0	1.4
Prosec'ns	8.0	1.0	5.0	0.8	2.4	0.4	4.5	0.6
Total	100.0	12.2	100.0	16.4	100.0	17.5	100.0	13.4

a Refer to Table M.19, M.21, M.22, M.23 for absolute number of sanctions.

b Refer to Table M.17 and M.18 for absolute number of inspections.

.. Not applicable

Note: All percentages are rounded off to the nearest decimal point.

Source: Raw data supplied by the NSW Work Cover Authority.

Table M.7 Use of sanctions in Victoria, 1990–91 to 1993–94

Year Sanction	1990-91		1991-92		1992-93		1993-94	
	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b
Imp. notices	66.0	9.1	63.0	6.6	72.7	4.9	66.0	2.6
Pro. notices	32.5	4.5	34.6	3.7	25.6	1.7	32.0	1.2
Prosec'ns	1.5	0.2	2.5	0.3	1.7	0.1	2.3	0.1
Total	100.0	13.8	100.0	10.6	100.0	6.7	100.0	3.9

a Refer to Table M.19, M.21, M.22, M.23 for absolute number of sanctions.

b Refer to Table M.17 and M.18 for absolute number of inspections.

.. Not applicable.

Note: All percentages are rounded off to the nearest decimal point.

Source: Raw data supplied by the Health and Safety Organisation in Victoria.

Table M.8 Use of sanctions in Queensland, 1990–91 to 1993–94

Year Sanction	1990-91		1991-92		1992-93		1993-94	
	<i>per cent of total sanc's^a</i>	<i>per cent of insp's^b</i>						
Imp. notices	69.2	2.0	57.0	0.9	60.6	2.0	72.8	9.2
Pro. notices	14.4	0.4	10.0	0.2	10.6	0.3	18.4	2.3
Prosec'ns	16.4	0.5	33.0	0.5	29.0	0.8	8.6	1.1
<i>Total</i>	<i>100.0</i>	<i>2.9</i>	<i>100.0</i>	<i>1.6</i>	<i>100.0</i>	<i>3.1</i>	<i>100.00</i>	<i>12.6</i>

a Refer to Table M.19, M.21, M.22, M.23 for absolute number of sanctions.

b Refer to Table M.17 and M.18 for absolute number of inspections.

.. Not applicable.

Note: All percentages are rounded off to the nearest decimal point.

Source: Raw data supplied by the Department of Employment, Vocational Education, Training and Industrial Relations in Queensland.

Table M.9 Use of sanctions in Queensland (mining), 1990–91 to 1993–94

Year Sanction	1990-91		1991-92		1992-93		1993-94	
	<i>per cent of total sanc's^a</i>	<i>per cent of insp's^b</i>						
Imp. notices
Pro. notices	0	0	0	0	0	0	0	0
Prosec'ns	0	0	0	0	0	0	0	0
<i>Total</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>

a Refer to Table M.19, M.21, M.22, M.23 for absolute number of sanctions.

b Refer to Table M.17 and M.18 for absolute number of inspections.

.. Not applicable.

Note: All percentages are rounded off to the nearest decimal point.

Source: Raw data supplied by the Department Minerals and Energy (Queensland).

Table M.10 Use of sanctions in Western Australia, 1990–91 to 1993–94

Year Sanction	1990-91		1991-92		1992-93		1993-94	
	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b
Imp. notices	86.0	21.0	90.0	41.0	88.0	30.4	83.0	30.4
Pro. notices	13.7	3.3	9.5	4.3	11.0	4.0	15.6	5.7
Prosec'ns	2.9	0.7	0.8	0.4	1.6	0.5	1.5	0.5
Total	100.0	24.0	100.0	45.7	100.0	34.9	100.0	36.6

a Refer to Table M.19, M.21, M.22, M.23 for absolute number of sanctions.

b Refer to Table M.17 and M.18 for absolute number of inspections.

.. Not applicable.

Note: All percentages are rounded off to the nearest decimal point.

Source: Raw data supplied by the Department of Occupational Health, Safety and Welfare (Western Australia).

Table M.11 Use of sanctions in Western Australia (mining), 1990–91 to 1993–94

Year Sanction	1990-91		1991-92		1992-93		1993-94	
	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b
Imp. notices	na	na	na	na	na	na	na	na
Pro. notices	na	12.1	na	13.8	na	16.3	na	16.2
Prosec'ns	na	0.5	na	0.3	na	0.3	na	0.1
Total	100.0	na	100.0	na	100.0	na	100.0	na

a Refer to Table M.19, M.21, M.22, M.23 for absolute number of sanctions.

b Refer to Table M.17 and M.18 for absolute number of inspections.

c The number of inspections for 1990-91 to 1992-93 were not available. The number for 1993-94 (3300) was used as proxy.

na Not available.

Note: All percentages are rounded off to the nearest decimal point.

Source: Raw data supplied by the Department of Minerals and Energy (Western Australia).

Table M.12 Use of sanctions in South Australia, 1990–91 to 1993–94

Year Sanction	1990-91		1991-92		1992-93		1993-94	
	<i>per cent of total sanc's^a</i>	<i>per cent of insp's^b</i>						
Imp. notices	77.6	5.9	74.7	6.2	73.7	3.8	75.6	3.1
Pro. notices	12.1	0.9	9.2	0.8	11.9	0.6	15.0	0.6
Prosec'ns	10.3	0.8	16.1	1.3	14.4	0.8	8.4	0.9
<i>Total</i>	<i>100.0</i>	<i>7.6</i>	<i>100.0</i>	<i>8.3</i>	<i>100.0</i>	<i>5.2</i>	<i>100.0</i>	<i>4.6</i>

a Refer to Table M.19, M.21, M.22, M.23 for absolute number of sanctions.

b Refer to Table M.17 and M.18 for absolute number of inspections.

.. Not applicable.

Note: All percentages are rounded off to the nearest decimal point.

Source: Raw data supplied by the Department for Industrial Affairs (South Australia).

Table M.13 Use of sanctions in Tasmania, 1990–91 to 1993–94

Year Sanction	1990-91		1991-92		1992-93		1993-94	
	<i>per cent of total sanc's^a</i>	<i>per cent of insp's^b</i>						
Imp. notices	79.0	5.8	85.3	7.1	78.0	5.2	na	na
Pro. notices	14.5	1.1	13.5	1.1	20.4	1.4	na	na
Prosec'ns	6.6	0.5	1.2	0.1	1.4	0.1	na	na
<i>Total</i>	<i>100.0</i>	<i>7.4</i>	<i>100.0</i>	<i>8.3</i>	<i>100.0</i>	<i>6.7</i>	<i>na</i>	<i>na</i>

a Refer to Table M.19, M.21, M.22, M.23 for absolute number of sanctions.

b Refer to Table M.17 and M.18 for absolute number of inspections.

.. Not applicable.

Note: All percentages are rounded off to the nearest decimal point.

Source: Raw data supplied by the Tasmanian Development and Resources (Tasmania).

Table M.14 Use of sanctions in the Australia Capital Territory, 1990–91 to 1993–94

Year Sanction	1990-91		1991-92		1992-93		1993-94	
	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b
Imp. notices	70.7	0.1	88.0	9.6	86.0	10.3	74.6	32.5
Pro. notices	29.3	0.4	12.0	1.3	13.0	1.5	24.2	10.6
Prosec'ns	0	0	0.3	0.1	1.3	0.2	1.3	0.5
<i>Total</i>	<i>100.0</i>	<i>0.5</i>	<i>100.0</i>	<i>11.0</i>	<i>100.0</i>	<i>12.0</i>	<i>100.0</i>	<i>43.6</i>

a Refer to Table M.19, M.21, M.22, M.23 for absolute number of sanctions.

b Refer to Table M.17 and M.18 for absolute number of inspections.

.. Not applicable.

Note: All percentages are rounded off to the nearest decimal point.

Source: Raw data supplied by ACT WorkCover (Australian Capital Territory).

Table M.15 Use of sanctions in the Northern Territory, 1990–91 to 1993–94

Year Sanction	1990-91		1991-92		1992-93		1993-94	
	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b	per cent of total sanc's ^a	per cent of insp's ^b
Imp. notices	93.5	2.2	89.0	3.6	82.0	1.3	64	0.3
Pro. notices	0	0	8.6	0.4	12.5	0.2	32	0.2
Prosec'ns	6.5	0.2	2.6	0.2	5.5	0.1	4	0.0
<i>Total</i>	<i>100.0</i>	<i>2.4</i>	<i>100.0</i>	<i>4.2</i>	<i>100.0</i>	<i>1.6</i>	<i>100.0</i>	<i>0.5</i>

a Refer to Table M.19, M.21, M.22, M.23 for absolute number of sanctions.

b Refer to Table M.17 and M.18 for absolute number of inspections.

.. Not applicable

Note: All percentages are rounded off to the nearest decimal point.

Source: Raw data supplied by the Work Health Authority (Northern Territory).

Table M.16 Use of sanctions in the Northern Territory (mining), 1990–91 to 1993–94

<i>Year Sanction</i>	<i>1990-91</i>		<i>1991-92</i>		<i>1992-93</i>		<i>1993-94</i>	
	<i>per cent of total sanc's^a</i>	<i>per cent of insp's^b</i>						
Imp. notices	96.2	22.7	97.8	22.5	100	22.2	93.8	17.6
Pro. notices	3.8	0.9	2.2	0.5	0	0	4.8	1.2
Prosec'ns	0	0	0	0	0	0	0	0
<i>Total</i>	<i>100.0</i>	<i>23.6</i>	<i>100</i>	<i>23.0</i>	<i>100.0</i>	<i>22.2</i>	<i>100.0</i>	<i>18.8</i>

a Refer to Table M.19, M.21, M.22, M.23 for absolute number of sanctions.

b Refer to Table M.17 and M.18 for absolute number of inspections.

.. Not applicable.

Note: All percentages are rounded off to the nearest decimal point.

Source: Raw data supplied by the Department of Mines and Energy (Northern Territory).

Table M.17 Number of inspectors, inspections and workplaces
(general inspectorates), 1990–91 to 1993–94

<i>Jurisdiction</i>	<i>1990–91</i>	<i>1991–92</i>	<i>1992–93</i>	<i>1993–94</i>
<i>C'wealth^a</i>				
<i>inspectors</i>	..	75	75	50
<i>inspections</i>	..	89	202	196
<i>workplaces</i>	..	na	na	na
<i>NSW</i>				
<i>inspectors^b</i>	248	273	na	172 ^c
<i>inspections</i>	46 943	56 558	75 358	77 164
<i>workplaces^d</i>	300 000	300 000	295 033	295 033
<i>Vic</i>				
<i>inspectors^e</i>	150	150	170	170
<i>inspections</i>	36 868	45 363	58 746	70 579
<i>workplaces^f</i>	295 857	297 201	295 000	198 000 ^g
<i>Qld</i>				
<i>inspectors</i>	146	149	148	165
<i>inspections</i>	27 965	48 370	23 934	22 250
<i>workplaces</i>	82 626	94 189	113 732	140 000
<i>WA^h</i>				
<i>inspectors</i>	na	100	94	96
<i>inspections</i>	18 143	15 806	14 676	10 576
<i>workplacesⁱ</i>	na	na	80 781	79 105
<i>SA</i>				
<i>inspectors</i>	40	36	36	36
<i>inspections</i>	na	11 400	11 700	10 500
<i>workplaces^j</i>	65 188	60 910	60 853	60 000
<i>Tas</i>				
<i>inspectors</i>	30	30	30	40
<i>inspections</i>	6 002	14 458	8 669	na
<i>workplaces</i>	na	na	na	na
<i>ACT</i>				
<i>inspectors</i>	10	10	10	10
<i>inspections</i>	6 089	3 188	2 545	919
<i>workplaces^k</i>	9 000	9 000	9 000	na
<i>NT</i>				
<i>inspectors</i>	20	20	20	23
<i>inspections^l</i>	1 952	2 885	3 644	5 300
<i>workplaces^m</i>	8 000	8 225	8 500	9000

a The Commonwealth does not have full-time investigators. This figure represents the number of investigators available to conduct investigations for the Commonwealth. A small number of investigators are Comcare staff. The remainder form a pool of State and Territory inspectors who are contracted through Memorandum of Understanding. In addition, a record of the number of workplaces is not available because workplaces are not required to be registered under the OHS Act.

b The figure for 1991–92 is actually the number of officers with inspector power.

c Regional operations division only.

d Estimate only.

e The numbers of inspectors is an estimate.

- f Figures relate to the number of workplaces registered with the Victorian WorkCover Authority with an estimate added for a component of non-WorkCover registered workplaces.
- g Estimate does not include self-employed people.
- h Does not include inspectorates, inspections or workplaces in the mining, petroleum or gas industries.
- i The number of workplaces for 1992–93 is based on an ABS estimate.
- j The number of employers, both exempt and non-exempt under workers' compensation legislation in South Australia.
- k Private sector workforce only.
- l Not complete for 1990–91, full recording commenced in November 1990.
- m Estimate only, for 1990–91 and 1992–93.
- .. Not applicable.
- na Not available.
- Note: Readers are cautioned when making direct comparisons, as definitions among jurisdictions may differ.
- Source: Table data and annotation supplied by the occupational health and safety authorities in each jurisdiction. Note, that some alterations have been made to the original information supplied (after consulting the relevant authority) where there were inconsistencies with the authority's annual reports.

Table M.18 Number of inspectors, inspections and workplaces
(mining inspectorates), 1990–91 to 1993–94

<i>Jurisdiction</i>	<i>1990–91</i>	<i>1991–92</i>	<i>1992–93</i>	<i>1993–94</i>
<i>Qld</i>				
<i>inspectors</i>	20	20	19	17
<i>inspections</i>	1839	1957	1561	na
<i>workplaces^a</i>	600	600	600	600
<i>WA</i>				
<i>inspectors</i>	57	59	60	62
<i>inspections</i>	na	na	na	3300
<i>workplaces^b</i>	199	236	232	218
<i>NT</i>				
<i>inspectors</i>	10	10	8	7
<i>inspections</i>	220	200	180	170
<i>workplaces</i>	45	30	28	25

a Approximation only.

b Number of mines and groups of mines.

Note: Readers are cautioned when making direct comparisons, as definitions among jurisdictions may differ. Table M18 only includes mining enforcement data for jurisdictions where OHS legislation in the mining industry is enforced separately from other industries.

Mining industries in other jurisdictions are enforced by the general inspectorate in those jurisdictions.

The New South Wales Department of Minerals was did not provide the data requested.

.. Not applicable.

na Not available.

Source: Table data and annotation supplied by the mining inspectorates in each jurisdiction.

Table M.19 Number of prosecutions and convictions, 1990–91 to 1993–94

<i>Jurisdiction</i>	<i>1990–91</i>	<i>1991–92</i>	<i>1992–93</i>	<i>1993–94</i>
<i>C'wealth</i>				
- <i>prosecutions</i>	..	0	1	0
- <i>conviction</i>	..	0	0	0
<i>NSW</i>				
- <i>prosecutions</i>	455	432	310	492
- <i>convictions^a</i>	350	315	267	314
<i>Vic^b</i>				
- <i>prosecutions</i>	76	119	68	64
- <i>convictions^c</i>	66	93	67	53
<i>Qld</i>				
- <i>prosecutions</i>	132	238	181	244
- <i>conviction</i>	na	233	176	218
<i>Qld (m)</i>				
- <i>prosecutions</i>	0	0	0	0
- <i>convictions</i>	0	0	0	0
<i>WA^d</i>				
- <i>prosecutions</i>	132	60	80	57
- <i>conviction</i>	91	58	57	32
<i>WA (m)</i>				
- <i>prosecutions</i>	17	10	11	3
- <i>convictions</i>	11	9	3	3
<i>SA</i>				
- <i>prosecutions^e</i>	89	153	87	36
- <i>conviction</i>	31	53	38	9
<i>Tas</i>				
- <i>prosecutions</i>	29	14	8	13
- <i>conviction</i>	26	14	8	13
<i>ACT</i>				
- <i>prosecutions</i>	0	1	4	5
- <i>conviction</i>	0	0	2	5
<i>NT</i>				
- <i>prosecutions</i>	3	2	3	1
- <i>conviction</i>	3	2	3	1
<i>NT (m)</i>				
- <i>prosecutions</i>	0	0	0	0
- <i>convictions</i>	0	0	0	0

a Data from WorkCover annual reports.

b The number of prosecutions and convictions represents the number of defendants prosecuted and proportion of defendants convicted.

c Does not include self-employed persons.

d Does not include prosecutions and convictions in the mining, petroleum and gas industries.

e The 1993-94 figure includes complaints laid but actions not yet commenced.

- Note: The number of prosecutions represents the total number of cases going before a court, whether successful or unsuccessful.
The letter (m) denotes separate mining inspectorate jurisdictions within States and Territories. The New South Wales Department of Minerals did not provide the data requested.
- .. Not applicable.
- na Not available.
- Source: Table data and annotation supplied by the occupational health and safety authorities in each jurisdiction. Note, that some alterations have been made to the original information supplied (after consulting the relevant authority) where there were inconsistencies with the authority's annual reports.

Table M.20 The average and maximum fine imposed on employers by courts, Australia , 1990–91 to 1993–94 (\$)

<i>Jurisdiction</i>	<i>1990–91</i>	<i>1991–92</i>	<i>1992–93</i>	<i>1993–94</i>
<i>C'wealth</i>				
- <i>average</i>	..	0	0	0
- <i>maximum</i>	..	0	0	0
<i>NSW</i>				
- <i>average^a</i>	2 291	3 023	na	3 421
- <i>maximum</i>	80 000	40 000	60 000	100 000
<i>Vic</i>				
- <i>average^b</i>	6 449	5 374	7 509	12 682
- <i>maximum^c</i>	30 000	51 000	70 000	120 000
<i>Qld</i>				
- <i>average</i>	na	1 531	3 720	3 492
- <i>maximum</i>	20 000	25 000	25 000	30 000
<i>Qld (m)</i>				
- <i>average</i>	560	0	360	0
- <i>maximum</i>	720	0	600	0
<i>WA</i>				
- <i>average</i>	2 378	2 420	2 325	5 703
- <i>maximum</i>	30 000	25 000	20 000	20 000
<i>WA (m)</i>				
- <i>average</i>	2 000	0	0	0
- <i>maximum</i>	2 000	0	0	0
<i>SAd</i>				
- <i>average</i>	2 612	2 832	4 243	12 000
- <i>maximum</i>	40 086	35 173	38 000	38 000
<i>Tas</i>				
- <i>average</i>	244	743	981	2 863
- <i>maximum</i>	500	4 000	3 000	6 000
<i>ACT</i>				
- <i>average^e</i>	..	0	6 500	5 450
- <i>maximum</i>	..	0	20 000	10 000
<i>NT</i>				
- <i>average</i>	930	1 475	500	5000
- <i>maximum</i>	1 500	1 500	1 500	5000
<i>NT (m)</i>				
- <i>average</i>	0	0	0	0
- <i>maximum</i>	0	0	0	0

a Average fine issued by Magistrates Court and the Industrial Court.

b Average fine is total fine divided by total number of defendants, irrespective of whether all defendants were actually fined.

c Maximum fines are expressed as total fines per prosecution (aggregated) regardless of the number of separate charges with separate fines within a case.

d Fine imposed under the *Occupational Health, Safety and Welfare Act 1986* only.

e Averages include good behaviour bonds and \$1 000 average court costs

- Notes: Employers refers to individuals and corporations and excludes employees. The letter (m) denotes separate mining inspectorate jurisdictions within States and Territories.
The New South Wales Department of Minerals was did not provide the data requested. Any local or Industrial Court or Commission charged with the authority to issue fines for offences against occupational health and safety and related legislation.
- .. Not applicable.
- na Not available.
- Source: Table data and annotation supplied by the occupational health and safety authorities in each jurisdiction. Note, that some alterations have been made to the original information supplied (after consulting the relevant authority) where there were inconsistencies with the authority's annual reports.

Table M.21 Total on-the-spot-fines issued (penalty notices), 1990–91 to 1993–94

<i>Jurisdiction</i>	<i>1990–91</i>	<i>1991–92</i>	<i>1992–93</i>	<i>1993–94</i>
NSW	..	634	825	1070
Qld	0	0	0	0
Qld (m)	0	0	0	0

Note: *On-the-spot-fines* (or active provisions of penalties notices) do not apply in Victoria, Western Australia, South Australia, Tasmania, the Northern Territory, the Australian Capital Territory or under Commonwealth and Seafarer legislation.

The letter (m) denotes separate mining inspectorate jurisdictions within States and Territories

.. Not applicable.

na Not available.

Source: Table data and annotation supplied by the occupational health and safety authorities in each jurisdiction. Note, that some alterations have been made to the original information supplied (after consulting the relevant authority) where there were inconsistencies with the authority's annual reports.

Table M.22 Total of improvement notices issued, 1990–91 to 1993–94

<i>Jurisdiction</i>	<i>1990–91</i>	<i>1991–92</i>	<i>1992–93</i>	<i>1993–94</i>
<i>C'wealth^a</i>	..	11	4	9
<i>NSW^b</i>	4 050	6 120	9 170	6829
<i>Vic</i>	3 343	3 012	2 851	1 804
<i>Qld</i>	558	417	382	2 044
<i>Qld (m)^c</i>	..	..	..	..
<i>WA^d</i>	3 753	6 450	4 461	3 213
<i>WA (m)</i>	na	na	na	na
<i>SA</i>	670	711	446	327
<i>Tas</i>	348	1 028	448	na
<i>ACT</i>	58	307	262	299
<i>NT</i>	43	103	46	16
<i>NT (m)^e</i>	50	45	40	30

a Includes Prohibition notices, as these two were not recorded separately.

b Improvement notices have only been issued since March 1990.

c No formal improvement notices in Mining legislation but as a result of the majority of inspections instructions are given to improve or halt certain practices.

d Does not include prohibition notices issued in the mining, petroleum and gas industries.

e Figures are lower estimates of the number of improvement notices issued in each year.

Note: The letter (m) denotes separate mining inspectorate jurisdictions within States and Territories.

The New South Wales Department of Minerals was did not provide the data requested.

.. Not applicable.

na Not available.

Source: Table data and annotation supplied by the occupational health and safety authorities in each jurisdiction. Note, that some alterations have been made to the original information supplied (after consulting the relevant authority) where there were inconsistencies with the authority's annual reports.

Table M.23 Total Prohibition Notices issued, 1990–91 to 1993–94

<i>Jurisdiction</i>	<i>1990–91</i>	<i>1991–92</i>	<i>1992–93</i>	<i>1993–94</i>
<i>C'wealth^a</i>	..	11	4	9
<i>NSW^b</i>	1 212	2 073	2 877	2 463
<i>Vic</i>	1 648	1 655	1 004	875
<i>Qld</i>	116	76	67	519
<i>Mining (m)</i>	0	0	0	0
<i>WA^c</i>	602	682	580	605
<i>Mining (m)</i>	399	455	539	535
<i>SA</i>	104	88	72	64
<i>Tas</i>	64	163	117	na
<i>ACT</i>	24	42	39	97
<i>NT</i>	0	10	7	8
<i>NT (m)</i>	2	1	0	2

a Includes Improvement notices, as these two were not recorded separately.

b Prohibition notices have only been issued since March 1990.

c Does not include prohibition notices issued in the mining, petroleum and gas industries.

Note: The letter (m) denotes separate mining inspectorate jurisdictions within States and Territories.
The New South Wales Department of Minerals was did not provide the data requested.

.. Not applicable.

na Not available.

Source: Table data and annotation supplied by the occupational health and safety authorities in each jurisdiction.

Note, that some alterations have been made to the original information supplied (after consulting the relevant authority) where there were inconsistencies with the authority's annual reports.

N CHEMICALS IN THE WORKPLACE

Chemicals pose health and safety risks to humans and can have adverse effects on the environment. The management of chemicals therefore has implications for occupational health and safety, public health and the environment.

Toxic chemicals can cause diseases in humans if they are swallowed or contact the skin, or if vapours are inhaled. Chemicals can also cause injuries indirectly through other avenues, for example, chemical fires and explosions may result in burns and asphyxiation. Some estimates of the extent of harm to workers caused by chemicals in the workplace are given in Appendix B.

There are currently around 39 000 industrial chemicals and around 5500 agricultural and veterinary chemicals in use in Australia.¹

The focus of this Appendix is on regulation. However, other policy instruments such as education and training of workers, and increased awareness are also important elements in an overall approach to managing chemical risks in the workplace.

N.1 Existing supervision

This section provides an overview of the legislation that controls the occupational health and safety risks of chemicals, and summarises the general concerns which participants raised during the inquiry. Specific concerns about individual aspects of the regulatory framework are discussed in subsequent sections.

Current regulation of chemicals

Chemical regulation addressing occupational health and safety concerns aims to ensure:

- chemical suppliers provide information to government to enable it to determine the appropriate controls to apply to a chemical (the Commonwealth Government administers legislation controlling the assessment of chemicals);

¹. These exclude therapeutic goods, food additive chemicals, and radioactive substances.

- suppliers provide details of the health and safety risks of chemicals to users (this is addressed by the duties of suppliers in State and Territory OHS legislation);
- employers follow safe processes at work (examples include State and Territory OHS legislation, Dangerous Goods legislation, and Factory and shops Acts); and
- chemicals that are extremely hazardous are not used or manufactured in Australia.

Governments in Australia have developed separate legislation to deal with the toxic effects of chemicals (for example, the national model regulations for hazardous substances), and physico-chemical properties such as combustibility, flammability and corrosive effects (dangerous goods Acts and codes).

The legislation is aimed at controlling the way chemicals are used and handled in the workplace. Apart from the principal OHS Acts and subordinate legislation, other legislation that controls the occupational health and safety effects of chemicals include Dangerous Goods Acts, and those which target specific chemicals such as asbestos and lead, or which deal with factories and shops, gases, vapours and dusts, pesticides, and poisons (Crawford 1992, Winder and Barter 1993). Other State and Territory legislation such as Health Acts, and Clean Air and Clean Water Acts, address concerns in the public health and environmental areas.

The Commonwealth Government administers several schemes for chemical assessment.

- Worksafe Australia administers the National Industrial Chemicals Notification and Assessment Scheme (NICNAS).
- The National Registration Authority (NRA) within the Primary Industries and Energy portfolio administers a national scheme for the registration and assessment of agricultural and veterinary chemicals. The NRA was established in June 1993 to amalgamate the functions of State and Territory Governments in the registration of agricultural and veterinary chemicals, in order to provide a uniform registration process for Australia.
- The Therapeutic Goods Administration (TGA), within the Human Services and Health portfolio, administers an assessment scheme for pharmaceuticals, and can recall certain drugs which are found to have unacceptable risks. The TGA also conducts a program for reporting the adverse health effects of drugs in use.
- The National Food Authority (NFA), within the Human Services and Health portfolio, examines the health risks of food and food additive products and makes recommendations on food standards. The

recommendations are considered by the National Food Standards Council, comprising the Minister for Human Services and Health, and State and Territory Ministers responsible for food regulation. The main aim of chemical assessments is to collect information about the risks of chemicals to humans and the environment, to enable governments to ascertain what controls are appropriate. The assessment of new chemicals also assists in screening out hazardous chemicals that should not be allowed to enter Australia.

Regulation of chemicals has evolved in a haphazard fashion. In many cases, legislation was developed in response to specific problems. For example, the establishment of a screening process for pharmaceuticals was in response to the problems of thalidomide (Winder and Barter 1993). The result of this uneven approach is a large amount of legislation in each State and Territory, and wide variations between legislation across jurisdictions.

In 1982, the House of Representatives Standing Committee on Environment and Conservation conducted an inquiry into hazardous chemicals (PCA 1982). Many of the concerns raised in this inquiry, for example, the fragmentation of chemicals management across government agencies, and the poor dissemination of information about chemicals, were also findings of the 1982 inquiry.

In 1986, the Industries Assistance Commission conducted an Inquiry into The Chemicals and Plastics Industries (IAC 1986). The focus of the IAC study was the level of industry assistance prevailing at the time. However, the study also highlighted a problem with inconsistent regulatory standards and duplication of government effort in the area of health, safety and the environment:

Many of those who gave evidence on this issue recognised and supported social goals in this area. However, there was widespread criticism of the lack of uniformity of requirements between various levels of government, duplication of effort between and within various levels of government, and the multiplicity of regulatory agencies — all of which, it was claimed impose significant additional costs on industry.

Participants requested greater uniformity and simplicity in the administration of controls, and greater co-ordination and consultation between regulatory bodies and local manufacturers (IAC 1986, p. 194).

In 1989, the National Occupational Health and Safety Commission (NOHSC) published the *National Strategy for the Management of Chemicals Used at Work*, containing the four main elements of the current regulatory framework in Australia — chemical assessment, information and education, workplace exposure control, and requirements for emergency services (NOHSC 1989).

Several State Government reports — such as the 1990 NSW Government inquiry into chemicals (NSW Government 1991), the 1992 inquiry into the Coode Island fire in Victoria, a 1992 review of chemicals management in

Queensland by the Public Service Management Commission, and a 1995 report on dangerous goods management by the Auditor-General of Victoria (1995) — have highlighted problems in the management of chemicals. These reports have found an overlap in responsibilities between different government agencies in the areas of occupational health and safety, public health, the environment, transport, planning, and emergency services. Several major chemical accidents such as the 1990 LPG fire at St Peters in Sydney, and the 1991 chemical fire at Coode Island, have focused attention on the risks of chemicals.

Overseas developments also have influenced the evolution of chemical regulation in Australia. Over the last decade, State and Territory Governments have introduced a principal OHS Act and subordinate legislation, along the lines of the regulatory model recommended by the Robens Committee (see Appendix I). The NOHSC's national standards for the *Control of Workplace Hazardous Substances*, and the *Control of Major Hazardous Facilities* are based on similar regimes overseas. The tripartite committee established in Australia to examine the recommendations of the Cullen Inquiry into the 1988 explosion of the Piper Alpha offshore oil platform in the United Kingdom concluded that petroleum sites in Australia should be subjected to a mandatory 'safety case' risk management approach. This requirement is now included in Commonwealth and State Government petroleum legislation.

Issues raised by participants

During the inquiry, participants raised the following concerns about regulation of chemicals:

- inadequate knowledge about the effects of chemical exposures;
- poor dissemination of the available information;
- current controls are inadequate to address safety and health risks;
- overlapping regulations and administrative responsibilities of government agencies;
- governments are slow to implement controls of chemical hazards in the workplace (many participants used the example of asbestos to illustrate this point — see Attachment N1);
- complexity of legislation;
- legislation is overly prescriptive; and
- legislation is not nationally uniform.

N.2 Hazardous substances

In December 1993, the NOHSC declared the national standard for the Control of Workplace Hazardous Substances. The national standard includes a set of model regulations and three separate codes of practice which relate to the treatment of hazardous substances in the workplace (see below). States and Territory Governments are in the process of enacting legislation to give effect to the national standard.²

Current arrangements

The hazardous substances package comprises:

- a set of model regulations, and a national code of practice to control workplace hazardous substances;
- a national code of practice for the preparation of material safety data sheets (MSDS);
- a national code of practice for labelling workplace substances;
- approved criteria for determining a hazardous substance; and
- a designated list of hazardous substances.

The *National Model Regulations for the Control of Workplace Hazardous Substances* provide for the identification of health hazards associated with the use of chemicals, outlines precautions for using them, and provides guidelines for suppliers to provide safe handling information (NOHSC 1994b).³

² The hazardous substances regulations have come into effect in the Northern Territory, Queensland, and South Australia. The ACT approved the hazardous substances code of practice in April 1995, and the corresponding regulations are expected to be implemented by the end of 1995. In New South Wales and the Commonwealth jurisdiction, implementation of the national standard is expected by the end of 1995. In Victoria, Western Australia and Tasmania, implementation is expected in early 1996.

³ A substance is 'hazardous' if it:

- is included in NOHSC's *List of Designated Hazardous Substances* (NOHSC 1994d); or
- has been classified as a hazardous substance by the manufacturer or importer in accordance with NOHSC's *Approved Criteria for Classifying Hazardous Substances* (NOHSC 1994e).

A hazardous substance can be a single chemical or a mixture of two or more chemicals formulated to make a chemical product. The NOHSC standard excludes radioactive and infectious substances. It does not cover food and beverages, therapeutic goods, cosmetics, tobacco and toiletries when these are used for other than work purposes.

The hazardous substances model regulations requires manufacturers and importers to:

- determine whether substances supplied for use at work are hazardous;
- provide employers with MSDS and any other relevant information which will assist the employer to use the substance safely;
- ensure that all containers of hazardous substances are appropriately labelled; and
- disclose the ingredients of hazardous substances in a range of specified circumstances.

Employers are required to provide workers with access to relevant information about the health and safety risks of hazardous substances (such as material safety data sheets), and to train them to use the information. They are also required to develop processes to assess risks and undertake health surveillance.

NOHSC has also developed a national standard to deal with certain high risk workplace carcinogens (those substances able to induce cancer) (NOHSC 1994f).

Issues raised by participants

Inquiry participants expressed concerns about the complexity of proposed hazardous substances regulations, and the lack of commitment of State and Territory Governments to the nationally agreed standard.

Complexity and over-prescription

The Western Australian Chamber of Commerce and Industry complained about the complexity of the hazardous substances package:

... the national standard on hazardous substances consists of seven documents of extreme complexity. The text is academically oriented and the general thrust of the documents is towards safety professionals and other academics. They stand little chance of being implemented with any understanding or commitment from workplace parties (sub. 165, p. 49).

Some of the requirements contained in the model regulations will elaborate upon existing legislative requirements. For example, the duties of suppliers to provide an MSDS and to ensure correct labelling and classification of hazardous substances builds upon the general duty in the principal OHS Act for suppliers to protect the health and safety of chemical users. Other provisions, such as the requirement for health surveillance in prescribed situations would represent a new requirement on employers.

Several participants regarded some elements of the hazardous substances package as being overly prescriptive. For example, Farmsafe Australia considered that the Hazardous Substances standard would place onerous assessment requirements on farmers, when these have been largely carried out through the National Registration Authority's assessment of agricultural chemicals (sub. 241, p. 7). In Queensland, the Division of Workplace Health and Safety has approved a Rural Chemicals Code to take the place of the national hazardous substances code of practice, in response to the rural industry's dissatisfaction with the national code of practice.

Failure to achieve national uniformity

Some participants were concerned that State and Territory Governments are diverging from the agreed national model regulations.

For example, the Automotive, Food, Metals and Engineering Union (Victorian Branch) commented:

Despite the adoption of the *National Model Regulations for the Control of Hazardous Substances*, there is every indication that this will not lead to uniform legislation (sub. 93, p. 6).

The Plastics and Chemical Industries Association (PACIA) observed:

It is of concern that despite the strenuous and co-operative efforts made to achieve endorsement of the regulations in NOHSC, it is our understanding some State authorities still feel the need to modify the regulations. This expression of State's rights leads to non-uniformity and is unhelpful to businesses operating across the nation (sub. 208, p. 5).

N.3 Dangerous goods

Dangerous goods legislation is aimed at controlling physico-chemical hazards, such as the explosiveness, flammability or oxidising effects of hazardous materials.

Current regulatory arrangements

State and Territory Governments regulate the storage, handling and transportation of dangerous goods through a Dangerous Goods Act or similar legislation.⁴ In some jurisdictions, transportation of dangerous goods is

⁴ The storage and handling of dangerous goods is subject to the Explosives Act in Queensland, the Explosives and Dangerous Goods Act in Western Australia, and the Dangerous Substances Act in South Australia.

regulated by a Transportation Act. Except in NSW and Queensland, a single agency is responsible for administering legislation controlling the storage, handling and transportation of dangerous goods. Two NSW Government agencies and four Queensland Government agencies are involved in administering dangerous goods legislation.

State and Territory legislation incorporates the requirements of the *Australian Code for the Transport of Dangerous Goods by Road and Rail* (ADG Code) (Federal Office of Road Safety 1992). The ADG code covers the classification, packaging, marking and transportation of dangerous goods, and is prepared by the National Advisory Committee on the Transport of Dangerous Goods and endorsed by the Australian Transport Advisory Council. The Commonwealth Government is in the process of introducing template legislation to govern the road transportation of dangerous goods. In October 1994, the Ministerial Council on Road Transport approved the *Road Transport Reform (Dangerous Goods) Bill*. Concurrently, the National Road Transport Commission is examining ways of revising the ADG code.

Separately to this, NOHSC is developing a *National Standard for the Storage and Handling of Dangerous Goods*. The main objectives of developing a national standard for storage and handling of dangerous goods are to achieve national uniformity of state and territory dangerous goods legislation, and to make dangerous goods regulation more performance-based.

Issues raised by participants

The main issues with dangerous goods are the fragmentation of administration, inconsistency in legislation between jurisdictions, and over-prescription.

Fragmentation of dangerous goods administration

Several participants noted problems caused by fragmented responsibilities for the administration of dangerous goods.

The Queensland Chamber of Commerce and Industry claimed that the regulatory structure in Queensland results in confusion and conflicting regulations (sub. 100, p. 5). The Victorian Employers Chamber of Commerce and Industry (ACCI) considered that there is an overlap between the OHS and environmental aspects of dangerous goods regulation (transcript, p. 1167).

The Health and Safety Organisation (HSO) of Victoria (formerly the Occupational Health and Safety Authority) is concerned that new national proposals such as the Road Transport Reform (Dangerous Goods) Bill could complicate the administration of State and Territory legislation (sub. 176, p. 13).

Lack of national uniformity

During the inquiry, several participants cited dangerous goods regulation as an area where requirements vary between States.

The Commission notes that Governments are aiming to increase national consistency, through development of NOHSC's *National Standard for the Storage and Handling of Dangerous Goods*, and the *Australian Code for the Transport of Dangerous Goods by Road and Rail*.

Legislation is not performance-based

NOHSC has recognised the benefits of moving to a performance-based approach to regulation of dangerous goods in its development of the national standard for storage and handling (sub. 231).

Worksafe commented that the performance-based approach being adopted by the standard for *Storage and Handling of Dangerous Goods* contrasts with the prescriptive approach adopted for the transportation of dangerous goods (sub. 231, p. 4).

N.4 Major hazards

A major hazardous facility — or major hazard, for short — is a production site which, due to the nature of its operations, has hazards which can have significant adverse consequences for humans or the environment. Examples of a major hazardous facility include facilities for pesticide processing and storage, flammable materials storage and packaging, a large oil refinery, bulk liquids storage, and petrochemical, plastics and rubber manufacturing and storage sites (NOHSC 1994a).

The idea that a special regulatory regime should apply to major hazardous facilities developed as a result of several major industrial accidents in Europe in the 1970s and 1980s. In the United Kingdom, major hazards are subject to the 1984 *Control of Industrial Major Accidents Hazards (CIMAH) Regulations*. In 1992, the European Union issued a directive on *Major Accident Hazards of Certain Industrial Activities* (also known as the Seveso Directive, after the 1976 accident at Seveso in Italy), which is binding on EC member countries. In June 1993, the International Labour Organisation adopted the *Convention on the Prevention of Major Industrial Accidents*. In the United States, there is a similar approach to the regulation of major industrial hazards.

Following the explosion of the Piper Alpha offshore oil platform in the United Kingdom in 1988, the Cullen Inquiry concluded that the operation of major

hazardous facilities can create hazards of a scale and type not necessarily covered by existing regulations, since these are designed to address only the hazards to workers, the public or the environment associated with normal industrial operations (UK Department of Energy 1990). The Cullen Inquiry recommended that:

- operators of petroleum sites should be required to adopt a safety management system, and to demonstrate the safety of their site to a public authority; and
- a single government agency should be responsible for managing the risks of a major hazard such as an offshore oil platform.

Current and proposed regulation

Major hazardous facilities in Australia are presently subject to State and Territory Government principal OHS Acts, and other legislation which deals with dangerous goods, factory processes, and certain chemicals.

Operators of petroleum sites are also subject to the OHS requirements in petroleum legislation, including a mandatory requirement to adopt a 'safety case'. Since 1988, Western Australia has operated a system for management of major hazards which requires operators of designated facilities to demonstrate the safe operation of their facility to the relevant government authority (WA Department of Mines and Energy, transcript, p. 1012.).

'Safety case' for the petroleum industry

Operators of petroleum exploration and production sites are required to implement a 'safety case' which sets out the procedures involved in running the firm's safety system, and to lodge a report on this system with the government authority. These requirements are set out in Commonwealth and State and Territory petroleum legislation. Western Australia is planning to introduce a *Petroleum Occupational Health and Safety Act*, to consolidate these requirements (see Appendix I). The safety case regime allows an operator of a petroleum facility to waive other more prescriptive legislative requirements if it can demonstrate that its safety case would lead to a result which is as safe or safer than the outcome prescribed by legislation (transcript, p. 2018). The Commonwealth Department of Primary Industries and Energy (DPIE) has issued a set of non-mandatory guidelines for the preparation of the 'safety case' (DPIE 1995).

The introduction of a mandatory safety case for petroleum platforms was in line with the recommendations of the Committee on Safety in the Offshore Petroleum Industry.

Major hazardous facilities

The NOHSC's *National Standard for the Control of Major Hazardous Facilities* defines a facility to be a major hazard if it contains at least one of the chemicals in the designated list of toxic substances in an amount which exceeds the threshold quantity, or more than one of the designated chemicals such that in aggregate their quantities as a percentage of their individual thresholds add up to more than one (NOHSC 1995?). Operators are required to notify the public authority if a facility contains any of the designated substances in an amount equal to ten per cent or more of the threshold quantity. If a facility which is notified fails to meet certain safety requirements, it can also be deemed to be a major hazardous facility.

The major hazards standard requires:

- the operator to implement a safety management system which includes a process for identification of hazards, assessing risks, and implementing controls;
- the submission of a safety report by the operator to the public authority;
- procedures for emergency planning;
- the reporting of workplace incidents and accidents; and
- the dissemination of information to the public;

Under the major hazard standard, the relevant government authority would conduct regular safety checks of the facility, and examine whether it has followed the procedures set out in its safety management system. State and Territory Governments are required to nominate a lead agency to co-ordinate the functions of different government agencies in managing major hazardous facilities. For example, Queensland has nominated the Department of Emergency Services, and Western Australia has nominated the Department of Minerals and Energy as the lead agency.

Issues raised by participants

The issues raised by participants about major hazards were to do with over-prescription and legislative overlap.

Complexity of regulations

The Australian Institute of Petroleum said that the draft national code of practice for major hazards contains too much detail (transcript, p. 1454).

Relationship with existing regulation

If the major hazard standard is incorporated in State and Territory legislation, in some jurisdictions there could be a potential overlap with the existing regulatory arrangements for the petroleum industry, since petroleum legislation already mandates operators of petroleum platforms to operate a 'safety case' hazard management system which is very similar to what is being proposed in NOHSC's major hazard standard. The role of industry-specific legislation is discussed in Appendix I.

Rust PPK and Luminico Pty Ltd supported the major hazardous facilities standard as a way of dealing with chemical hazards, but considered that it does not effectively integrate with existing environmental protection standards (transcript, p. 3609).

N.5 National Industrial Chemicals Notification and Assessment Scheme

The *National Industrial Chemicals Notification and Assessment Act 1989* provides for an Industrial Chemicals Notification and Assessment Scheme (NICNAS) to assess all new chemicals imported or manufactured in Australia for their effects on humans and the environment. Existing chemicals are selected for review on a priority basis.

Current arrangements

The objectives of NICNAS, which was introduced on 17 July 1990, are defined in the Act to be:

- to aid in the protection of the Australian people and the environment by finding out the risks of industrial chemicals;
- to provide information to government authorities responsible for regulating chemicals;
- to give effect to Australia's obligations under international agreements; and
- to collect statistics in relation to chemicals.

The Act defines as an industrial chemical as those chemicals which are not classified as an agricultural and veterinary chemical, a therapeutic good, a food additive chemical or a radioactive substance (these are covered by other legislative requirements). Industrial chemicals include some chemicals used in

industry such as dyes, solvents, and plastics, as well as some used in the home, such as paints and cleaning agents.

NICNAS distinguishes between 'new' and 'old' chemicals. 'Old' chemicals are those in use between December 1977 and July 1990 and which are contained in the Australian Inventory of Chemical Substances (AICS). There are currently around 38 500 chemicals in the inventory.

All 'new' chemicals which are manufactured or imported must be notified and assessed as to their potential health and environmental risks. Each assessment is based on a dossier of information on the use and properties of the chemical, supplied by the manufacturer or importer. If a chemical satisfies the notification and assessment requirements, the supplier is given a certificate which allows the importation and manufacture of the chemical. The requirement for a new chemical to be assessed may be waived if it has been passed by an overseas agency whose assessment procedures are recognised by NICNAS. There are some categories of chemicals that qualify for a limited notification, such as chemicals introduced in small quantities for the purpose of commercial evaluation, and polymers of low concern. There is a 90-day statutory maximum time limit for assessments of new chemicals, excluding the time required for obtaining information from the supplier.

Chemicals listed in the AICS can be subjected to an assessment if declared as a priority existing chemical (PEC). Members of the public can nominate chemicals for assessment as a PEC. Nominations must be approved by the Minister for Industrial Relations. There is a six-month statutory maximum time limit for assessing a PEC.

The Act allows the Minister to prohibit or restrict the import or export of industrial chemicals which are named under international arrangements, such as the Prior Informed Consent scheme of the United Nations.

NICNAS is administered by Worksafe Australia, which conducts OHS assessments and co-ordinates the input from two other government agencies — the Commonwealth Environmental Protection Agency (which assesses environmental risks), and the Department of Health and Human Services (which assesses public health aspects). NOHSC approves the budget and broad strategies for NICNAS, but responsibility for administration of the scheme is with the Director of NICNAS. The Director is a statutory officer who reports to the Chief Executive of Worksafe Australia, who is advised by a tripartite committee. There is an inter-agency committee to co-ordinate the functions of the three agencies.

Reports of NICNAS assessments are made public. Summaries of the results of chemical assessments are published in the Commonwealth Chemical Gazette.

At the request of the notifier, the Director of NICNAS, having regard to the public interest, may determine that certain items of information should be exempted from publication.

NICNAS is required to recover half its costs from industry. The fee for the assessment of a 'new' chemical ranges from \$5600 to \$7700, depending on the type of chemical and requests for confidentiality. Fees for assessment of Priority Existing Chemicals range from \$32 500 to \$62 500, and are shared between a number of companies using the chemical. Cabinet has foreshadowed a move to 100 per cent cost recovery in 1996–97.

Issues raised by participants

During the inquiry, the chemical industry expressed concerns about the effectiveness of the scheme, the assessment procedures, the method of charging, and reporting arrangements. Worksafe argued for an expansion for the role of NICNAS through legislating for suppliers' duties, and the creation of a MSDS repository.

NICNAS not meeting its objectives

PACIA complained that the NICNAS scheme has serious flaws which are working counter to its objectives. It said that:

The New Chemicals Program has in effect discouraged the introduction of less hazardous chemicals and in some cases deprived downstream industry of the latest and best technology. At the same time the Existing Chemicals Program has achieved little principally in our view because of the funding arrangements (sub. 208, attachment, p. 1).

PACIA said that up to November 1994 about ten per cent of the 182 new chemicals assessed are probably hazardous substances according to Worksafe criteria, but since many of these are additives with other chemicals, only 2–3 per cent of the new chemicals would be subject to control as a workplace hazardous substance (sub. 208, attachment, p. 3). It said that a high proportion of the effort and cost of implementing NICNAS has been expended on chemicals which were predictably non-hazardous (sub. 208, attachment, p. 5). PACIA believes that NICNAS has acted inadvertently to discourage the introduction of new chemicals that not only represent better technology but less risk to society.

So far, only seven existing chemicals have been declared as Priority Existing Chemicals, with three having assessment reports published (PACIA, sub. 208, attachment, p. 4). Less than six per cent of the chemicals listed in the AICS have undergone some form of assessment (sub. 50, p. 50).

PACIA considered that there is significant non-compliance in the marketplace with NICNAS, since little attention is given to promotion or enforcement of the scheme (sub. 208, attachment, p. 3). It complained that the scheme is costly to administer and assessments of new chemicals often take longer than the maximum of 90 days (sub. 208, p. 2).

The Australian Institute of Occupational Hygienists argued that with the present level of training and experience, NICNAS staff are not particularly competent to perform supplementary assessment without external technical support (sub. 389, p. 2).

Assessment procedures too prescriptive

PACIA and the Australian Chamber of Commerce and Industry (ACCI) suggested that the assessment procedures of NICNAS need to be made more flexible.

The ACCI argued that the current arrangements for NICNAS are too prescriptive and that greater onus should be placed on industry or a party wanting to introduce a new chemical to meet the requirements of the assessment, and to provide much greater flexibility on how those requirements are met (transcript, p. 1407).

PACIA argued that:

- notification and assessment of chemicals that can be clearly predicted as non-hazardous should be streamlined; and
- companies should be encouraged to submit their own assessment reports to Worksafe for auditing (sub. 208, attachment, p. 1).

PACIA argued that NICNAS should make use of a wider range of existing chemical assessments, particularly material generated overseas (see sub. 208, attachment, p. 1). It said that the scheme often requires published reports before overseas assessments can be accepted, but that public reports are rarely produced in other countries.

Reporting requirements

PACIA argued that the requirement to produce a public report should be abolished, as no other country required its assessment reports to be made public (sub. 208, attachment, p. 1). It claimed that the requirement to publish a public report discouraged some overseas companies from introducing new chemicals into Australia.

Community groups such as the Public Interest Advocacy Centre argued strongly for information about chemicals, such as the results of chemical assessments, to be made public (sub. 109, p. 21).

Funding arrangements

NICNAS currently recovers 50 per cent of its costs from industry. Cabinet has decided that NICNAS should move to 100 per cent cost recovery in 1996-97. The Gwynne Review has recommended that NICNAS recovers costs through a combination of funding mechanisms, with the primary source of funds being a levy on hazardous chemicals (Gwynne 1995, p. xii).

PACIA supports 50 per cent cost recovery, but argued that this rule should only apply to the costs of assessments, and not other activities, such as promotion and enforcement, and production of reports (sub. 208, attachment, p. 3). It stressed that adequate funds need to be provided for promoting and enforcing the scheme. It also argued that governments should fund the activities of the Existing Chemicals Program that are unsolicited by industry.

PACIA considers that the cost of assessing a PEC has often exceeded the budgeted amount (sub. 208, attachment, p. 4). It noted that apart from the public funds expended on the scheme, the company also bears other expenses when collating information and supplying this to NICNAS. It considered that the relatively high cost compared to the likely profit from an industrial chemical is a deterrent to doing new chemical research in Australia. PACIA also considers that the fees charged by NICNAS are generally higher than those charged by equivalent schemes overseas serving larger markets.

Institutional arrangements

PACIA stressed the importance of a clear delineation of administration and budgets for NICNAS, but did not advocate a physical separation of NICNAS from Worksafe (sub. 208, attachment, p. 6).

The Australian Paint Manufacturers' Federation considered that the chemical industry's views are not adequately taken into account in discussions on the NICNAS scheme:

The tripartite committee which advises NOHSC on NICNAS has only one industry representative who cannot, and is not familiar with the concerns of the entire chemical industry. The committee meets only twice a year, and has proved quite inadequate to the task of examining the fundamental problems being experienced with the scheme which are consequently being addressed in other fora. (sub. 7, p. 3).

Suppliers' duties

Worksafe recommended that the scope of NICNAS be widened to cover suppliers' duties in the area of classification and labelling. The rationale for this is that Worksafe could set a standard for MSDS quality and establish uniform labelling requirements (sub. 50, p. 43). Worksafe explained that an alternative to Commonwealth legislation in this area is to allow States and Territories to legislate and enforce suppliers' duties (transcript, p. 1054).

The Gwynne Review

On 9 October 1994, the Assistant Minister for Industrial Relations announced a review of NICNAS by Dr Howard Gwynne, focusing on the implications of the move foreshadowed by Cabinet from 50 per cent to 100 per cent cost recovery in 1996–97. The Gwynne Review released its Final Report on 7 June 1995.

The main recommendations of the Gwynne Review relate to:

- improved policy co-ordination and development between Worksafe Australia, the Commonwealth Environment Protection Agency and the Department of Human Services and Health;
- the need for NICNAS to be operated independently;
- the integration of NICNAS with State Government hazardous substances priorities;
- linking the principal costs of NICNAS to the hazard posed by industrial chemicals;
- preliminary screening for all new industrial chemicals, in order to identify which chemicals require a full assessment;
- greater use of overseas assessments;
- additional training for NICNAS staff;
- a three year global budget for NICNAS, to match the proposed new arrangements for the scheme; and
- making better use of Australia's limited assessment resources (see Gwynne 1995).

N.6 Information about chemicals

Information about chemicals is essential for prevention of chemical-related injuries and diseases.

Governments require information about chemicals in order to ascertain the degree of control, if any, which should be applied to a particular chemical. They also need information about the uses of chemicals in the workplace and the incidence of chemical exposures, in order to be able to target regulatory and other preventative actions. OHS enforcement agencies also need information to ascertain whether an employer or a chemical supplier has breached their 'duty of care'. Employees need to understand the risks associated with using a chemical, in order to use it safely and also when pursuing legal action following an injury. Occupational physicians need information in order to devise preventative strategies or treatment.

For some chemicals, workers may not know immediately that they are suffering ill effects from being exposed, since symptoms may take many years to develop, due to long latency. For example, Professor Wai On Phoon cited the use of solvents as an area where workers are being exposed, but the effects are either difficult to detect, or else the symptoms are not being attributed to occupational factors because employers and employees are not aware of the problem (Phoon 1994). Similarly, Mr Collins warned against the dangers of workers being exposed to fumes from open solvent vats in the printing and textiles industries (transcript, p. 2100).

Asbestos exemplifies the delayed response of government authorities to the incidence of disease (see Attachment N1). Although there was reasonable scientific knowledge about the risks of exposing workers to asbestos by the 1950s, it was not until much later that governments in Australia introduced legislation to control the use of asbestos. The experience with asbestos points to the need for governments to recognise potential problems early, with a view to establishing appropriate preventative mechanisms.

Chemical assessment schemes, such as NICNAS, help to generate information about chemicals. Material safety data sheets, and health surveillance mechanisms, can also contribute to the wider dissemination of chemicals information.

Material Safety Data Sheets

A material safety data sheet (MSDS) provides information to users about the properties of chemicals, as well as the health and safety hazards associated with their use. It provides guidance to employers and employees on appropriate ways to use the chemicals.

State and Territory OHS Acts include a 'duty of care' on suppliers to protect the safety and health of chemical users. There is also a specific requirement for employers to protect the health and safety of their employees. States and

Territories are in the process of legislating for hazardous substances, based on NOHSC's model regulations, which include a requirement for suppliers of hazardous substances to provide MSDS to users.

Where there is a failure to provide MSDS or where suppliers provide MSDS that contain false information, there can be drastic consequences for the workers who handle the hazardous substances. For example, Ms Snowdon of Chemical Support described the adverse effects on her health of exposure to butoxyethanol, partly due to her unsuccessful attempts to obtain an MSDS from her employer (transcript, p. 2059).

A provider of chemical testing services and information systems, Australian Health, considered that very large organisations provide accurate MSDS, but that most smaller manufacturers have limited in-house testing facilities and often provide inaccurate information (transcript, p. 2241). Australian Health claimed that frequently the only way of finding out when information in MSDS is not accurate is when someone is injured (transcript, p. 2242).

ACOHS, a provider of MSDS information, expressed concern that some MSDS provided by third parties, based on the original MSDS supplied by importers and manufacturers, may contain misleading information (sub. 245, p. 7).

During the inquiry, several examples of faulty MSDS were cited. For example, a 1993 study of solvent use in the Rockdale area of Sydney by Worksafe and NSW Workcover found that 19 per cent of the 471 MSDS included in the study were missing information on ingredients (Workcover Authority of NSW and Worksafe Australia 1993, p. 70). The Trades and Labour Council of Western Australia found many instances where MSDS were inaccurate or inadequate (transcript, p. 2100).

Australian Health claimed that current regulation of MSDS is overly prescriptive, since the regulation requires the information to be provided in hardcopy, thus preventing them from providing a higher quality information service via electronic data management to enterprises that use a large number of chemicals (transcript, p. 2243). The Trades and Labor Council of Western Australia stressed the importance of having MSDS which are user friendly (transcript, p. 2100).

Several participants argued for a mechanism to address the poor quality of MSDS. For example, Qantas Airways Ltd recommended that NSW Workcover provide an avenue for lodging complaints about poor quality MSDS (sub. 68, p. 3).

Access to MSDS

MSDS are currently only required to be supplied to governments when a chemical is assessed under one of the Commonwealth Government's assessment schemes such as NICNAS, or if required as part of a chemicals information database established by a State or Territory Government agency, such as the NSW Government's Stored Chemicals Information Database. NOHSC's model regulations for hazardous substances include a provision for suppliers to provide an MSDS to Worksafe Australia (NOHSC 1994b, p. 9).

Worksafe currently operates a voluntary repository of MSDS.

Some private firms provide computerised systems for MSDS record-keeping and report production (for example, Chemwatch and Infosafe). Some unions also provide this type of information to their members. For example, affiliated unions and union members can access MSDS from the ADCHEM system on request.

During the inquiry, several participants including Worksafe (sub. 50, p. 43), the Automotive Food Metals and Engineering Union (Victorian Branch) (sub. 93, p. 11) and the Public Interest Advocacy Centre (sub. 109, p. 21) supported the creation of a central repository of MSDS.

It was argued that a central repository of MSDS would serve to:

- provide information to help identify problems and to prioritise chemicals for assessment;
- encourage suppliers to provide more reliable information in MSDS and if the register was made accessible to the general public: and
- it would be a source of information for the research community, workers and potential users of chemicals.

Worksafe commented that under the chemical industry's product stewardship code of practice, suppliers already have an obligation to make available appropriate information to those who might come into contact with the chemical (transcript, p. 908).

Awareness of MSDS

Participants expressed concern about the poor awareness of MSDS.

The Queensland Farmers Federation found that only one of about 60 people in the audience at its seminars to publicise the rural chemicals code had seen an MSDS (transcript, p. 219). The Australian Licensed Aircraft Engineers Association (sub. 24, p. 2) complained that frequently the only person who has possession of MSDS is the OHS officer.

A study by NSW Workcover found that only one-half of workplaces interviewed had heard of MSDS. Smaller enterprises were least likely to use MSDS and had least awareness of the regulations (NSW Workcover Authority 1993b).

Health surveillance

Health surveillance at the workplace involves monitoring individuals for the purpose of identifying changes in health status due to occupational exposure. It should be distinguished from legal requirements to report actual situations where a worker contracts a disease together with a description of associated causes (health incident reporting).

The aims of health surveillance are to:

- monitor exposure to a hazard, generally through biological monitoring;
- measure biological effects which may be reversible which would require reduction or cessation of exposure; and
- collect data to evaluate the effects of exposure (sub. 395, p. 22).

There are currently a number of legal requirements and voluntary schemes aimed at generating information about the effects on workers' health from exposure to hazardous chemicals, and preventing disease.

Government health monitoring

There is a legal requirement for reporting information about health risks of pharmaceuticals. The Therapeutic Goods Administration, which is responsible for the administration of pharmaceuticals, operates an Adverse Drugs Reaction Reporting Scheme (ADRAC), which requires users of pharmaceuticals to report instances of adverse effects from using a particular drug.

The *Agricultural and Veterinary Chemicals Act 1994* provides for the establishment of a Suspected Adverse Chemical Reactions Register for agricultural and veterinary chemicals (Worksafe, sub. 50, p. 53). The National Registration Authority is presently investigating how such a register should operate.

Government agencies collect a range of data on occupational disease. The information is generally for specific purposes and information collection is poorly co-ordinated. Worksafe operates a national database on mesothelioma. State and Territory Government OHS agencies have cancer registries, and information on certain diseases such as contact dermatitis and lead exposures. The NSW Dust Diseases Board collects information on dust-related diseases such as respiratory ailments.

The model regulations for Control of Workplace Hazardous Substances developed by NOHSC include a requirement for employers to undertake health monitoring for workers who have been identified as having a significant risk to their health from exposure to one of seven types of highly hazardous substances (NOHSC 1994b, p. 5).⁵ Since the declaration of the hazardous substances package, a further five types of substances have been added to list of substances requiring health surveillance.⁶ (Simpson 1995). For hazardous substances which do not fit one of the 12 substance types, health surveillance is required if the employer finds that an employee has a reasonable likelihood of contracting an identifiable disease or health effect from exposure, and there are valid techniques for measuring the effects.

The model regulations also require that any adverse health effects identified as a result of an exposure to a hazardous substance in the workplace be reported to a relevant government authority.

Voluntary collection of occupational health data

Some medical researchers have arrangements for reporting on work-related disease. However, it would be expected that efforts in this area would focus only on those cases which are significant or of interest to medical researchers.

Some industry associations or non-profit organisations have arrangements aimed at improving occupational health information and prevention. For example, the petroleum industry sponsors a health monitoring system known as Health Watch, which has been run by The University of Melbourne on behalf of the Australian Institute of Petroleum since 1980. It takes the form of a prospective cohort study of all-cause mortality and cancer incidence, a nested case-control study of leukemia and benzene exposure, and other studies as required (Adams and Bisby 1994).

The Australian Institute of Petroleum identified one benefit of Health Watch as helping to identify the cause of a higher incidence of leukemia amongst oil industry workers than the general population (transcript, p. 1469). This is attributed to the exposure of workers many years ago to vapours emanating from drums or trucks as they were filled from the top, a practice which has now ceased.

In Western Australia, the mining industry is about to undertake a project on health surveillance (transcript, p. 2080).

⁵. Asbestos, crystalline silica, methylene bis (2-chloroaniline), vinyl chloride, isocyanates, organophosphate pesticides, and acrylonitrile.

⁶. Inorganic arsenic, cadmium, inorganic mercury, polycyclic aromatic hydrocarbons, and thallium.

Issues raised by participants

Some participants complained that existing arrangements do not generate sufficient information about the effects of chemicals on workers' health. Worksafe (sub. 50, p. 57) and the South Australian Government (transcript, p. 1487) suggested that information needs to be collected on the extent of exposure of workers to particular hazardous substances. The South Australian Government referred to the national exposure surveys by the US National Institute of Occupational Health and Safety in the 1970s and 1980s as an example of the type of data which is needed (transcript, p. 1486).

Worksafe proposed the trial of a health surveillance system similar to the *Surveillance of Work-Related and Occupational Respiratory Diseases* (SWORD) reporting system for respiratory diseases in the United Kingdom (sub. 50, p. 53). The Australasian Faculty of Occupational Medicine supports this proposal and said that the SWORD is effective because it is focused on a number of specialist doctors with an interest in its outcome.

Several European countries have schemes for collecting information on the potential risks of exposure to chemicals, although the type of information collected and its coverage varies considerably (European Foundation for the Improvement of Living and Working Conditions 1992). In the United Kingdom, the Control of Substances Hazardous to Health regulations require health surveillance at the workplace level, and the UK Health and Safety Executive administers the National Exposure Database (established in 1986). The situation in other countries also varies considerably (Kochan 1992).

The Western Australian Government suggested that for particular workplace diseases, the required information can be more readily generated by way of regular surveys of specialist physicians, since sufferers of those diseases only have a limited choice of doctors to seek for treatment (transcript, p. 2289).

ATTACHMENT N1**ASBESTOS RELATED DISEASE**

Asbestos is a broad term covering a group of fibrous silicate minerals with a crystalline structure, the most common of which are chrysotile (white), crocidolite (blue), amosite (brown), and anthophyllite (white). Asbestos is mainly used as a building material, but also in the production of friction materials such as brake linings and clutches, and gaskets. Prolonged exposure to asbestos can result in asbestosis, mesothelioma and other forms of lung cancer. These diseases have extremely long incubation periods — for example, mesothelioma has a latency of 30 to 40 years.

Between 1943 and 1966, Australia was a major producer of crocidolite, the type of asbestos fibre most strongly associated with onset of the mesothelioma tumour and, during the 1960s, was one of the highest consumers of chrysotile per head of population (Leigh et al 1991, p. 366). In 1985, the Australian Mesothelioma Program began collecting data on all known cases of malignant mesothelioma in Australia. The number of notified mesothelioma cases increased more than three-fold from 110 in 1981 to 358 in 1991 (Leigh et al, 1991, p. 367).

In Australia, as in other Western countries, governments did not move to control the use of asbestos until asbestos-related disease cases began to appear in large numbers. Most States and Territories now have legislation that requires licensing of asbestos removalists and sets guidelines for workers handling asbestos, and exposure standards for chrysotile. Other forms of asbestos are now usually banned. Worksafe has developed a national exposure standard for chrysotile. While the use of asbestos in both processes and the workplace has now been largely eliminated, there is still a significant amount of asbestos materials contained in older buildings.

Sufferers of asbestos-induced diseases have succeeded in legal actions against their former employers, since courts have adopted the view that despite the absence of any specific government regulations, knowledge about the dangers of asbestos was widespread at the time they contracted the disease. For example, in a 1993 case heard before the NSW Dust Diseases Tribunal, compensation was awarded a mesothelioma sufferer who had been exposed to asbestos between 1962 and 1965. The judge ruled that the employer should have known about the dangers of asbestos, as its connection to mesothelioma had become certain scientifically certain by the early 1960s (Workers Compensation Report 1994).

O INFORMATION, TRAINING AND EDUCATION

Dissemination of knowledge about occupational injury and disease — both their significance and how to prevent them — has the potential to improve health and safety at the workplace. This knowledge can be disseminated through information provision, training for employers and employees, and the education of health and safety specialists and other professionals.

O.1 Information

One of the aims of providing information is to raise awareness. Awareness of occupational health and safety refers to a general understanding of:

- the costs and causes of work-related injury and disease;
- workplace parties' legal rights and responsibilities; and
- ways to improve health and safety at the workplace.

'Community attitudes' to workplace health and safety refers to the importance members of the community assign to it. This is determined by the community's knowledge of the likelihood and extent of occupational injury and disease. Another factor is the degree to which members of the community are willing to accept a given risk of injury or disease at work.

Level of awareness

Many participants believed that the level of awareness about workplace health and safety is low.¹ Worksafe Australia characterised it as follows:

... it remains a generally held view amongst occupational health and safety experts that awareness of workplace health and safety issues in the wider community, though increased, is still relatively low (sub. 50, p. 66).

Research conducted for the Commission by Deloitte Touche Tohmatsu found that employers had a 'general lack of knowledge regarding the risks associated with workplaces, and the regulations/codes which are designed to assist in the reduction of this risk' (1995, p. 25). In addition, the study found that 'in industries which were considered to be "high risk", a greater awareness and emphasis on OHS was apparent' (Deloitte 1995, p. 8).

¹ See, for example, C. Goldsmith (sub. 6), N. Gardner (sub. 11) and M. Bagu (sub. 179).

The Australian Chamber of Commerce and Industry (ACCI) claimed that awareness of workplace health and safety, including awareness of the benefits of improving health and safety, is low:

Despite all these activities there is still a general lack of awareness and knowledge of health and safety responsibilities and how to implement OHS systems. There is also a general lack of awareness of the advantages to an enterprise of effective OHS management (sub. 133, p. 36).

Similarly, Professor Spickett argued:

The lack of awareness of the benefits of good health and safety practices is a major problem. Governments have committed a significant level of resources in the provision of information but there is a large number of organisations who are largely ignorant of good health and safety practices and the benefits that can flow to the organisation (sub. 37, p. 4).

Qualitative research recently commissioned by the then Victorian Occupational Health and Safety Authority (now the Health and Safety Organisation) found that workplace health and safety awareness was high among those who had worked in blue collar occupations, but patchy among office workers, the young and the inexperienced (sub. 176).

The perception that worker carelessness causes injury and disease — *the careless worker myth* — is widely held. A recent survey in South Australia found that half of doctors and two-thirds of employers and employees believed worker carelessness was a major cause of workplace accidents (Workcover Corporation (SA) 1994b). In the same survey, approximately two-thirds of all respondents agreed that accidents at work are a fact of life.

Worksafe Australia noted:

These general perceptions of the causes of occupational injury and illness are at odds with the findings of a considerable body of empirical and theoretical work (sub. 50, p. 66).

The causes of work-related injury and disease are discussed in Appendix B.

Hopkins found that many employers — particularly those in small business — are unaware of the existence and nature of their legal obligations relating to workplace health and safety:

Many small employers are largely unaware of the existence of regulations and have certainly never heard of the general duty to maintain a safe and healthy workplace. They may be quite ignorant of prosecutions launched by the regulatory authorities. Firms large enough to have specialised managerial positions are, however, generally aware of the existence of health and safety regulations (1995, pp. 103–104).

Similarly, the Deloitte study found that:

Knowledge of the specific requirements within the relevant section of each Act regarding the 'employer duties' was limited to those larger employers who employ full time OHS practitioners and smaller employers who had a specific interest in OHS (1995, p. 11).

QBE Workers' Compensation (NSW) Ltd argued that:

... there are still people in the community who do not realise that OHS legislation exists. Even many who are aware of the legislation do not comprehend the penalties for failing to observe the legislative requirements (sub. 115, p. 3).

Activities of key players

The key players involved in providing information on occupational health and safety are State governments, Worksafe Australia, employer associations, trade unions and a range of other organisations.

State governments

Many State governments conduct mass-media workplace health and safety campaigns aimed at the wider community. For example, the Victorian Government conducts large-scale, mass-media campaigns designed to raise awareness about the importance of occupational health and safety. Similarly, the South Australian Government's recent *Stop the Pain* awareness campaign, which received \$300 000 in funding for 1994–95 (sub. 147), involves three phases:

- phase one highlights the seriousness of work-related injury and disease;
- phase two challenges people to get the number of workers' compensation claims down; and
- phase three offers practical advice designed to improve workplace health and safety and encourage early return to work.

The campaign uses television and print as its primary media. It also makes use of radio, bus billboards and mail outs.

State governments also produce a large number of publications on workplace health and safety. For example, the Division of Workplace Health and Safety in Queensland (sub. 79) used its workplace registration system to distribute over one million publications to the State's 140 000 workplaces in 1993–94.

Some publications address industry or hazard specific problems, whereas others address health and safety issues common to all workplaces. The SHARE program run by the Victorian Health and Safety Organisation (HSO) involves the publication of a series of booklets relevant to all workplaces. Titles include

Preparing a Health and Safety Policy and Responsibilities for Health and Safety in Your Workplace.

Many State governments maintain occupational health and safety libraries for the public, which hold a large collection of books, journals and videos. Some States have also established resource or information centres, which serve as one-stop-shops for workplace health and safety. Other activities by the States include producing occupational health and safety newsletters for the public and participating in conferences on health and safety.

State OHS agencies devote approximately \$10 million to ‘promotion, awareness and education’ (see Table O.1). However, this figure should be interpreted with caution for a number of reasons. It is sometimes difficult to separate these activities from other prevention strategies. Also, in some States other government authorities conduct programs involving workplace health and safety. For example, a large part of the Victorian Workcover Authority’s mass-media campaign deals with health and safety issues.

Table O.1 Expenditure on ‘promotion, awareness and education’ by State and Territory OHS agencies, 1993–94

	<i>Expenditure (\$ million)</i>
New South Wales	3.5
Victoria	1.7
Queensland	0.8
Western Australia	1.0
South Australia	0.8
Tasmania ^a	1.6
Australian Capital Territory	na
Northern Territory	0.2
<i>Total</i>	<i>9.6</i>

a Approximate figure only.

Notes: Overhead costs have been allocated to individual programs in each jurisdiction using a weighting based on the proportion of program expenditure to total expenditure.
Comcare also undertakes these activities, however separate figures for expenditure in these areas were not provided.

na Not available.

Source: Industry Commission.

Worksafe Australia

Worksafe Australia runs two programs that involve raising the level of awareness about workplace health and safety. The main program is the

National Co-ordination Program, which cost over \$4 million in 1993–94 (see Chapter 8). It should be noted that only part of this amount is devoted to raising awareness. The program also includes Resource Grants to the ACTU and ACCI, which cost a combined total of \$600 000 annually (Worksafe Australia 1994a). The purpose of the grants is to enable the ACTU and ACCI to maintain occupational health and safety co-ordination units and raise awareness among their members.

Other aspects of the program include providing material for Worksafe Australia publications, professional publications, industry magazines, Commonwealth and State governments and the media. The program also administers Worksafe Australia's library, as well as its enquiry and referral service. Other relevant program activities include displays at conferences and exhibitions, the provision of Conference Grants (totalling \$40 000 in 1993–94), media releases and other marketing strategies (Worksafe Australia 1994a).

The second Worksafe program that partly performs an awareness raising function is the Industry OHS Development Program, which cost almost \$5 million in 1993–94 (see Chapter 8). This program, which commenced in 1992, seeks to improve health and safety performance in selected national industries by developing national occupational health and safety industry strategies. According to Worksafe Australia:

Industry OHS Development Program strategies for specific industries are based on awareness raising, identifying industry OHS priorities and focusing attention on these priorities (1994a, p. 14).

In 1993–94, the industries in the program were printing, fire fighting, agriculture, mining, hospitality, health, construction, contract cleaning and forestry. Other industries assisted by Worksafe Australia in developing specific products and services included the waterfront, transport and local government.

In addition to these programs, approximately \$800 000 has recently been allocated to the development and implementation of a national mass-media campaign in 1995–96. This campaign aims to achieve 'attitudinal and behavioural change', and has three components:

- assessment of current attitudes to occupational health and safety to provide baseline data;
- development and production of material for the campaign; and
- national placement of the material.

Further funding for the continuation of a national campaign beyond 1995–96 is to be considered after the initial campaign is evaluated.

Employer associations and unions

Employer associations provide information about workplace health and safety to their members. This ranges from articles in industry newsletters through to pamphlets and booklets.

Some associations are involved in specific health and safety strategies for their industries. For example Farmsafe Australia, which consists of representatives from organisations including the National Farmers' Federation and the Country Women's Association of Australia, produced the kit *Managing Farm Safety*, to provide practical advice to farmers on improving health and safety on farms.

The Joint Coal Board, which is responsible for, among other things, the health and welfare of workers in the NSW coal industry, argued that industry bodies can play a valuable role in the provision of information:

The JCB believes that there are advantages in having industry based groups providing advice and guidance on occupational health issues affecting industry at the industry level (sub. 84, p. 10).

Trade unions also provide health and safety information to their members. Some unions produce publications that can be used as reference material by health and safety representatives and other workers. For example, the Construction, Forestry, Mining and Energy Union has produced a number of publications such as *Guidelines for a Safe Workplace*.

Language and literacy barriers to raising awareness

Workers from non-English speaking backgrounds (NESB) and workers with poor literacy skills encounter unique barriers to raising their awareness of health and safety at the workplace.

Robert Bean, a workplace language educationalist, provided some examples of communication problems in an ethnically diverse workforce. These examples are contained in Box O.1.

Many inquiry participants suggested that to counter some of these communication problems, governments and employers need to provide more multi-lingual OHS information in the workplace. For example, the Deafness

Box O.1 Language, cultural and literacy barriers

Literacy barriers

Asked to read the emergency exit sign in his workshop, a long-term employee paused and said 'Mery entry'.

Cultural barriers

A Vietnamese worker whose wrist had been badly injured in the war refused to discuss a change from painful lifting duties with his supervisor — an approachable man — because as he explained, he and the other Vietnamese men in the factory had already 'made trouble' by asking for smaller face masks.

Language barriers

A supervisor in a textile plant, wanting to check a machine operator, called out to the NESB process worker cleaning the machine on the other side, 'Stand clear, okay?' 'Okay', the process worker replied, but without moving away. When the machine was switched on his arm was trapped and subsequently had to be amputated. Investigation revealed he had understood 'Stand clear, okay?' to mean 'Stay there, is that understood'.

Source: Robert Bean, as cited by the South Australian Government (sub. 147, p. 38).

Foundation (Victoria) argued:

One of the most pressing issues associated with this dissemination is the development of materials in a range of languages that reflect the increasing ethnicity of the workforce (sub. 140, p. 3).

Similarly, GIO Australia argued:

The provision of information in ethnic languages would assist in enabling people of non-English speaking backgrounds to become more effective... (sub. 114, p. 6).

However, the provision of multi-lingual information may be impractical for employers who employ workers from a large number of ethnic backgrounds. Providing information in many languages may be prohibitively expensive and difficult to implement. Ms McLean from Australia Post said:

To get one sentence out in the languages required takes a double-sided page, so you can only get very brief, short messages out in that way (transcript, p. 2018).

The South Australian Employers' Chamber of Commerce and Industry claimed that an impediment to producing more multi-lingual information was the 'incredible, ongoing, multi-lingual translation costs to the individual employer' (sub. 95, p. 19).

Furthermore, the benefits of providing multi-lingual information may be limited for NESB workers who have poor literacy skills in their native language. Kellogg's commented that:

Occasionally one will hear people saying, 'We must provide it [OHS information] in community languages', but what one needs to consider is ... a lot of our people did not have the opportunity of more than a very basic education in their own country, so they are not going to be fluent in their language — their literacy is not going to be good, let alone in English (transcript, p. 404).

Similarly, the Victorian Government stressed:

... the fundamental importance of checking understanding. It is important to provide information and it is equally important to check that the information, in whatever form, has been comprehended satisfactorily (sub. 382, p. 14).

As an alternative, Kellogg's suggested that information provided through graphics (for example, pictograms and posters) may be more effective in ethnically diverse workplaces.

A more direct way of tackling the problem is to improve workers' language and literacy skills. For example, Kellogg's has provided English classes in the workplace for many years (transcript, p. 404). However, the United Trades and Labour Council of South Australia pointed out that 'current programs for the provision of workplace English classes are feasible only for larger employers' (sub. 201, p. 5).

O.2 Training

Elaboration of the duty of care requires employers to train their employees in health and safety. Consequently, health and safety training is provided to a range of workplace parties, including managers, supervisors, health and safety representatives, health and safety committee members and new employees. The training of managers, health and safety representatives and health and safety committees is particularly important.

Managers and supervisors

Providing managers and supervisors with health and safety training is one way to improve health and safety at the workplace. It can provide managers with the skills to develop and implement effective risk management systems, as well as increasing their commitment to workplace health and safety.

The ACTU stressed the importance to workplace health and safety of having

well trained, committed managers:

The ACTU believes that without management commitment, no matter how well trained and enthusiastic employee health and safety representatives may be, improvement of OHS in the workplace will be severely limited. Training for managers and supervisors is essential to the effective implementation of OHS legislation (sub. 149, p. 8).

The importance of training managers in health and safety was highlighted by Else (1992).² Else cited a study by Yann, Campbell, Hoare and Wheeler (1990). This study involved group discussions, case studies, in depth interviews and a quantitative survey of Victorian businesses. It concluded that a lack of supervisor training in health and safety was one of the main barriers to better health and safety practices at the workplace.

The target audience for management training is very large. Several studies have put the number of managers in Australia at anywhere between 468 000 and one million (Else 1992).

However, the percentage of these managers having received training in health and safety is quite low. Else cited Lacey (1989), which found that just 20 per cent of managers and supervisors had attended health and safety training. Research undertaken for the Commission by Deloitte found that many employers 'provided no safety training to management. This lack of training was particularly obvious amongst employers with less than 100 employees' (1995, p. 20). The study also found that 'the majority of managers were seen to have only a basic understanding of the employer responsibility to provide a workplace that is safe and without risks to health' (1995, p. 12).

Similarly, Else concluded:

There is a serious shortfall in the numbers of supervisors and managers coming forward for training (1992, p. 23).

The Department of Occupational Health, Safety and Welfare of Western Australia argued that the lack of managers receiving health and safety training was:

... a measure of prevailing attitudes amongst this group towards occupational safety and health generally. The issue is primarily one of the need for effective marketing of high quality courses and improving awareness amongst managers and supervisors of the importance of managing occupational safety and health (sub. 222, p. 28).

This view is supported by Yann et al (1990), which found there is a lack of senior management commitment to health and safety at work.

² Other inquiry participants who stressed the importance of training include Dunhill Madden Butler – Solicitors & Notaries (sub. 8), Cyanamid Australia (sub. 59), the Victorian Branch of the Australian Nursing Federation (sub. 126) and the Australian Education Union (sub. 160).

Health and safety representatives and committees

The training of health and safety representatives and committees is a major task — the ACTU estimates that there are now more than 40 000 health and safety representatives in Australia, with an estimated annual turnover rate of about 25 per cent. It is important that these representatives receive appropriate training to ensure they can perform their tasks adequately.

Several participants argued that trade unions should be the sole providers of initial training for health and safety representatives. They argued that since health and safety representatives represent the views and concerns of other workers, they require training in some areas — such as negotiation and enforcement — that can only be dealt with effectively by unions. The Victorian Trades Hall Council stated:

The positive role an OHS representative can fulfil will be substantially eroded if the training they receive does not equip them to be ‘robust questioners’ of what is provided and done by way of health and safety at the workplace. The delivery of this training remains a matter for trade unions (sub. 187, p. 20).

Limiting the training of health and safety representatives to such a narrow range of training providers can have some adverse consequences. In particular, it effectively removes all competition from the training market for health and safety representatives. This lack of competition reduces the incentive for trainers to provide high quality, innovative training. Also, the lack of flexibility it affords to businesses can disenchant them with the whole process. For example, the Queensland Chamber of Commerce and Industry argued:

The Queensland Chamber of Commerce and Industry believes that probably the greatest single impediment to ... improved employer attitude to workplace health and safety in Queensland is the current strategy of seeking to legislate the role of the Trade Union movement to facilitate worker involvement and education (sub. 100, p. 2).

Allowing non-union training providers to train health and safety representatives maximises competition in the training market, leading to more effective training. The ACCI claimed that ‘there has been a boom in training providers in the last decade to fill the void that was evident ... The OHS training business has become a lucrative and competitive market’ (sub. 133, p. 41). There are benefits to employers and health and safety representatives alike in being able to effectively tap into this market.

Joint training of managers and employee representatives

Many inquiry participants believed that joint training should be restricted to advanced health and safety training. They argued that managers and health and safety representatives essentially have different health and safety roles and

responsibilities. Hence, they have different training needs that are best served by separate training.

Ms Shaw from Effective Change Consultants said:

When you have people who have different training needs then you train them differently. That may include joint sessions but it will necessarily include separate training at certain points ...The training needs of health and safety reps and supervisors, at least initially, are distinct and so they should receive separate training (transcript, p. 3536).

Some participants also argued that the initial training of health and safety representatives — particularly in areas such as negotiation skills — may be compromised by having their managers present.

Else (1992) supported this view. His argument against initial joint training was based on his personal experiences in the United Kingdom in the 1970s. He considered that both managers and health and safety representatives were inhibited from asking questions in joint training sessions, and that the training often degenerated into attributing blame for past events.

Despite these concerns, joint introductory training may be appropriate for some workplaces. Essentially, it depends on the existing work environment. For those workplaces with a non-hierarchical, team-oriented structure, joint training may produce more effective outcomes. For other workplaces, separate training may be more appropriate.

The then Victorian Occupational Health and Safety Authority (now the Health and Safety Organisation) supported this view:

Some research has indicated that introductory training should be done separately for health and safety representatives and managers/supervisors and that joint training should occur at the post-introductory level. Some organisations, however, because of their culture and advancement in terms of enterprise bargaining, may prefer that the two groups be trained jointly from the beginning (sub. 176, p. 23).

Joint training of managers and health and safety representatives has a number of benefits. It provides a forum for the two parties to jointly discuss workplace health and safety issues. It also enables the two parties to gain a better understanding of each other's roles, rights and responsibilities. This may help to eliminate one of the key obstacles to health and safety representatives performing their role effectively — apathy and ignorance among management. Research undertaken for the Commission by Deloitte found where health and safety representatives are in place, employers lacked an in-depth understanding of their role in over half the cases (Deloitte 1995, p. 16).

The Australian Chamber of Manufactures (ACM) supports joint training,

saying:

ACM's policy in the past is to have joint training of health and safety reps and employers, together ... It ought not be that different for both ... We are presently running those types of courses, just one day courses. We find they are much more successful having a group within the one company across the board and everyone going back with the same sort of information instead of one person going back ... (transcript, p. 875).

O.3 Educating health and safety professionals

The term 'health and safety professional' includes a wide range of disciplines that have some involvement with occupational health and safety. These include the safety profession, ergonomics, occupational medicine and occupational nursing.

Growth of courses

The number of tertiary courses for health and safety professionals has grown significantly since the then Ballarat College of Advanced Education established the first Australian program in occupational health and safety in 1978. Much of this growth took place in the late 1980s. Today, there are approximately 50 tertiary occupational health and safety programs operating throughout Australia. The Victorian Institute of Occupational Safety and Health estimated that these programs produce 500 to 1000 new graduates each year (sub. 246, p. 12).

The growth in the number of courses for health and safety professionals may reflect several factors. The move by State governments in the 1980s towards the regulatory approach advocated by Robens, together with increasing awareness about occupational health and safety, may have led to a growing recognition of the need for expert occupational health and safety advice. Queensland University of Technology claimed that:

The changes in occupational health and safety legislation in Australia in the last two decades has resulted in a concomitant growth in the number of occupational health and safety professionals in this country. This has been reflected in the growth in the number of occupational health and safety courses offered (sub. 78, p. 10).

Also, Worksafe Australia has played a role in developing such courses:

In the last few years Worksafe Australia has concentrated on helping to develop professional courses in occupational health and safety throughout Australia ... In the vast majority of cases, we have contributed ... to the development of courses, to the recruitment of staff, to vetting some of the examination procedures or practices which these courses have embarked upon and so on (transcript, p. 916).

Some inquiry participants claimed that despite the growth in the number of courses offered, many businesses still fail to appreciate the need for expert advice from health and safety professionals. If this is the case, it may reflect either a lack of awareness of the value health and safety professionals can add to a business, or a lack of confidence in the quality of education they have received.

Quality of courses

Several inquiry participants raised concerns about the quality of some of the courses for health and safety professionals. For example, the Victorian Institute of Occupational Safety and Health claimed that some courses ‘are of less than desired quality’ (sub. 246, p. 14). It suggested two possible reasons for this:

- the increase in the number of courses may have generated a shortage of appropriate teaching staff; and
- some courses are experiencing difficulty in attracting students, providing a lower than expected funding base.

Similarly, Worksafe Australia stated that:

... the quality in many cases is perceived as relatively poor. We suspect that we [Australia] are training too many people in full-time OHS courses too poorly (correspondence, March 1995).

Worksafe Australia’s changing role

Through its Professional Education Program, Worksafe Australia has been involved in the education of health and safety professionals. In 1993–94, the program involved the delivery of short courses on OHS topics to around 1000 participants, the provision of advice and assistance to tertiary institutions, and the continuation of its close relationship with the University of Sydney. Expenditure on this program amounted to over \$800 000 in 1993–94.

Until recently, Worksafe Australia’s close relationship with the University of Sydney was formalised by a Memorandum of Understanding. Under this arrangement, Worksafe Australia (through the National Institute of Occupational Health and Safety) operate a Department of Occupational Health and Safety at the University. Worksafe Australia provide all staff and resources to the Department.

The Department delivers the following courses to approximately 50 students each year:

- Doctor of Philosophy (PhD) in occupational health subjects;

- Master of Occupational Health and Safety; and
- Diploma of Occupational Health and Safety.

Worksafe Australia claimed that this initiative:

... has been notable for its leadership role in formal occupational health and safety education by providing a benchmark in course content and a link between the training of future health and safety specialists and leaders in health and safety research and national policy-making (sub. 50, p. 87).

However, at its December 1994 meeting, NOHSC decided that the Memorandum of Understanding with the University of Sydney should be terminated. In its place, NOHSC plans to enter into partnerships with Universities through an open tender process.

P AGENCY ACCOUNTABILITY

The performance of occupational health and safety agencies cannot be judged by direct measures such as profit levels or the incidence of disease and injury. Therefore, it is necessary to construct alternative criteria by which agency accountability can be assessed. The following criteria provide guidance to the degree to which agencies are accountable for the effectiveness and efficiency of their programs:

- objectives are clear, implementable and measurable;
- programs are formally evaluated;
- formal reporting mechanisms are in place; and
- progress is reported against predetermined performance indicators.

Another criterion which applies to all of those listed above is that agency operations should be transparent and open to public scrutiny. Agencies should regularly review and publicise their corporate plans, performance indicators and program evaluations.

The information in this appendix was compiled largely from the responses to an information request that the Commission sent to each State and Territory OHS agency and from a review of annual reports and corporate plans published by each OHS agency.

P.1 State and Territory jurisdictions

Using the criteria outlined in the previous section, the following analysis details the accountability mechanisms that each OHS agency has in place.

New South Wales

The WorkCover Authority administers the *Occupational Health and Safety Act 1983*.

Clear and measurable objectives

The objectives of the WorkCover Authority with regard to its occupational health and safety program are:

- to improve health and safety in workplaces;

- to reduce the social and economic impact of work-related injuries and illnesses;
- to promote the rehabilitation of workers who suffer work-related injury or illness;
- to ensure workers' compensation benefits and premiums are equitable, affordable and responsible; and
- to ensure all injured workers promptly receive the benefits to which they are entitled.

The WorkCover Authority's corporate plan elaborates on how each objective is to be fulfilled and also sets out a range of performance measures for each objective.

Program evaluation

In its 1993–94 annual report, the Authority detailed an evaluation it carried out of its promotion, information and education services focusing on the production and dissemination of printed and other information resources. The evaluation resulted in recommendations which the Authority has since implemented.

Formal reporting mechanisms

The Authority publishes an annual report and a corporate plan.

The Board of Directors, which is appointed by the Minister for Industrial Relations, is responsible for determining WorkCover's policies and for ensuring that its activities are carried out properly and efficiently. The Board is subject to the control and direction of the Minister. The General Manager controls and manages the affairs of WorkCover in accordance with the policies of the Board.

The WorkCover Authority said that it has a commercial approach to its operations. According to the Authority, this means 'shaping its services to meet its clients' needs and quality standards; increasing the professionalism of its service delivery; and improving the cost effectiveness of its operations'. One part of the commercial approach is the charging of fees.

The Occupational Health, Safety and Rehabilitation Council of NSW provides advice in response to referrals by the Board of the Authority or the Minister on specific occupational health and safety or rehabilitation matters.

Predetermined performance indicators

The WorkCover Authority's corporate plan details ten key result areas for its occupational health and safety program, to be achieved in the period 1994 to 1997. Examples of some of the priorities are to:

- conduct a range of special campaigns aimed at the prevention of back injuries, with special emphasis on promoting health and safety in industries and occupations where there are unusually high levels of injury and risk;
- conduct a range of special campaigns to promote health and safety in rural industries and occupations;
- conduct specific campaigns to identify and meet the needs of groups of workers who are especially at risk, such as workers from non-English speaking backgrounds; and
- develop and deliver fee based services which further the promotion of safe and healthy workplaces in NSW.

WorkCover's four performance indicators are:

- increased awareness among employers and workers of the benefits of occupational health and safety;
- all priority campaign strategies, initiatives and targets completed or achieved according to plan;
- proportion of infringements rectified within target period compared to the target figure of 90 per cent; and
- reductions in the rate of injury and illness as measured by the incidence of major claims.

The Authority's 1993–94 Annual Report details progress against two of these performance indicators.

Victoria

The Department of Business and Employment is responsible for the administration of *Occupational Health and Safety Act 1985*. The Health and Safety Division and the Chemicals and Plant Safety Division of the Department operate jointly as the Health and Safety Organisation (HSO).

Clear and measurable objectives

The objectives of the HSO are to:

- reduce the incidence and severity of work-related injury and disease;

- reduce the risks to the public which arise from dangerous goods and the use of specific equipment and devices;
- target and reduce the potential for major injuries in Victorian workplaces; and
- establish and maintain a commitment to quality of service and continuous improvement of service.

The HSO's Business Plan 1994–95 sets out a number of goals to enable the Organisation to meet its long-term objectives:

- continue reform of OHS legislation through inspection of plant safety, certification of operators and hazardous substances regulations that are consistent with national standards on OHS and dangerous goods;
- promote a systematic approach to the management of occupational health and safety within Victorian industry by encouraging the adoption of *SafetyMap* and audit programs;
- raise industry and community awareness of the impact of work-related injury, illness and death through conduct of Workplace Health and Safety Week and other major programs; and
- improve client services through successfully establishing a quality management system within the Authority by 31 December 1994.

Program evaluations

The HSO's annual report and business plan do not mention any formal evaluation of the Organisation's programs.

Formal reporting mechanisms

The Department publishes an annual report and the HSO publishes a yearly business plan.

The HSO has adopted the goal of implementing a quality management system consistent with AS 3904 (*Quality management and quality system elements — guidelines*). This system has been substantially implemented.

The OHS Advisory Committee provides advice on occupational health and safety matters to the Deputy Secretary, Industry Services.

Predetermined performance indicators

The HSO's Business Plan 1994–95 sets out a total of 24 performance indicators in five different areas of its operations — simpler and better regulation, managing occupational health and safety in the workplace, keeping people informed, meeting minimum OHS standards and making informed decisions.

For example, under the meeting minimum occupational health and safety standards program, the HSO has set itself the following targets:

- develop strategies for preventing work-related fatalities and serious accidents;
- deliver prevention activities targeted at high risk industries, hazards, establishments, injuries and diseases and systems of work;
- monitor levels of compliance with occupational health and safety standards through selectively targeting general workplace occupational health and safety performance; and
- support the implementation of a prosecution strategy in relation to relevant legislation through the conduct of timely and thorough investigation of work-related fatalities, serious accidents and serious incidents.

The HSO's Business Plan is evaluated annually by an OHS Steering Committee. The HSO also provides quarterly reports on its performance against the Department of Business and Employment's Business Plan.

Queensland

The Division of Workplace Health and Safety in the Department of Employment, Vocational Education, Training and Industrial Relations (DEVETIR) administers the *Workplace Health and Safety Act 1995* and reports to the Minister for Employment, Training and Industrial Relations.

Clear and measurable objectives

The Division is divided up into four sub-programs — Inspection and Advisory Service, Planning and Program Development, Council Secretariat and Intergovernmental Services, and Support Services — each with its own objective. These are to:

- work with all industries to achieve effective health and safety management in every workplace in respect of all major hazard areas: plant and machinery, hazardous substances, manual handling, ergonomics, noise and other issues relating to the working environment;
- deliver practicable workplace health and safety legislation, standards and advice to facilitate self-regulation among workplace participants;
- maximise commitment, in all industries, to effective workplace health and safety practices through consultative and advisory mechanisms; and
- provide direction and administrative support to the Workplace Health and Safety Program.

DEVETIR publishes a range of documents which sets out the planned activities as well as results achieved in past programs. The goals and strategies of the Division are set out each year in a strategic plan which also monitors progress against the previous years strategic plan. The Operational Plan sets out in greater detail how the Division intends to meet the goals of the Strategic Plan.

The Department conducts an annual program review which measures the progress of the Division in meeting its performance measures. The program review sets out each performance indicator and then provides a source of data for examining the indicator, a methodology and benchmark for making a judgement and then an assessment of the Division's achievements.

Program evaluations

The Division did not identify any evaluations of individual programs.

Formal reporting mechanisms

DEVETIR publishes an annual report and a strategic plan, and the Division publishes an annual program review and an operational plan.

The Workplace Health and Safety Council advises the Minister on workplace health and safety matters. The Council addresses major policy issues, referring other detailed and industry specific workplace health and safety concerns to Industry Health and Safety Committees.

The Council conducted a public review of the *Workplace Health and Safety Act 1989* in February 1993 under the Systematic Review of the Business Legislation and Regulation Program. A sub-committee of the Council considered the submissions to the review and presented a report to the Minister.

The Division's *Annual Program Review* outlines plans for improving performance:

The Division is proceeding to devolve responsibility for day to day operations to those who deliver the Division's products and services. Concurrently the Division is also embarking on a comprehensive workplace reform agenda which will include enterprise bargaining, quality assurance, participative management, benchmarking against national and international best practice, and enhanced performance monitoring at regional and program levels (Queensland Government 1994, Attachment B, p. 18).

Predetermined performance indicators

The Division's principal performance indicators are:

- extent to which workplace health and safety standards are practicable for implementation at workplaces;

- feedback from advisory bodies with regard to the effectiveness of consultative mechanisms and impact of initiatives;
- increase in the number of workplaces complying with workplace health and safety standards;
- extent to which health and safety information facilitates self-regulation; and
- number of persons successfully completing workplace health and safety education and training programs.

The *Annual Program Review* provides an analysis of the Division's performance in satisfying its performance indicators for all of its sub-programs.

Western Australia

The Department of Occupational Health, Safety and Welfare administers the *Occupational Health, Safety and Welfare Act 1984* and reports to the Minister for Labour Relations.

Clear and measurable objectives

The Department has set itself the overall objective of changing occupational health, safety and welfare behaviour to reduce the rate of work-related injury and disease within the Western Australian workforce by a minimum of 10 per cent between July 1993 and June 1997. The achievement of this objective is supported by two programs — Regulatory Services, and Industry and Community Awareness.

The objective of the Regulatory Services Program is to reduce the incidence of occupational injury and disease by ensuring compliance with the *Occupational Health, Safety and Welfare Act 1984*. The Program is supported by a number of sub-programs — Performance Assessment, Investigations, and Certification and Licensing.

The objective of the Industry and Community Awareness Program is to increase awareness and understanding of the *Occupational Health, Safety and Welfare Act 1984* and to promote a safe and healthy working environment as an essential social and economic goal. The Program is supported by two sub-programs — Education and Training, and Information and Promotion.

Program evaluations

The Department did not provide details of any formal program evaluations.

Formal reporting mechanisms

The Department takes into consideration the priorities of the Occupational Health, Safety and Welfare Commission, a tripartite body which advises the Minister on matters related to occupational health and safety.

The performance of the Department was reviewed in 1992 as part of the five yearly review of Act. The review was conducted by Commissioner Laing, a member of the Australian Industrial Relations Commission.

The Department publishes an annual report and a corporate plan. The Occupational Health, Safety and Welfare Commission publishes a strategic plan.

Predetermined performance indicators

The Department has implemented a series of performance indicators which are related to its programs and sub-programs. These performance indicators are published in the Department's Annual Report.

Some examples of the Department's performance indicators for its regulatory program for 1994–95 include:

- introducing a ratings system for the occupational health and safety performance assessment of enterprises;
- implementing strategies by December 1994 to reduce the high rate of manual handling injuries in selected industry sectors by June 1997; and
- implementing strategies directed at reducing fatalities related to tractors, falls from heights and electrocutions by 50 per cent between July 1993 and June 1997.

The Occupational Health, Safety and Welfare Commission has developed a strategic plan which includes detailed workplans and major achievements for 1994–95. The plan identifies six priority areas:

- promotion of awareness of the *Occupational Health, Safety and Welfare Act 1984*;
- prevention of manual handling injuries;
- review of the Occupational Health, Safety and Welfare regulations;
- prevention of workplace fatalities;
- enhancement of workplace consultative mechanisms; and
- prevention of occupational injury and disease amongst young workers.

South Australia

The Occupational Health and Safety Commission was disbanded in July 1994. Its functions were taken over by the WorkCover Corporation, the Occupational Health, Safety and Welfare Advisory Committee and the Department for Industrial Affairs. The WorkCover Corporation has primary responsibility for administering the *Occupational Health, Safety and Welfare Act 1986 (amended 1994)*.

Clear and measurable objectives

WorkCover's Corporate Plan 1994–95 to 1997–98 lists four major objectives with regard to preventing injury, fatality and disease in the workplace. Each objective is accompanied by a range of key strategies:

- to achieve a cultural change in the workplace where employers and their employees work together to improve workplace safety;
- to ensure employers and employees are able to manage the hazards and risks specific to their industry or occupation;
- to have best practice systems in place that ensure the Corporation effectively uses and develops State-wide information; and
- to make workplace safety a community issue.

The WorkCover Corporation said that the performance of the strategies in achieving these objectives will be evaluated against their impact on the numbers and cost of claims, as well as achievements against major milestones and budget.

Program evaluation

The South Australian Government said:

... there is a need to review and improve evaluation mechanisms by ensuring that these are incorporated into all Government programs to provide indicators of the impact of Government occupational health and safety initiatives (sub. 147, p. 14).

The WorkCover Corporation conducted an evaluation of the strategy used for the 'implementation of approved code of practice for manual handling'. A consultant also conducted a 'Workplace Safety Awareness Campaign Research Study'.

Formal reporting mechanisms

The WorkCover Corporation established an Occupational Health and Safety Division to carry out the occupational health and safety functions as an area of corporate core business. According to the South Australian Government, the

Corporation is held accountable for its work in this area by the Minister for Industrial Affairs and the board of the Corporation. The tripartite advisory committee reviews the administration of OHS legislation and the provision of occupational health and safety services.

The WorkCover Corporation publishes an annual report and a corporate plan.

Predetermined performance indicators

The WorkCover Corporation's Corporate Plan lists a number of quantifiable performance indicators. These are to:

- improve prevention awareness by employers and employees — at least six per cent above the level measured in 1993–94;
- increase in the number of non-exempt employers participating in the Safety Achiever Bonus Scheme — 350 employers by 30 June 1995;
- improve the extent and effectiveness of occupational health and safety systems and controls in the workplace — implement a measuring process to monitor the extent to which employers have introduced occupational health and safety policies and practices and their effectiveness by 31 December 1995;
- increase in occupational health and safety representation in the workplace — ten per cent of employers with Health and Safety Representatives by 31 December 1995; 100 per cent of prescribed employers/industries with Health and Safety Committees, 12 months after legislation is enacted;
- reduce the number of workplace fatalities in South Australia — maintain a ten per cent reduction per annum on 1993–94 levels to 30 June 1998; and
- improvement in exempt employer performance — all exempt employers achieve two year overall exempt status by 30 June 1995.

Tasmania

The Department of State Development and Resources administers the *Workplace Health and Safety Act 1995*.

Clear and measureable objectives

The Department's 1993–94 Annual Report lists the following objectives of its Safety Branch:

- develop legislative programs for ensuring the duty of care regulatory responsibilities are accepted;

- a systems-based audit program for a greater degree of self-regulation and targeted audits based on enterprise incident rates;
- an information promotion program based on the most hazardous industries, identified through industry incident rates;
- a consistent accident-investigation and enforcement program based on sound identification of the causes of serious incidents; and
- assistance to industry in developing hazard-based standards and industry codes of practice.

The Department's corporate plan does not elaborate on how these objectives are to be achieved.

Program evaluation

The Tasmanian Government said that it intends to subject its occupational health and safety programs to 'performance measures aimed at ensuring positive outcomes and optimising the cost effectiveness of the program effort'. The Department has not carried out any formal evaluations of past programs.

Formal reporting mechanisms

Within the Department there is a Work Place Safety Branch which is responsible to the Executive Director of the Industry Safety and Mines Division. The Department publishes an annual report and a corporate plan.

The Industrial Safety, Health, and Welfare Board is a tripartite body which advises the Minister for State Development and Resources on occupational health and safety matters.

Predetermined performance indicators

The Department does not publish regular performance measures for its Safety Branch.

Australian Capital Territory

In mid-1994, the agency responsible for administering OHS legislation in the Australian Capital Territory — primarily the *Occupational Health and Safety Act 1989* — changed its name from the ACT Occupational Health and Safety Office to ACT WorkCover.

Clear and measurable objectives

ACT WorkCover is yet to publish its agency objectives.

Program evaluations

ACT WorkCover has not carried out formal program evaluations.

Formal reporting mechanisms

The ACT Occupational Health and Safety Council advises the Minister for Industrial Relations on strategic directions for improving workplace health and safety and reviews the performance of the ACT WorkCover in administering the *Occupational Health and Safety Act 1989*. The Council developed a strategic plan for occupational health and safety in the ACT for the period covering 1994 to 1997. The plan was developed after consultation with staff of ACT WorkCover, constituents of Occupational Health and Safety Council members, the ACT Government Service Occupational Health and Safety Unit, Worksafe Australia and other government agencies.

Predetermined performance indicators

The ACT Occupational Health and Safety Council's strategic plan stressed the importance of performance measures:

Outcomes reflect the priorities that Council will adopt to focus its activities and resources within each program area to facilitate achieving program objectives. The achievement of objectives is measured by the completion of the task within a predetermined time. This approach enables the performance of the Council and ACT WorkCover to be evaluated.

The Council's strategic plan details objectives and outcomes for the ACT WorkCover and the Council for 1994–95 and for the period 1994 to 1997. The plan covers seven areas — administration of the Act, education and training, research and information, internal organisation, standards and code development, publicity and promotion, and specific employment groups. The plan details 41 performance measures for 1994–95 and 29 performance measures for the period 1994 to 1997. For example, the program covering the administration of the Act has the following performance outcomes for 1994–95:

- assess and evaluate the possible introduction of on the spot fines for minor breaches of the Act;
- develop a computerised contact list of health and safety representatives and conduct a minimum of two mail outs to representatives each year in consultation with appropriate unions;
- on a cost recovery basis develop an in-house workplace report book for workplace injuries with 'lost time' up to seven days to assist employers in record keeping;

- develop occupational health and safety strategies for the timber, construction, spray painting, retail, landscaping, printing and health industries, and schools;
- identification and auditing of medium to high risk industries to increase compliance with and awareness of the Act; and
- Council to determine whether the Act should be amended to require health and safety representatives training.

ACT WorkCover has not published performance measures.

Northern Territory

The Work Health Authority is responsible for the administration of the *Work Health Act 1986*.

Clear and measurable objectives

The Authority's objective is to assist industry in meeting its obligations by:

- ensuring the legislative framework is relevant, contemporary and incorporates national standards and best practice where appropriate;
- making industry aware of this framework through educational and promotional strategies; and
- enforcing the legislation in a fair, practical and consistent manner.

The Authority publishes a corporate plan known as 'Future Directions' which is distributed to client groups. The Authority develops annual business plans for the internal monitoring of performance.

Program evaluation

Commenting on the need to undertake program evaluations, the Northern

Territory Government said:

There is now a need to develop positive performance measures to assess the degree of success of various occupational health and safety strategies. These must be measures not only of efficiency, that is output, responsiveness, productivity and cost efficiency, but also of effectiveness; the extent to which a program reaches its objectives or outcome (sub. 43, p. 11).

The Northern Territory Government did not identify any evaluations that the Work Health Authority had carried out on its programs.

Formal reporting mechanisms

A Management Board consisting of the Chief Executive Officer, six Directors and an elected staff representative meet on a monthly basis to monitor and review the performance of the Authority and to make decisions about its operations.

The Authority provides an annual report and a corporate plan to the Minister for Work Health, Territory Insurance and the Liquor Commission.

The Work Health Advisory Council has the power to 'investigate any matter under the Work Health Act or relating to the administration of the Act'.

Performance indicators

The Future Directions statement listed 16 performance benchmarks for the prevention division of the Work Health Authority. Some examples include:

- OHS regulations are reviewed to incorporate national uniformity requirements and resolve any industry concerns;
- a Work Health Authority Officer is able to be contacted within 30 minutes for emergency advice 24 hours a day; and
- accident reports are finalised and recommendations submitted to the chief executive officer within 60 days of the accident.

The Work Health Authority annual report provided a progress report against most of these benchmarks, but not in any systematic way.

P.2 Commonwealth jurisdiction

Comcare Australia

Comcare is responsible for administering the *Occupational Health and Safety (Commonwealth Employment) Act 1991* and the *Safety, Rehabilitation and*

Compensation Act 1988 on behalf of the Safety, Rehabilitation and Compensation Commission.

Clear and measurable objectives

The objectives of the OHS Act are:

- to secure the health, safety and welfare at work of employees of the Commonwealth and of Commonwealth authorities;
- to protect persons at or near workplaces from risks to health and safety arising out of the activities of such employees at work;
- to ensure that expert advice is available on occupational health and safety matters affecting employers, employees and contractors;
- to promote an occupational environment for such employees at work that is adapted to their needs relating to health and safety; and
- to foster a co-operative consultative relationship between employers and employees on the health, safety and welfare of such employees at work.

Comcare uses the following criteria to determine its funding priorities:

- Government policy requirements and initiatives;
- legislative/regulatory administrative requirements under the OHS Act;
- need to address identified high cost and high incidence occupational injury and disease through development of prevention strategies; and
- customer identified needs (for example, for prevention, and legal compliance advice and assistance).

Program evaluation

The formal evaluation of the effectiveness of the operation of the OHS Act is included as part of the Industrial Relations Portfolio Plan 1995-97. The evaluation will commence in September 1995, and is to be completed within six months.

Formal reporting mechanisms

The formal mechanisms through which the SRC Commission and Comcare are accountable include:

- Annual Report to the Minister;
- Annual Review by the Senate Estimates Committee;
- Strategic Internal Audit Plan;
- Financial Compliance and Performance Auditing by the Australian National Audit Office;

- Program performance statements to the Commonwealth Parliament; and
- Department of Industrial Relations Portfolio Evaluation Plan.

Predetermined performance measures

The SRC Commission has endorsed a set of performance indicators to evaluate Comcare's program. These performance indicators are currently being implemented.

National Occupational Health and Safety Commission (Worksafe Australia)

The role of the National Occupational Health and Safety Commission (NOHSC) is to co-ordinate and facilitate a national approach to occupational health and safety, with the Commonwealth, States and Territories retaining jurisdiction over occupational health and safety. Worksafe Australia is the corporate name for the secretariat of the Commission.

Clear and measurable objectives

Worksafe Australia's Corporate Plan 1992 to 1995 lists the following corporate objectives:

- National Standards Uniformity — to facilitate the adoption of uniform occupational health and safety standards by the States, Territories and Commonwealth;
- Industry OHS Development — to improve occupational health and safety performance and reduce the incidence, severity and costs of occupational injury and disease in selected national industries;
- Research — to provide a national focus for Australian occupational health and safety research, responsive to industry needs and new knowledge, that will improve occupational health and safety performance in Australian industry;
- Chemicals Assessment — to protect occupational health, public health and the environment through the assessment of chemicals and by assisting in the regulation of chemicals;
- Professional Education — to raise and harmonise the standard of occupational health and safety education and training in Australia to improve health and safety in the workplace;
- National Coordination — to ensure that the effective involvement of stakeholders in national occupational health and safety decision-making is

maximised, and to improve national awareness of occupational health and safety; and

- Corporate Services — to ensure that National Commission objectives are achieved by providing quality direction, advice and support to program managers.

Formal reporting mechanisms

Worksafe Australia's operational plan lists the following mechanisms that it uses to ensure that it is accountable to its clients:

- annual major planned outcomes and key results and associated performance indicators;
- program performance statements;
- the annual report;
- the evaluation plan and reports emanating from evaluations;
- senior executive service and senior officer performance agreements and appraisals;
- the quarterly progress reports to the executive; and
- reports to the Minister and the National Commission.

Predetermined performance indicators

The Worksafe Australia Corporate Strategic Plan 1992 to 1995 outlined seven program areas that Worksafe has identified as major priorities. Within each program area, Worksafe has defined a program objective and a list of goals to be achieved by 1995. For example, under Program 1, National Standards Uniformity, Worksafe has set out five goals for the agency to met in the in the three-year period:

- a framework of national standards;
- within the framework of national occupational health and safety standards, harmonise existing standards;
- remove the barriers to adoption of national standards in base occupational health and safety legislation;
- develop new standards for priority issues in occupational health and safety; and
- a national database of OHS laws, regulations and standards.

In each of its annual business plans, Worksafe Australia sets out more specific performance indicators which are intended to give greater direction so that the goals in the strategic plan can be satisfied. The 1993–94 Business Plan listed 32

major planned outcomes for the seven corporate objectives that Worksafe Australia expected to fulfil in 1993–94. For example, the major planned outcomes of the National Standards Uniformity Program were to:

- establish agreed processes for necessary national economic impact analyses (EIAs) on national regulatory models under development;
- conduct EIAs on national regulatory models on: plant; the control of workplace hazardous substances; the control of major hazardous facilities; and the storage and handling of dangerous goods;
- declare of national standards or codes of practice on plant, the control of workplace hazardous substances, the control of major hazardous facilities, the storage and handling of dangerous goods, manual handling and noise;
- facilitate consistent implementation of the declared operator certification standard and the finalisation of the national assessment framework for the standard; and
- progress second order priority standards and matters associated with first order priorities for national uniformity as designated by the National Commission. These include: national code of practice for health workers and others at risk of HIV and hepatitis B infection in the workplace; passive smoking; carcinogenic substances; occupational diving; spray painting; radiation; confined spaces; pest control operators; and lead.

The Worksafe Australia Annual Report 1993–94 is divided up into the seven program areas. Although the major planned outcomes in the annual business plans are clearly specified and numbered, this is not reflected in the annual report. The annual report concentrates on positive achievements during the previous year. It does not give a clear picture as to which goals have been delayed or not satisfied. The Department of Industrial Relations acknowledged this last point, and stated that:

... the annual report will attempt, in future, to more adequately report the National Commission's performance in relation to goals that have been delayed or not achieved (sub. 396, p. 23).

Q ENTERPRISE AGREEMENTS, AWARDS AND WORKFORCE REPRESENTATION

Australian reforms based on the Robens approach saw the introduction of a consultative and participatory approach to workplace health and safety matters in the 1970s and 1980s. This approach aimed to devolve greater responsibility for improving health and safety to industry and the workplace.

Overlaying these changes has been the growing trend towards enterprise bargaining. By May 1995, the number of Federal agreements registered was over 3500, covering close to 2 million employees. There are also many State agreements. For example, in New South Wales and Queensland alone there are over 1000 registered agreements, covering more than 120 000 workers (Industry Commission 1994b).

There is considerable debate as to whether enterprise agreements and industrial awards are suitable vehicles for tackling workplace health and safety issues. This appendix outlines the benefits and drawbacks of such approaches, and discusses wider workforce participation issues.

Q.1 Existing health and safety provisions in enterprise agreements

As at 15 May 1995, there were 3573 Federal certified agreements in place. Of these, only 1242 (35 per cent) contain health and safety provisions. In table Q.1, these provisions are broken down into five categories.

Table Q.1 Health and safety provisions in Federal certified agreements

<i>Category^a</i>	<i>Number</i>	<i>Percentage of agreements including OHS provisions</i>	<i>Percentage of all agreements</i>
General commitment to OHS	437	35	12
Safety measures as a performance indicator	441	36	12
Covers a number of OHS aspects	282	23	8
Minor provisions only	215	17	6
OHS training	285	23	8

a One agreement may contain an OHS provision that satisfies more than one of the above categories.

Source: Department of Industrial Relations, sub. 395, p. 24.

The Department of Industrial Relations (sub. 74) claimed that the comprehensiveness of health and safety provisions in enterprise agreements varied significantly. It argued that although some agreements set out a systematic approach for managing workplace health and safety, the majority simply contained general statements of commitment.

This claim is supported by Heiler (1994). Heiler examined 605 agreements from the Agreements Data-base and Monitoring (ADAM). This database contains registered State (New South Wales and Queensland) and Federal enterprise agreements. Based on this information, Heiler found that only 9 per cent of agreements were 'comprehensive' in their treatment of occupational health and safety, 36 per cent were 'limited' and 56 per cent had 'no clear OHS indicators' (1994, p. 45). The industries with the highest comprehensive percentage were mining and construction (23 per cent) and metal manufacturing (17 per cent). Industries at the other end of the spectrum included finance (6 per cent) and community services (2 per cent).

Heiler also found that agreements labelled 'comprehensive' in their treatment of occupational health and safety were more likely to include other innovative provisions detailing training, work changes, flexibility provisions and consultation (1994, p. 49).

Overall, Heiler concluded:

The most significant indicators are very general only, and the percentage of agreements with substantive clauses is very small (1994, p. 43).

However, analysis based on the text of agreements can only record the formal rules. It cannot describe their application, nor cover informal agreements. Thus, the above surveys of enterprise agreements cover only part of a broader population of agreements about which little is known.

Furthermore, conclusions about the quality of health and safety provisions in agreements are subject to the assumption that the words involved are translated into change at the workplace.

Q.2 Effectiveness of enterprise agreements and awards

Using enterprise agreements or industrial awards to address workplace health and safety has a number of benefits and drawbacks. These are discussed in turn below.

Benefits

One of the main benefits of using enterprise agreements to advance occupational health and safety is that it involves workers in decision making. Quinlan (QDEVETIR 1994) identified a number of benefits to this. First, workers are intimately associated with the work process and have valuable knowledge in identifying and addressing hazards. Second, involving workers will strengthen a workplace health and safety program because they become stakeholders — facilitating effective dissemination of health and safety information and encouraging better understanding of risk. Employee exclusion is likely to result in cynicism and distrust which can undermine a workplace health and safety program. Third, feedback from workers can provide critical evidence on how effectively a program is working and where it might be improved.

Quinlan also claimed that there are positive spillover benefits associated with worker involvement. He noted studies by Spinks (1993) that indicate that a focus on workplace health and safety enables workers and their unions to more readily relate to and participate in total quality management or best practice programs.

A number of participants highlighted the advantages of using enterprise bargaining to improve health and safety at the workplace. Pioneer International believed that one of the main benefits was that it ‘raised the profile of safety and the role of the employees in managing the problem’ (sub. 15). Comcare saw the main benefits as helping to gain commitment to incorporating workplace health and safety into management structures and systems, and to developing and implementing specific injury prevention strategies (sub. 174).

Drawbacks

Despite the advantages discussed above, enterprise agreements and awards can also have adverse consequences. Some of these difficulties relate to agreements and awards in general, and others relate specifically to health and safety provisions in these industrial instruments.

Bargaining infrastructure

There is concern about the adequacy of the bargaining infrastructure required for successful enterprise bargaining.

Isaac noted that:

... effective enterprise bargaining in pursuit of workplace reforms calls for a suitable infrastructure — management and union capacity to identify appropriate changes in work practices, technology, management and consequential training requirements: as well as the sophistication and skill to negotiate terms and conditions without undue industrial disruption (1993, p. 23).

Rimmer and Watts argued that ‘there is a major shortfall in the incidence of trained shopfloor personnel (union and management) authorised and focussed to conduct enterprise bargaining on significant matters’ (1994, p. 72).

The lack of bargaining infrastructure, although a concern of enterprise bargaining in general, is of particular concern in the context of health and safety at the workplace. This is because incorporating workplace health and safety into enterprise agreements not only requires a capacity to negotiate effectively, but also requires a thorough understanding of potentially complex health and safety issues.

Unempowered groups

Enterprise bargaining as an instrument for improving workplace health and safety may not be useful for all groups of workers. For some groups, it may actually have adverse effects on health and safety. Most likely to suffer are the industrially weak, such as workers in small business, seasonal, part-time or casual employees, workers from non-English speaking backgrounds (NESBs), and many female employees.

Quinlan argued:

As is being increasingly recognised ... the likely outcome of bargaining in such situations is a diminution of working conditions, including occupational health and safety (QDEVETIR 1994, p. 59).

Workers from non-English speaking backgrounds are particularly vulnerable. Heiler (1994) cited a study by Alcorso and Hage (1994), which found that communication barriers, the poor level of understanding among NESB workers of workplace reform processes and the inadequacy of trade union representation, all potentially compromised their capacity to be fully involved and represented in the bargaining process (Heiler 1994, p. 43).

Non-reporting of injuries and diseases

The inclusion in enterprise agreements of specific performance indicators, such as lost time injury targets, can discourage the reporting of work-related injuries and diseases. Ms Blewett from New Horizon Consulting argued:

OHS can be incorporated into enterprise agreements in a manner that supports the move to OHS best practice — however, there are very few examples available thus far. Agreements that stipulate targets for accident rates or lost time injury frequency rates are more common. They are counter-productive and merely reinforce non-reporting of injuries (sub. 266, p. 3).

Workplace health and safety as a source of industrial disputation

Health and safety is inextricably bound up in the world of work and workplace change. As such it appears unavoidable as an issue in considering terms and conditions of employment.

Some participants were concerned that including workplace health and safety in enterprise agreements would link health and safety with industrial relations. They argued that it would directly compromise health and safety or provide a trigger for industrial disputation. Shell stated:

It has been Shell's experience that where OH&S issues become mixed with industrial relations, the OH&S performance of the organisation suffers. The credibility of OH&S management is put in doubt if it becomes a bargaining chip (sub. 67, p. 6).

At the very least, these concerns may make some employers reluctant to use enterprise bargaining as a vehicle for tackling key health and safety issues.

Enforcement implications

Federal enterprise agreements and awards have the potential to override State legislation. This can have a number of adverse consequences.

Where health and safety provisions contained in a Federal agreement or award result in lower health and safety standards than those afforded by State legislation, protection for workers may be lessened (or at least complicated). For example, the health and safety requirements contained in the *Vehicle Industry (OHS) Award 1986* are weaker than the requirements contained in the legislation it replaces in some jurisdictions (Gunningham 1990, p. 56).

The Australian Mining Industry Council opposed the use of enterprise agreements to establish new health and safety standards for this reason:

It is inconceivable that company and union industrial relations specialists can reach an arrangement, have it registered by the Industrial Relations Commission, and have it override State OHS law (sub. 63, p. 8).

Furthermore, health and safety provisions in enterprise agreements or awards complicate the enforcement process. Enforcement of occupational health and safety becomes the responsibility of Commonwealth Government industrial inspectors and not specialist occupational health and safety inspectors. In practice, State inspectorates have been reluctant to take on a voluntary role in enforcing the award mentioned above (Gunningham 1990). The Automotive Food, Metals and Engineering Union characterised the problem as follows:

So what happens is the [health and safety] representative writes out a written notice ... , hands it to the supervisor or the boss, but then there's nothing behind it. It's sort of an empty paper, because there's no enforcement and because the authorities refuse to come on site to enforce something that they don't have jurisdictional coverage for (transcript, p. 824).

Finally, the penalties for breaching an agreement or award are typically much lower than for corresponding breaches of occupational health and safety legislation. For example, the maximum penalties for breaches of Federal awards and agreements is \$1000 and \$5000 respectively, whereas the maximum penalty for breaches of occupational health and safety legislation in New South Wales is \$250 000.

Q.3 Employee participation

A fundamental philosophy of the 'modern' approach to workplace health and safety is to promote greater involvement of employers and workers in creating a safe and healthy working environment. The Robens Committee stressed the importance of workplace participation for improving health and safety at work. Australian legislative reforms in occupational health and safety in the 1980s embody this approach.

A major thrust of the recommendations of the Robens Committee was strong support for increased consultation at the workplace level. The Robens Committee recommended that:

- all employers be required to prepare and issue to their employees a written statement of their health and safety policy and rules and information on the workplace's health and safety organisation, on the duties of its safety officers, on arrangements for joint consultation about health and safety measures, and on matters such as safety training, protective clothing and so on;
- the public inspectorates make more effort to co-operate with workers and their representatives than had been the case in the past;
- the annual reports of boards of directors to shareholders of corporations should include prescribed information, including statistics about reportable

accidents and industrial diseases suffered by the company's employees and about measures taken by the company in this regard; and

- all employers should be obliged to consult with their employees (or their representatives) in relation to occupational health and safety (1972, p. 152).

Worker participation is central to most Australian jurisdictions' occupational health and safety legislation. Most Acts go beyond 'consultation' and provide for worker participation through worker elected health and safety representatives, or joint (employer and employee) health and safety committees, and mechanisms for resolving disputes between representatives, committees and employers.

Workplace health and safety committees

The OHS Acts of all jurisdictions provide for joint employer and employee involvement in occupational health and safety through committees. In general, provisions relating to committees are less detailed than those relating to health and safety representatives.

Given the diversity of employment situations it has been felt inappropriate to specify in too much detail the structure and operations of committees. Legislation generally governs committees' establishment, functions and composition.

The Acts in all jurisdictions provide avenues for employees to establish committees at workplaces, subject to various degrees of qualification. This is in addition to those workplaces required to have committees by ministerial direction, regulation, or as part of a code of practice.

In all States except New South Wales and the Northern Territory the health and safety representative can request that a committee be established. In New South Wales and the Northern Territory a request can be made by a majority of the workers in establishments with more than twenty workers. This option, without the size requirement, is also available in South Australia. Although this option is not available in Queensland, Victoria or Western Australia, the relative ease of appointing a health and safety representative means this is not a major problem.

In Western Australia, the right of the representative to request the establishment of a committee is limited to workplaces with more than 10 employees. The notion of designated work groups adopted in South Australia and Victoria is argued to provide a more flexible solution to the problem of workplace size.

There is considerable variation in the extent to which the functions of committees are spelt out in different States, although there appears to be basic agreement about their core role — to facilitate co-operation between employers and employees in developing and implementing measures designed to improve workplace health and safety.

New South Wales and the Northern Territory grant committees various enforcement activities including the right to inspect the workplace. This is a departure from other Acts where this is the role of health and safety representatives. In Queensland, Victoria, South Australia and Western Australia it is the role of committees to devise and implement health and safety policies, while the primary role of the representative is enforcement.

The Department of Industrial Relations (DIR) contends that there is a need to examine and enhance the effectiveness of health and safety committees in implementing Robens style 'co-regulation' in the workplace. It stated:

DIR's Australian Industrial Relations Survey 1991 (AWIRS) supplied some valuable information to fill this void. However, as Mr Brad Pragnall (Australian Centre for Industrial Relations Research and Training) stated in evaluating the data for New South Wales: 'While the AWIRS data does provide us with a valuable snap shot of such activity, it does not provide a definitive evaluation of OH&S policy and practice. Similarly...we cannot determine (from AWIRS data) the quality of OH&S committee performance and their impact on OH&S practice in the workplace' (sub. 74, p. 17).

Health and safety representatives

The OHS Acts of all jurisdictions except New South Wales and the Northern Territory make provision for health and safety representatives. All Acts make it clear that they have a role in monitoring health and safety practices and standards at the workplace. At the same time, there are significant variations between the State Acts in terms of the methods of their appointment, the resources and powers made available to them, and their capacity to act directly in instances where they believe there is an immediate risk to the health and safety of workers.

Health and safety representatives are not compulsory in any Australian jurisdiction. The onus is on workers or their representatives to initiate the necessary steps to elect a representative.

In Western Australia, any employee may call for the election of a health and safety representative. In Victoria, any worker can call for the establishment of a 'designated work group', and that group can elect one of their members to be their representative.

In South Australia, Victoria, Queensland and Western Australia, where appointment is based upon an election conducted among employees, general rules governing the election process are established in the legislation. In Victoria, Queensland and Western Australia there is provision for union involvement in the electoral process.

There has been some controversy about union involvement in the appointment of health and safety representatives. The Australian Trade Union Safety Representatives handbook states that:

The single most important feature of health and safety as an industrial relations issue is to ensure that health and safety representatives are union representatives, that is, that they are appointed according to union procedures and that they are accountable to the members they represent through union channels (Mathews, 1993 p. 514).

It is argued that only unions can provide the necessary support for representatives, and that lack of union involvement would render such appointments 'tokenistic'.

Employer peak councils have opposed this on the grounds that it represents an 'extension of trade union power'. Mathews (1993) cites this as the sticking point in the negotiations between the Victorian Trades Hall Council and employers over the aborted Health and Safety Bill in October 1984.

Additionally, it is argued that not all workplaces are unionised, multiple unions at a workplace could cause difficulties, and not all workers in a workplace may be union members. Unions respond that in practice they can, and do, deal with such issues.

Quinlan and Bohle state that these arguments reflect an ongoing debate about the relationship between workplace health and safety and industrial relations. They observe that:

First, in those States where unions presently have a role in the appointment process, various mechanisms have been introduced to safeguard the concerns raised. Second, British evidence indicates that only in workplaces with strong union based organisation have workers been able to secure a significant say in OHS matters. (Quinlan and Bohle 1993, p. 214)

This is supported by the findings of Mullen (1990). Mullen examined the influence of trade unions on the rate of adoption of a voluntary code of practice dealing with health and safety representatives and safety committees in New Zealand.

Mullen found that although there was little evidence that trade unions were influential in the selection of representatives or the establishment of health and safety committees, they were able to influence the decision to adopt a code of practice in 27 per cent of the enterprises which did so.

Unions also played a major role in ensuring that a major proportion of even the smallest employers were at least covered by health and safety clauses, however minimal, in awards and agreements.

Rights and powers of health and safety representatives

The statutory powers of health and safety representatives vary across jurisdictions. The South Australian, Victorian and Western Australian Acts give representatives an important set of functions and powers. In South Australia these include the right to make inspections of the workplace, to accompany government inspectors, to investigate complaints, to make representations to the employer on any workplace health and safety related matter, to hold discussions with employees; if requested by an employee to be present at interviews between the employee and an inspector or employer, and to draw on assistance from consultants. In these three States, these powers are reinforced by obligations on the employer to provide time, facilities and information to representatives, to consult them on changes at work likely to affect health and safety, and to notify them of dangerous incidents or injuries.

The most controversial area in connection with health and safety representatives is their capacity to issue 'provisional improvement notices' (PINs) and to direct the cessation or work.

Under Victorian, Commonwealth and ACT legislation, health and safety representatives have the power to issue PINs in situations where there is an immediate threat to the health and safety of one or more employees. In South Australia, health and safety representatives have the power to issue 'default notices', which require the relevant person to remedy the health and safety problem.

With regards to the cessation of work, health and safety representatives in Victoria and South Australia have the power to direct employees to cease work where there is an immediate threat to the health and safety of one or more employees. Under Commonwealth and ACT legislation, health and safety representatives have the power to direct employees to cease work only in situations where the supervisor cannot be contacted immediately.

In other States and Territories, health and safety representatives cannot order the cessation of work. However, in Western Australia, Tasmania and the Northern Territory, each employee has the right to cease work.

The ACTU argues that the reduction in inspectorate resources that some authorities are experiencing at present means most workplaces would be unlikely to have an inspector visit unless requested by either the employer or the health and safety representative, or if a serious accident or incident occurs. For

this reason, it argues it is very important that the formal role of health and safety representatives and their right to serve PINs is maintained and extended to those jurisdictions where it does not exist — that is New South Wales, the Northern Territory, Tasmania, Western Australia and Queensland (sub. 149, p. 29).

Some employers have objected to the granting of representatives the power to stop work. For example, the Victorian *Occupational Health and Safety Act 1985* was regarded by many employers as making unacceptable intrusions into management prerogative by giving employee elected health and safety representatives very extensive powers — including the power to stop work — which could be exploited as industrial relations weapons (Gunningham 1990). The Vehicle Builders Employees' Federation (VBEF) joined with six employers in seeking a consent award which excluded the operation of State legislation in favour of Federal award regulation. (Section 109 of the Constitution allows Federal awards to prevail over State Acts and Regulations, and render the latter void 'to the extent of the inconsistency').

A Full Bench of the Industrial Relations Commission made an award in the terms sought.¹ The Award OHS provisions were based on the Victorian legislation, but with significant modifications, including removing the power to stop work.

Sherriff contended that 'it is appropriate and necessary that employees not be required to continue to work in unsafe conditions or circumstances, and that provisions such as those found in Victoria are appropriate'. However, he also stated:

Unfortunately, health and safety issues are able to be raised for industrial relations purposes, and the legislation does not adequately protect an employer from the consequences (sub. 199, p. 12).

He recommended amending dispute resolution procedures to provide a prompt resolution of health and safety issues, with penalties for wilful disputes without reasonable cause.

The Queensland Branch of the ACTU provided an example of the need for representatives to have the power to stop work:

...the Queensland Nurses Union recently withdrew their workers from an area where there was a gluteraldehyde spill. Non-QNU members in the area were not withdrawn and became ill from the exposure. A Safety Representative with the power to stop work could have effectively avoided this situation (sub. 77, p. 14).

¹ *AMI Toyota v Assoc of Drafting, Supervising and Technical Employees 1986* (reviewed and extended in 1989)

The South Australian Occupational Safety, Health and Welfare Steering Committee supported the right of representatives to halt work in some circumstances on the following grounds:

- workers already have a common law right to refuse unsafe work (see below) which is not often exercised, possibly due to fear of victimisation;
- unions have exercised this common law sanction in the past, and its use is becoming more prevalent — however its use depends on the degree of unionisation; and
- although in recent years industrial tribunals have become increasingly willing to endorse the common law right, the protection remains selective (1984, pp. 141–147).

A statutory power for representatives to order work to stop should be distinguished from the common law right for an individual to refuse to perform unsafe work. This common law right derives from the fact that the employee is obliged to obey the lawful reasonable orders of the employer — logically this means the employee does not have to obey orders that are either unlawful or unreasonable, for example, where they involve contravention of a statutory safety standard, or expose the employee to an unacceptable degree of risk.

Although this right is used in industries such as mining, it may have less practical relevance in situations where it is difficult to establish whether a particular order is unlawful or unreasonable, and in the absence of effective worker organisation or adequate statutory protection against unfair dismissal.

Victimisation of employee participants

Concern has been raised that health and safety representatives, committee members and other employees may suffer from intimidation or other forms of victimisation as a result of their activities in connection with workplace health and safety.

Biggins (sub. 35) noted there are a significant number of reports of discrimination against health and safety representatives. The Western Australian Arbitration Commission also expressed concerns about the ability of anti-discrimination provisions to prevent unfair dismissal of health and safety representatives. The potential contribution of representatives to improving workplace health and safety is inhibited where safeguards for security of employment are inadequate.

The Acts of all States except Queensland and Tasmania prohibit at least some specified forms of victimisation against employees by an employer. In

Tasmania, only victimisation against health and safety representatives is covered.

Definitions of victimisation include not only dismissal but also ‘injury and any alteration of the employee’s position which could be held to be to their detriment’ (Quinlan and Bohle 1991, p. 220).

Effectiveness

There is little empirical evidence on the operation or effectiveness of health and safety committees and representatives in Australia since their inception (Heiler 1994, p. 24).

Participants offered a range of views on the effectiveness of committees and representatives. The ACTU stated:

The effectiveness of participative workplace structures can also be seen in the OHS — Building Best Practice case studies conducted by the NOHSC, which detail best practice and demonstrate the benefits of participative and consultative management practices for occupational health and safety and subsequent economic benefits for the organisation (sub. 149 p. 7).

Biggins (sub. 35) considers that, in general, the consultative-participatory approach is effective. His research indicates the majority of health and safety issues are resolved satisfactorily by representatives and committees, rather than through shop stewards.

However, Pragnall (1994) has cast doubt on the extent and effectiveness of health and safety committees. Using AWIRS data, Pragnall found on average some 45 per cent of workplaces throughout Australia have health and safety committees. Of those, 87 percent had one committee — raising questions about the adequacy of one committee to serve workplaces which are large and diverse. The AWIRS data suggested that the majority of committees met at least quarterly. However, a sizeable proportion of committees met infrequently or not at all, raising doubts about their effectiveness. Information from Biggins (sub. 35, p. 58 of Attachment 6) for a sample of Western Australian committees indicates some 12 per cent of committees were in this group.

Pragnall (1994) also found that increasing levels of union and industrial relations activities are closely tied to workplace health and safety activities including the existence of health and safety committees (pp. 27 and 31). For example he found that only 9 per cent of ‘informal’ workplaces had committees compared with 89 per cent of ‘active’ bargainers. His study suggested the incidence of committees was associated with the level of union density, as 14 per cent of non-union workplaces had committees compared with 59 per cent of workplaces with 51 to 100 per cent union density (p. 30). He argued the

existence of health and safety committees coincided with other health and safety activities. However, whether health and safety committees generate higher levels of health and safety activity or whether health and safety activity and committees are themselves generated by some other set of factors is not known (p. 32).

On the other hand, Biggins et al (1991, p. 138 and p. 157) support the claim that worker participation via elected health and safety representatives contributes to improving workplace health and safety.

R ECONOMY-WIDE IMPACTS OF WORKPLACE INJURY AND DISEASE

Workplace injury and disease have pervasive effects on the economy. They keep people from working, reduce productivity and, through severe injuries, are a long-term reduction in and drag on what the economy can achieve. Workplace injury and disease also create demand for medical and other services that would not otherwise exist. This diverts the economy's resources from other opportunities. Workers' compensation premiums increase labour costs, reducing the incentive for firms to employ labour. Finally, workplace injury and disease harm one of workers' most precious resources — their health.

Although all these effects are important, not all can be quantified. Many have intangible and non-pecuniary natures. Others lack the relevant data to permit quantification. Previous general equilibrium work has focussed on particular effects and omitted others, for example, workers' compensation as an 'on cost' (Industry Commission 1994a and Cerasini 1990), the variation of workers' compensation premiums across industries (Parmenter and Cumpston 1989) or the costs of compliance with manual handling regulation (Horridge 1987). None have considered the resource and welfare gains from reducing the level of workplace injury and disease.

The following quantitative assessment uses ORANI, a multi-sectoral model of the Australian economy, and focuses on four effects to highlight the economy-wide impacts of workplace injury and disease, and the benefits of prevention. Specifically, simulations focus on the following:

- reduced labour productivity of the workforce during the absence of affected workers;
- loss of labour resulting from the permanent disablement of workers;
- expenditure on workers' compensation premiums by employers as tied to the level of workplace injury and disease; and
- expenditure on medical and hospital treatment for injured workers.

Simulation results depend on how prices and wages react to these effects and consequently how resources and products flow between sectors of the economy. The following adopts the view of the economy that wages and investment will accommodate the increases in labour supply and labour productivity that follow a reduced level of workplace injury and disease, without increasing the number of unemployed persons. As such, the results indicate the benefits of reducing

the level of workplace injury and disease when the economy makes full use of the resource gains of a safer workplace.

R.1 Labour market effects

Lost work time, permanently disabled workers and workers' compensation insurance are all consequences of workplace injury and disease. They, in turn, have small but significant effects on the labour market and the economy.

Days lost per worker per year

The number of days–lost per worker per year reflects the level of injury and the time off work after injury. Worksafe Australia collects data for time lost for workplace injury and disease associated with workers' compensation claims. However, not all workplace injury and disease lead to workers' compensation claims. The Worksafe Australia data are adjusted for the following two types of under-reporting.

First, in many jurisdictions workers cannot claim for injuries with less than a week off work, and Worksafe Australia only reports on claims. In the Population Survey Monitor (PSM) these brief injury cases were about 29 per cent of workforce injuries. Consequently, the number of injuries was increased by 41 per cent and the additional injuries were given an average duration of 2.5 days.

Of course, the ratio of accidents requiring fewer than five days off work to accidents requiring five or more days off work will vary by industry and occupation. However, lacking specific information for all industries and occupations, the average was applied to all. This should not appreciably bias specific days–lost estimates for risky industries and occupations because most days–lost are for injuries requiring at least five days off work. Moreover, the choice of 2.5 days–lost assumes that injuries with fewer than five days lost require at least one day off work.

Second, Worksafe Australia's data does not include some jurisdictions or the self-employed. To allow for that, it is assumed that the rate of injury and disease and the average duration of absence are representative of all workers in Australia. For instance, the self-employed farmer is as likely to be injured performing a labourer's job as the labourer is. The labourer is in Worksafe Australia's data base but the self-employed farmer is not.

With these adjustments, the data can be used to estimate the average days–lost per worker per year by industry and occupation. The principle behind the

derivation is that there are ‘risky’ occupations and ‘risky’ industries, where ‘risky’ in this context means likely to have days–lost because of workplace injury or disease. For example, within an industry it is riskier to be a labourer than a clerk, and within an occupation it is riskier to be in the mining industry than in the retail trade industry.

Five assumptions put the principle into practice through the RAS method.¹ First, the occupational risk component is the same across industries. Second, the industrial risk component is the same across occupations. Third, the estimated days lost per worker per year for an occupation in an industry is the product of the industrial risk component, the occupational risk component, and the employment of the occupation in the industry. Fourth, days lost per worker per year by occupation in an industry must average to the industry days lost per worker per year using the composition of the labour force. Fifth, for every occupation, days lost per worker per year by occupation by industry must average to the occupation average days–lost per worker per year using the composition of the labour force across industries within the occupation.

Occupations and industries are roughly arranged in Table R.1 according to days lost per worker per year. Days lost per worker per year typically declines moving left to right and top to bottom.² To illustrate the interaction of the occupation and industry risk components, labourers in the construction industry typically lose more days per worker per year than plant and machine operators in other industries, even though plant and machine operators is a riskier occupation. This is because the comparative riskiness in construction is more important than the comparative riskiness in plant and machine operators.

The ordering of industries in Table R.1 is not the same ordering according to the average days lost per worker per year by industry (the shaded column). An industry’s average days lost per worker per year weights each occupation’s days–lost according to its share of industry labour force. Consequently, many industries lose more days per worker per year than the all industries average. Yet their days–lost per worker per year by occupation is less than that of the all

¹ The ABS often uses the RAS method to estimate an input output matrix when not all elements of the matrix are known. Here the RAS method rests on a probabilistic model where days–lost is the product of two random variables, occupation and industry.

² Underlying the ranking is a notion of risk that an industry (occupation) is ‘riskier’ than another industry (occupation) if days–lost per worker per year in every occupation (industry) in that industry (occupation) is at least as great as days–lost per worker per year in every occupation (industry) in the other industry (occupation) and greater in at least one occupation (industry).

Table R.1 Expected days lost per worker per year from workplace injury and disease by occupation and industry

Industry	Occupation								
	Plant and machine operators	Labourers	Tradepersons	Para-professionals	Sales and personal services	Managers and administrators	Professionals	Clerks	All occupations
Public administration	3.31	3.49	2.39	1.36	1.01	1.22	0.53	0.49	1.27
Construction	3.43	3.33	2.44	1.23	0.91	0.69	0.35	0.32	2.08
Mining	2.67	2.84	1.92	1.26	1.05	0.64	0.41	0.49	1.87
Road transport	2.93	2.84	2.08	1.05	0.77	0.59	0.30	0.27	1.64
Basic metal products	2.81	2.74	2.00	1.01	0.74	0.57	0.29	0.26	1.93
Non-metallic mineral products	2.65	2.58	1.89	0.96	0.70	0.54	0.27	0.25	1.89
Agriculture, forestry, fishing and hunting	2.22	2.28	1.79	0.80	0.63	0.49	0.23	0.21	1.61
Welfare and related services	2.22	2.16	1.58	0.80	0.59	0.45	0.23	0.21	0.73
Health	2.22	2.15	1.58	0.79	0.59	0.45	0.23	0.21	0.88
Transport equipment	2.12	2.06	1.51	0.76	0.56	0.43	0.22	0.20	1.45
All industry	2.06	1.90	1.49	0.81	0.40	0.43	0.22	0.21	0.92
Fabricated metal products	1.91	1.86	1.36	0.69	0.51	0.39	0.20	0.18	1.25
Textiles	1.89	1.84	1.35	0.68	0.50	0.38	0.20	0.18	1.45
Food, beverages and tobacco	1.85	1.80	1.31	0.66	0.49	0.37	0.19	0.17	1.28
Miscellaneous manufacturing	1.80	1.75	1.28	0.65	0.48	0.36	0.19	0.17	1.22
Education, museum and library services	1.78	1.73	1.26	0.64	0.47	0.36	0.18	0.16	0.37
Electricity, gas and water	1.69	1.73	1.63	0.76	0.37	0.28	0.25	0.16	1.05
Wood, wood products and furniture	1.73	1.68	1.23	0.62	0.46	0.35	0.18	0.16	1.26
Financial, property and business services	1.58	1.87	0.98	0.63	0.39	0.31	0.20	0.13	0.42
Railway transport nec	1.48	1.14	1.24	0.69	0.50	0.27	0.18	0.11	0.83
Other machinery and equipment	1.50	1.46	1.07	0.54	0.40	0.30	0.16	0.14	0.88
Chemical, petroleum and coal products	1.46	1.42	1.04	0.53	0.39	0.30	0.15	0.14	0.82
Wholesale trade	1.35	1.31	0.96	0.48	0.36	0.27	0.14	0.12	0.57
Recreation, personal and other services	1.22	1.17	0.83	0.46	0.32	0.25	0.13	0.11	0.57
Retail trade	1.08	1.05	0.77	0.39	0.29	0.22	0.11	0.10	0.46
Paper products, printing and publishing	0.94	0.92	0.67	0.34	0.25	0.19	0.10	0.09	0.49
Clothing and footwear	0.68	0.67	0.49	0.25	0.18	0.14	0.07	0.06	0.56

Source: IC estimates based on PSM survey and Worksafe 1991–92 data.

industries average. This is because the composition of their workforces is weighted toward the higher days–lost per worker per year occupations.

High days–lost per worker per year need not indicate that the underlying injuries are more severe. For example, although Public Administration includes the armed forces and jobs such as police officers and firefighters, government workers may be less afraid to stay home after a work-related injury or disease and the government may be more likely to accept an injury or disease as being work-related. Both explanations increase the number of days–lost per worker per year.

Days lost and labour productivity

ORANI represents days lost per worker per year as a loss in the effectiveness of the workforce. That is, if an enterprise loses 1 per cent of its workforce’s work days because of workplace injury or disease and the enterprise pays for those work days then the effectiveness of the workforce falls by 1 per cent. Reducing the extent of workplace injury and disease increases the effectiveness of the workforce.

Three qualifications apply to these estimates. First, industry-specific risk is probably concentrated within occupations. For example, the risk inherent in mining does not apply so much to clerks as to labourers (miners). Consequently, the estimation method used above will understate industry-specific risk for the most affected occupations and overstate industry-specific risk for the least affected occupations.

Second, strict application of the days lost estimates implies that employers pay the injured worker’s salary during the worker’s entire absence from work although employers pay only for the first five days. Workers’ compensation provides income compensation to workers after five days absence. About 20 per cent of days–lost fell into this latter category in Worksafe Australia’s 1991–92 database for injuries less than five days.

Third, although workers probably lodge injury claims in the same year that injuries occur, a workplace disease can reflect years of exposure to hazards or delayed onset. Consequently, a reduction in the level of disease will result in a reduction in claims after years and not in the same year. Days lost per worker per year owing to workplace disease will then inflate the loss of workforce effectiveness by its share in total days lost.

In sum, the days lost estimates in Table R.1 overestimate the loss in workforce effectiveness that relates to the absent injured worker who is paid by the employer.

With these qualifications in mind, the following uses the days lost estimates but reinterprets their description of workforce effectiveness as a combination of the injured worker's immediate loss of labour and the indirect productivity losses of workplace injury and disease. Indirect losses of productivity include:

- shutting down the production process after an accident;
- damage to product, machinery and inputs;
- less effective temporary employees;
- less effective work from other workers who fill in for injured workers (possibly creating overtime charges);
- accident investigation and reporting;
- reduced worker morale; and
- increased absenteeism.

Andreoni (1986) and Mangan (1991) among others discuss these indirect productivity effects. However, there is no established methodology for calculating them. Survey evidence is sparse and workplace-specific. Underlying the estimate used here is the assertion that the combined effect on productivity is as if the employer had to pay all the lost time of the worker who suffered a workplace accident or contracted a workplace disease. Furthermore, the estimation method spreads the loss in effectiveness from one occupation's injuries across all occupations, and relates the total indirect loss of effectiveness to the days lost of the injured workers.

The overall average of 0.92 days–lost per worker per year translates into a 0.38 per cent decrease in the effectiveness of the labour force when compared to no injuries. By implication, eliminating workplace injuries increases the current effectiveness of the workforce by 0.38 per cent. The following ORANI simulation illuminates the economy-wide effects of increased effectiveness.

Increases in the effectiveness of the workforce increase real GDP by 0.4 per cent and stimulates investment that builds a larger capital stock (see Table R.2). The projected reduction in capital cost improves Australia's price competitiveness in overseas markets. Exports increase by 0.94 per cent, reflecting Australia's increased production potential. Meanwhile, a flexible and efficient labour market ensures a 0.28 per cent real wage increase for workers.

Table R.2 Projected aggregate impacts of an increase in labour productivity from the elimination of injury and disease absences

<i>Aggregate variable</i>	<i>Change in per cent (unless stated otherwise)</i>
Real GDP	0.40
Exports	0.94
Imports	0.34
Balance on trade (\$m)	486.80
Terms of trade	-0.08
Real wage rates	0.28
Unit labour cost	0.27
Rental price of capital	-0.27
Employed workers	0.02
Unemployed workers	0.00
Capital stock	0.58

Note: An estimated average labour productivity increase of 0.38 per cent.

Source: Industry Commission, ORANI model simulation.

All industries contribute to the increase in GDP. Output in the mining industry increases most, by 0.94 per cent (see Table R.3). This gain reflects its larger than average days lost and the booming effect of exports on mineral commodities. Industries hire more workers (as seen in Table R.2) but hours worked declines marginally. For many industries, businesses substitute capital for labour, a consequence of increasing wage rates.

Accumulation of long-term injuries

Days lost from injuries occurring in a given year are not the only source of lost labour resources. The long-term injured account for the greatest lost time from workplace injury and disease, reducing the total labour supply by 1.55 per cent (PSM survey). This is three times the 0.38 per cent loss of labour for injury and disease occurring in a given year. However, lowering the amount of workplace injury and disease only gradually reduces the numbers of the severely affected because the share of people severely affected in a given year are a fraction of all severely affected workers.

Table R.3 Projected sectoral impacts of labour productivity improvements from the elimination of injury absences
(per cent)

<i>Industry</i>	<i>Output</i>	<i>Employment (hours)</i>	<i>Unit labour costs</i>	<i>Change in capital stock</i>
Agriculture	0.41	-0.08	0.49	0.30
Mining	0.94	0.63	0.48	0.76
Manufacturing	0.61	0.09	0.21	0.50
Utilities	0.41	-0.04	0.17	0.30
Construction	0.56	-0.37	-0.01	-0.32
Distribution trade	0.30	0.40	0.87	1.14
Transport, storage and communication	0.43	-0.12	0.48	0.54
Finance, property and business services	0.37	-0.08	0.49	0.78
Public administration and defence	0.09	-0.55	0.14	0.03
Community services	0.06	-0.08	0.44	0.61
Other personal services	0.19	0.10	0.74	0.99
<i>All industries</i>	<i>0.43</i>	<i>-0.01</i>	<i>0.41</i>	<i>0.61</i>
<i>Occupation</i>	<i>Real wage</i>			
Managers and administrators	0.40			
Professionals	0.26			
Para-professionals	0.23			
Tradespersons	0.22			
Clerks	0.21			
Sales and personal service workers	0.57			
Plant and machine operators	0.20			
Labourers	0.12			
<i>All occupations</i>	<i>0.28</i>			

Note: An estimated average increase in labour productivity of 0.38 per cent.

Source: Industry Commission, ORANI model simulation.

According to Worksafe Australia's data, there were about 60 fatalities per million workers in 1991–92. The same data also suggest that 0.03 per cent of wage earners have become disabled in the long term — that is, for longer than a year — following the occurrence of injury or disease. These cases add up to an annual loss of about 0.04 per cent of the labour force. Labourers, tradespersons, and plant and machine operators were particularly susceptible to fatality and permanent disablement (see Table R.4).

Table R.4 Estimated rates of occupational casualties
(per cent)

<i>Occupation</i>	<i>Rate of fatal incidents</i>	<i>Rate of permanent disablement</i>
Managers and administrators	0.006	0.022
Professionals	0.003	0.008
Para-professionals	0.002	0.024
Tradespersons	0.010	0.062
Clerks	0.001	0.009
Personal services workers	0.001	0.014
Plant operators	0.018	0.074
Labourers	0.009	0.054
<i>All occupations</i>	<i>0.006</i>	<i>0.032</i>

Source: Worksafe Australia (1993e).

The mechanics of modelling the impact of the loss of labour from severe injuries and diseases on the economy are as follows. In ORANI, labour supply involves the decision to join the labour force and the choice of an occupation. For the equation on the participation decision, the change in aggregate labour supply depends on movements of the unemployment rate, the average real wage rate and the average income from other sources. These variables reflect an interplay of labour market forces. The simulation solves for their net effect. A shift variable in the equation represents the extra labour supply arising hypothetically from eliminating workplace fatalities, and injuries and diseases with long absences from work.

ORANI represents occupational choice by an equation that attributes the difference between the growth rate of workers joining each occupation and the average increase in labour supply to the differential change in occupational wage rates. An additional shift variable in this latter equation calibrates how the supply of workers in each occupation expands relative to the average if its loss of labour is recouped.

The simulation results indicate that real GDP would be 0.06 per cent higher after the elimination of the severe and fatal injuries and diseases occurring in a given year (see Table R.5). The largest impacts on aggregate variables are on investment and exports with changes of 0.08 per cent and 0.12 per cent respectively. The generally better output performance boosts the rate of return to capital hence stimulating investment in long run. The resulting expansion in capital stock helps lower the rental cost of capital. This has a favourable effect on exports. Regarding the cost of labour, production activity expands and

labour markets adjust to absorb the larger supply of workers without creating further unemployment and leave real wages unchanged.

Table R.5 Projected economy wide impacts of eliminating severe workplace accidents

<i>Aggregate variable</i>	<i>Change in per cent (unless stated otherwise)</i>
Real GDP	0.06
Exports	0.12
Imports	0.06
Balance on trade (\$m)	48.19
Terms of trade	-0.01
Real wage rates	0.00
Unit labour cost	-0.01
Rental price of capital	-0.03
Employed workers	0.05
Unemployed workers	0.00
Capital stock	0.08

Note: Modelled as an increase in the labour supply of 0.04 per cent.

Source: Industry Commission, ORANI model simulation.

Among industries, mining output expands by 0.10 per cent through greater than average increases in labour and capital (see Table R.6). This response is typical for export-oriented industries, which are especially sensitive to changes in domestic cost conditions. In the labour market, despite little movement of the average wage rate, wage rate changes vary widely among occupations. For instance, real wages of tradespersons, plant and machine operators and labourers all decline. This is partly due to the higher level of severe and fatal injuries and diseases for these occupations, although the mixed performance in different industries also shifts the demand for workers in various occupations.

Of course, the total benefits of eliminating severe and fatal injuries and diseases in the workplace exceed the benefits obtained in one year. Fatalities and permanently disabling injuries and diseases destroy a lifetime of potential work, limiting future achievements. Each year adds more fatalities and permanently disabling injuries and diseases. The data presented here suggest that each year's 0.04 per cent loss accumulates to a perpetual 1.55 per cent loss of the total workforce. Thus the one year gains presented above, if repeated over time, could increase 39 times.

Table R.6 Projected sectoral and occupational impacts of eliminating fatal and debilitating workplace accidents
(per cent)

<i>Industry</i>	<i>Output</i>	<i>Employment</i>	<i>Unit labour</i>	<i>Change in</i>
		<i>(hours)</i>	<i>costs</i>	<i>capital</i>
				<i>stock</i>
Agriculture	0.04	0.06	-0.01	0.04
Mining	0.10	0.13	-0.03	0.09
Manufacturing	0.08	0.08	-0.02	0.08
Utilities	0.06	0.06	-0.02	0.06
Construction	0.08	0.08	-0.02	0.06
Distribution trade	0.05	0.04	-0.01	0.06
Transport, storage and communication	0.07	0.06	-0.02	0.07
Finance, property and business services	0.07	0.01	0.01	0.12
Public administration and defence	0.01	0.01	0.00	0.03
Community services	0.02	0.02	0.00	0.05
Other personal services	0.05	0.05	-0.01	0.07
<i>All industries</i>	<i>0.06</i>	<i>0.05</i>	<i>-0.01</i>	<i>0.08</i>
<i>Occupation</i>	<i>Real wage</i>			
Managers and administrators	0.02			
Professionals	0.02			
Para-professionals	0.01			
Tradespersons	-0.03			
Clerks	0.03			
Sales and personal service workers	0.03			
Plant and machine operators	-0.06			
Labourers	-0.03			
<i>All occupations</i>	<i>0.00</i>			

Note: Modelled as an increase in the labour supply of 0.04 per cent.

Source: Industry Commission, ORANI simulation.

Workers' compensation

Workers' compensation premiums in non-agriculture industries are 2.4 per cent of the total labour costs (ABS 1990–91 data). Insurance premiums have two parts — the insurance agents' service charge, and the compensation transferred to injured workers or their beneficiaries. A general reduction in workers' compensation premiums affects both premium parts.

The insurance premiums will presumably reduce in line with the falling number of workplace injuries and diseases. Yet the premiums need not adjust proportionately or immediately because of outstanding claims liabilities, actual claims experience and experience rating methods. The following assumes that

time and market forces will reduce the premiums by the same amount that the level of workplace injury and disease is reduced.

In ORANI, the industry's demand for insurance services is a function of the industry's output level and the prices of various intermediate commodities and services. The simulation solves for the values of these variables. In addition, a shift variable in the equation calibrates the exogenous change in the service charge. On the other hand, the change in net premiums received by employed workers is modelled as the change in payroll tax that industries pass on in full to employed workers while keeping the government's current account position intact.

A simulation tests a 10 per cent reduction in workers' compensation premiums. Not surprisingly, reducing workers' compensation premiums by 10 per cent — a 0.24 reduction in unit labour costs — has positive effects on most aggregate variables (see Table R.7). In particular, real wages increase by 0.14 per cent. The employer's total wage bill includes workers' compensation premiums. In a flexible labour market, reducing the level of workplace injury and disease lowers workers' compensation premiums and allows workers to take more of the total wage bill in take-home pay, with a minimal increase in unit labour costs of 0.03 per cent.

Table R.7 Projected aggregate impacts of a ten per cent decline in workers' compensation premiums

<i>Aggregate variable</i>	<i>Change in per cent (unless stated otherwise)</i>
Real GDP	0.01
Exports	0.03
Imports	0.01
Balance on trade (\$m)	16.25
Terms of trade	0.00
Real wage rates	0.14
Unit labour cost	0.03
Rental price of capital	0.02
Employed workers	0.01
Unemployed workers	0.00
Capital stock	0.02

Source: Industry Commission, ORANI model simulation.

The reduction in workers' compensation premiums increases output in four of the industries where workers' compensation rates are high — mining, utilities,

construction and transport, storage and communication (see Table R.8 and Table R.9). Output in agriculture declines despite its high days-lost because it has a high number of self-employed and a small workers' compensation bill.³ All occupations receive higher real wages. The gain in real wages among professionals and managers and administrators is relatively less than that of other occupations, because workers' compensation premiums are smaller shares of their salaries.

Table R.8 Projected sectoral impacts of a ten per cent reduction in workers' compensation premiums
(per cent)

<i>Industry</i>	<i>Output</i>	<i>Employment</i> <i>(hours)</i>	<i>Unit labour</i> <i>costs</i>	<i>Change in</i> <i>capital stock</i>
Agriculture	-0.06	-0.09	0.10	0.04
Mining	0.05	0.05	0.00	0.05
Manufacturing	0.00	-0.01	0.03	0.02
Utilities	0.01	0.04	-0.03	-0.01
Construction	0.02	0.01	0.04	0.06
Distribution trade	0.01	0.02	-0.02	-0.04
Transport, storage and communication	0.08	0.08	-0.07	0.00
Finance, property and business services	0.02	0.04	-0.05	-0.04
Public administration and defence	-0.01	-0.02	0.14	0.15
Community services	-0.03	-0.04	0.12	0.08
Other personal services	0.02	0.03	0.00	0.01
<i>All industries</i>	<i>0.01</i>	<i>0.00</i>	<i>0.03</i>	<i>0.02</i>
<i>Occupation</i>	<i>Real wage</i>			
Managers and administrators	0.11			
Professionals	0.11			
Para-professionals	0.14			
Tradespersons	0.15			
Clerks	0.17			
Sales and personal service workers	0.18			
Plant and machine operators	0.15			
Labourers	0.14			
<i>All occupations</i>	<i>0.14</i>			

Source: Industry Commission, ORANI model simulation.

³ Farmers who carry disability insurance would also gain through lower premiums on those policies.

Combined labour market effects

Reducing the level of work-related injury and disease has three effects on labour markets. It:

- increases labour supply;
- stimulates the demand for labour by lowering workers' compensation costs; and
- improves the effectiveness of the labour force which can stimulate or dampen the demand for labour.

Their net effect on employment and wages depends on their relative sizes and the elasticity of demand for labour. The elasticity of labour depends in part on labour market flexibility.

The relative sizes of workers' compensation and lost labour can be compared in Table R.9. Workers' compensation premiums are a significantly larger share of labour costs than lost time is of total employment in every industry. The large difference in the relative sizes of the two effects suggests that the economy could absorb the larger effective workforce and larger labour supply without depressing wages.

Table R.9 Share of workers' compensation of total labour costs 1990–91; and of time lost to injury of total workforce 1991–92

(per cent)

<i>Industry</i>	<i>Workers' compensation share in total labour costs</i>	<i>Time lost to injury share in total workforce time</i>
Manufacturing	3.8	0.51
Construction	3.6	0.95
Electricity, gas and water	3.2	0.50
Mining	3.0	0.85
Transport, storage and communication	3.0	0.57
Public administration and defence	2.5	0.56
Wholesale and retail trade	2.0	0.22
Community services	1.9	0.28
Recreation, personal and other services	1.9	0.25
Finance, property and business services	1.0	0.18
Total non-agriculture industries	2.4	0.40

Source: ABS, 1990–91 Labour Costs Australia, and IC estimates based on Worksafe Australia 1993a and PSM survey.

R.2 Resource allocations and the demand for medical services

Injuries create demand for many services. Workers' compensation pays for most of these services. A reduction in the level of workplace injury and disease will not immediately translate into an identical reduction in the demand for workplace injury and disease-related services. The demand for these services comes not only from injury and disease occurring in a given year but also from past years' injury and disease. By the same token, the benefits of reducing the level of injury and disease will accumulate over time. Most of these services are part of the insurance service charge. However, an additional service is included in payments to workers — payments for medical services.

Medical services

Medical services paid through workers' compensation were approximately \$655 million in 1991–92 (see Table R.10), but workers' compensation does not pay for all the medical services of workplace injury and disease. The self employed do not carry workers' compensation insurance. Insured workers may be unaware or unwilling to make a claim even though the injury or disease is work-related. Workers may deem minor injuries to be 'not worth the trouble' of filing a workers' compensation claim. The worker, the doctor, the employer, and workers' compensation authorities may not identify a connection between a disease and the workplace.

There are no direct data to estimate the medical services demanded by injured workers that workers' compensation does not pay. The method used here and explained below renders approximate estimates using transparent assumptions. Admittedly, the estimates are not exact but should indicate general magnitudes. Taken together, the demand for medical services arising from workplace injury and disease is approximately 6.1 per cent of total Australian expenditure on medical services.

The initial workers' compensation estimate was derived as 20 per cent of workers' compensation costs 1990–91 (ABS, Labour costs survey) where 20 per cent was the estimated share of medical expenditures in workers' compensation costs (Industry Commission 1994a). The remainder drew heavily on an ABS survey of injuries in New South Wales to estimate medical expenditures for unclaimed work-related injuries and diseases.

Table R.10 Demand for medical services from workplace injury and disease and total Australian demand for medical services

<i>Medical costs by injury type</i>	<i>Expenditure</i>	<i>Share of total Australian medical expenditures</i>
	<i>(\$ million)</i>	<i>(per cent)</i>
Workers' compensation claim injuries	655	3.8
Compensable but unclaimed injuries	248	1.4
Injuries to the self employed	121	0.7
Short term injuries	29	0.2
Total costs of work related injury or disease	1 053	6.1
Total Australian expenditures on medical services	17 374	100.0

Source: IC estimates based on ABS, PSM, Worksafe Australia and South Australian Workcover data.

To calculate costs for the self employed, it was assumed that their profile of injuries and hence demand for medical services were similar to worker's compensation injuries. Consequently, since eight per cent of all injuries were to the self employed and 41 per cent of all injuries were claimed through or had a claim pending at workers' compensation, the expenditures by the self employed were about 20 per cent of that of workers' compensation.

The medical expenditures on unclaimed injuries and diseases were separated into two parts. The first part pertains to the injuries requiring more than five days off work and not occurring to the self employed. Approximately 15 per cent of all injuries fell into this category. Assuming the expenditures on these injuries were similar to those claimed injuries, then the unclaimed costs were about 37 per cent of workers' compensation expenditures.

The second part pertains to injuries that resulted in fewer than five days off work, were not claimed and were not to the self employed. Approximately 40 per cent of all injuries fell into this category. The total cost was South Australia Workcover Corporation's estimate of medical expenses for the lesser injuries times the number of injuries that would occur if the underlying NSW frequency applied to the Australian workforce.

A simulation tested a hypothetical ten per cent reduction in the demand for injury-related medical and hospital services (a 0.61 per cent reduction in the expenses of medical and hospital services), following a long-term ten per cent decrease in the level of workplace injury and disease. This involves computing the initial changes in consumers' demand and the government's demand (Medicare) for the medical services through the shift variables that appear in the equations on consumers' and on government's demand.

The simulation results indicate that the resulting impact on real GDP is small, at 0.02 per cent (see Table R.11). Resources released from the consumption of medical and hospital services flow to satisfy stronger investment and export industries. Output in most industries rises slightly.

Table R.11 Projected aggregate impact of a ten per cent reduction in the workplace injury and disease demand for medical services

<i>Aggregate variable</i>	<i>Change in per cent (unless stated otherwise)</i>
Real GDP	0.02
Exports	0.08
Imports	0.04
Balance on trade (\$m)	32.12
Terms of trade	-0.01
Real wage rates	-0.01
Unit labour costs	-0.01
Rental price of capital	-0.01
Employed workers	0.00
Unemployed workers	0.00
Capital stock	0.05

Note: Modelled as a 0.61 per cent decrease in the demand for medical services.

Source: Industry Commission, ORANI model simulation.

The general industry effect of the reduction in the demand for medical services is to shift resources from the health industry (contained in community services) to other industries (see Table R.12). Output in community services declines by 0.19 per cent reflecting a contraction of 0.70 per cent in the health industry. These results illustrate why the increase in GDP understates the increase in welfare. GDP does not distinguish between spending on medical services and spending on anything else. Therefore it cannot account for the increase in welfare embodied in fewer injuries and the resulting smaller demand for injury services. It merely records the 0.02 per cent increase.

Among occupations, professionals, para-professionals (for example, doctors and nurses) and labourers experience real wage reductions. This suggests that decreasing the demand of injured workers for medical services reduces the cost of all medical services.

Table R.12 Projected sectoral impacts of a ten per cent decline in the workplace injury and disease demand for medical services

<i>Industry</i>	<i>Output</i>	<i>Employment (hours)</i>	<i>Unit labour cost</i>	<i>Change in capital stock</i>
Agriculture	0.03	0.02	0.01	0.03
Mining	0.05	0.04	0.00	0.05
Manufacturing	0.05	0.04	0.02	0.05
Utilities	0.03	0.06	-0.03	0.03
Construction	0.05	0.04	0.01	0.05
Distribution trade	0.04	0.04	0.00	0.04
Transport, storage and communication	0.06	0.06	-0.01	0.06
Finance, property and business services	0.10	0.04	-0.02	0.10
Public administration and defence	-0.03	0.01	-0.03	-0.03
Community services	-0.19	-0.18	-0.06	-0.19
Other personal services	0.07	0.07	0.00	0.07
<i>All industries</i>	<i>0.04</i>	<i>0.00</i>	<i>-0.02</i>	<i>0.04</i>
<i>Occupation</i>	<i>Real wage</i>			
Managers and administrators	0.03			
Professionals	-0.04			
Para-professionals	-0.19			
Tradespersons	0.05			
Clerks	0.00			
Sales and personal service workers	0.02			
Plant and machine operators	0.04			
Labourers	-0.01			
<i>All occupations</i>	<i>-0.01</i>			

Note: Modelled as a 0.61 per cent decrease in the demand for medical services.

Source: Industry Commission, ORANI model simulation.

R.3 Health as a resource loss

Increases in GDP and decreases in the demand for medical services indicate that society is better off with safer workplaces, but they understate the resource gain in the improved health of the workforce. Calculating a monetary value for the loss of good health is problematic. Payments for pain and suffering compensate the injured worker, but there is no guarantee that sufficient compensation is made. If injured workers (or their families, in the event of death) do not receive adequate compensation then estimates of the reduction in maim and pain and suffering payments will underestimate the welfare gain from reducing the level of injury and disease in the workplace. Furthermore, the general argument remains that even if a worker is 'no worse off', the two states — maimed with

compensation and not maimed, for example — are not the same. Society prefers the latter.

R.4 Economy-wide gains of reducing the level of work-related injury and disease

Reducing the incidence of workplace injury and disease will increase labour effectiveness and the supply of labour. It will also lower workers' compensation premiums and reduce the demand for medical services. The economy-wide gains of that reduced number of injuries and diseases is modelled as the net effect of those four things. In particular, the results of a ten per cent decrease in the incidence of workplace injury and disease is reported here (see Table R.13 and Table R.14).

Increased labour effectiveness and lower workers' compensation premiums affect real wages most — they increase by 0.16 per cent. Greater labour supply, greater labour effectiveness, lower workers' compensation premiums, and the freed-up resources from medical services increase Australia's competitiveness, increasing exports by 0.21 per cent or \$173 million. Real GDP increases by 0.08 per cent. Thus the gain is small compared to the whole economy, but it is a gain of \$339 million.⁴ From an injury-based perspective, avoiding the "average" injury increases GDP by \$13 000.⁵ For an idea of the effect of injury severity on lost potential GDP, each day away due to injury costs \$495.

Across industries, mining still receives the biggest boost from the reduced number of workplace injuries and diseases. Community services declines in output and employment, but this mainly reflects the smaller demand for medical services that results when there are fewer workplace injuries and diseases. Real wages increase for all occupations except for para-professionals. Their real wages decrease despite being an occupation with higher days-lost per worker per year because the contracting health sector tends to reduce the demand for para-professionals (such as nurses).

⁴ In the Draft Report the Commission estimated that a 10 per cent reduction in work-related injury costs would produce an increase in real GDP of \$423 million. The Final Report estimate of \$339 million is lower because of refinements in the data and in the structure of the ORANI model.

⁵ This estimate differs from the Work, Health and Safety draft report estimate for two reasons. First, simulations were conducted using a more recent data base. Consequently, the increase in GDP was less using the new data base. The workforce in the more recent data base was larger thus increasing the number of injuries in the calculation of dollars per injury. Second, the estimated number of short term injuries increased, reflecting the year-long PSM survey, as against the one quarter result in the Work, Health and Safety draft report. Short term injuries are less costly thus reducing the costs of the average injury.

Table R.13 Projected aggregate impacts of a ten per cent reduction in the incidence of injury and disease

Aggregate variable	Change			
	Per cent	\$m dollar ^a	\$/injury ^b	\$ per day away ^c
Real GDP	0.08	339	13 000	495
Exports	0.21	173	7 000	250
Imports	0.09	76	3 000	110
Terms of trade	-0.01	na	na	na
Real wage rates	0.16	na	na	na
Real unit labour cost	0.05	na	na	na
Rental price of capital	-0.02	na	na	na
Employed workers	0.02	na	na	na
Unemployed workers	0.00	na	na	na
Capital stock	0.14	na	na	na

a Calculated using 1993–94 values (ABS).

b Calculated as total divided by (1993–94 employed workforce times ten per cent of 1991–92 Worksafe incidence augmented by the PSM survey).

c Calculated as total divided by (1993–94 employed workforce times ten per cent of average days–lost) (1991–92 Worksafe augmented by the PSM survey).

Note: As a combined effect of labour supply, labour productivity, workers' compensation and medical services.

na Not applicable.

Source: Industry Commission estimates based on ORANI model simulation and ABS, Worksafe and PSM survey data.

Agricultural output does not increase significantly, despite this being a high injury industry. This is because agriculture has a low workers' compensation bill. In other sectors, a reduction in injuries leads to a reduction in workers' compensation costs and an increase in workers' salaries, given that employers' combined wage-compensation bill remains constant. Employers in the agriculture sector face pressures to match these general wage increases, but this lifts labour costs in agriculture. The negative effect of higher wage costs on output largely offsets the output-expanding effect of the higher labour productivity which resulted from fewer injuries.

It is impossible to assess and quantify all of the pertinent effects of workplace injury and disease. Where data are available for a few cost components, ORANI can lend itself for simulating plausible estimates. Those figures shed light on how much the economy would gain in creating safer workplaces.

Table R.14 Projected impacts of a ten per cent reduction in the incidence of injury

<i>Industry</i>	<i>Output</i>	<i>Employment (hours)</i>	<i>Unit labour costs</i>	<i>Change in capital stock</i>
Agriculture	0.01	-0.07	0.15	0.10
Mining	0.19	0.17	0.05	0.19
Manufacturing	0.11	0.05	0.05	0.13
Utilities	0.09	0.10	-0.04	0.05
Construction	0.12	0.02	0.05	0.08
Distribution trade	0.08	0.10	0.07	0.13
Transport, storage and communication	0.20	0.14	-0.03	0.12
Finance, property and business services	0.13	0.08	-0.02	0.15
Public administration and defence	0.01	-0.06	0.12	0.12
Community services	-0.22	-0.23	0.10	0.04
Other personal services	0.12	0.11	0.07	0.18
<i>All industries</i>	<i>0.08</i>	<i>0.01</i>	<i>0.05</i>	<i>0.11</i>
<i>Occupation</i>	<i>Real wage</i>			
Managers and administrators	0.18			
Professionals	0.10			
Para-professionals	-0.01			
Tradespersons	0.22			
Clerks	0.19			
Sales and personal service workers	0.25			
Plant and machine operators	0.21			
Labourers	0.13			
<i>All occupations</i>	<i>0.16</i>			

Note: As a combined effect of labour supply, labour productivity, workers' compensation and medical services.

Source: Industry Commission, ORANI model simulation.

S RESEARCH AND INFORMATION SYSTEMS

Research in the field of workplace health and safety is important in order to inform employers and their workers about the causes and consequences of workplace injury and disease. Statistical information is also important — as input into research and for analysis of performance.

S.1 Research

Research is the creation of knowledge — the endeavour to discover new facts by scientific study of a subject. The creation of knowledge in the field of occupational health and safety is important for a number of reasons. There is a need to inform employers and workers about the causes and consequences of work-related death, injury and disease. Research can play a critical role in this, particularly in the case of occupational diseases.

Research also provides crucial information to government policy makers. For example, it can help policy-makers formulate preventive programs by providing information on industries or occupations that may need special targeting of workplace health and safety strategies. Research is also needed to assess the effectiveness of preventive strategies already in place.

According to Worksafe Australia, about \$10 million is spent on occupational health and safety research annually (sub. 50, p.116). The majority of occupational health and safety research is funded through government and semi-government agencies, although some industry organisations, particularly those associated with the coal industry, also fund workplace health and safety research (see Table S.1).

Research programs

Most organisations that fund occupational health and safety research have established research programs (existing arrangements are described in Attachment S1).

The main research institution, both in terms of research expenditure and research staff is the National Institute of Occupational Health and Safety (NIOHS) (within Worksafe Australia). The Institute is responsible for two main

occupational health and safety research programs — the Intramural Research Program and the Extramural Research Grants Scheme.¹

The New South Wales and South Australian occupational health and safety agencies both have research programs. The responsible occupational health and safety agency in Queensland undertakes research on a needs-only basis. The research projects funded by these agencies are undertaken by researchers (individuals or institutions) either through contracting out or grants arrangements.

Many professional, industry and employee organisations also undertake or fund workplace health and safety research. For example, the Joint Coal Board Health and Safety Trust and the Australian Coal Association have established research programs. The Trust is occupational health and safety specific whereas the Association operates a general research program that has a occupational health and safety component.

With the exception of the BHP Special Research Program (a general research program which has been used to fund workplace health and safety research), the Commission found very little information on research programs or specific research projects undertaken by private business. The NIOHS research survey (1994a) indicates that a small number of research projects are undertaken by private business — many jointly. Anecdotal evidence suggests that businesses do not undertake specific workplace health and safety research, instead, workplace health and safety issues may be included in other applied research.

Higher education institutions fund and undertake workplace health and safety research. The research survey listed a number of workplace health and safety research projects being undertaken by staff and students of various universities. The survey results highlighted that higher education institutions have the largest share of occupational health and safety researchers — some 120 out of 308 (NIOHS 1994a, p. 43). Many of the projects undertaken within universities are funded by government OHS agencies.

Funding

According to Worksafe, about \$10 million in total was spent on workplace health and safety research in Australia in 1993–94. Over \$4 million of these

¹ A number of inquiry participants were supportive of the Institute's research programs, including the National Association of Testing Authorities Australia, Australian Institute of Health and Welfare, Australian Salaried Medical Officers Federation, Australian Environmental Health Services, Morganite Insulating Products, Asbestos Removal Contractors Association, Carborundum Resistant Materials, Wyatt Consultants, David Caple and Associates, Woodward-Clyde, M. Nevill MLC, S. Marr and Dr P. Lay.

funds was administered by the National Institute, including the extramural research program. The New South Wales WorkCover Authority and the South Australian WorkCover Corporation, respectively provided about \$1 million and \$0.7 million in 1993–94 for workplace health and safety research. The Queensland Department of Employment, Vocational Education and Industrial Relations (DEVETIR) funds research worth about \$200 000 annually. The other States and Territories do not fund occupational health and safety research (see Table S.1).

Most government agencies fund their occupational health and safety research activities by provisions made through budget appropriations, such as the National Institute. NSW WorkCover Authority uses funds received from workers' compensation premiums. Research undertaken by the South Australian WorkCover Corporation through the Mining and Quarrying OHS Industries Fund is funded from income earned on investments (see Attachment S1 for further details).

Some funds are made available by industry and employee organisations. These organisations tend to fund research activities through membership fees, specific levies and interest earned on investments. For example, funding for the Australian Coal Association Research Program comes from a levy of five cents per tonne on black coal.

The bulk of research funding for higher education institutions is provided by the Commonwealth Government, however, the Commission is unclear as to what proportion this comprises of total current research expenditure. Unpublished information provided by the Australian Bureau of Statistics for 1990–91 indicate that about \$2.5 million in workplace health and safety research and development expenditure was attributable to higher education institutions.

The extent of funds being invested in workplace health and safety research projects by private business is not readily determinable.

Determining research priorities

With the limited resources available for workplace health and safety research, it is important that funds are targeted to the areas of greatest need. This is particularly important for research funded from annual grant arrangements, where topics are not necessarily identified on a needs-only basis. This is recognised by many of the OHS research funding bodies in Australia, including government agencies. Many undertake a process of analysing various sources of data and gathering responses from industry, employer and other interested parties before committing funds to specific research projects.

Priority topics for research conducted by the National Institute and funded through the extramural research program are based on pre-determined priorities as set out in the *National Research Strategy for Occupational Health and Safety* (1993) (see Box S.1). The priorities were initially determined by the National Occupational Health and Safety Commission (NOHSC) through an analysis of national workers' compensation-based statistics and on the advice of the tripartite members and National Institute research staff (a list of the priority areas are provided in Attachment S1). In addition to the seven priority areas, NOHSC recently identified priority industries for occupational health and safety research as a way to encourage applied research projects that specific industries will benefit from (see Table S.1).

The occupational health and safety research grants programs conducted by the New South Wales and South Australian governments are also guided by pre-determined priority setting, and the Queensland Government funds research on a needs-basis. Prioritisation under the South Australian government's Research and Education Grants Scheme is also a comprehensive process of analysing various sources of data and receiving comments from interested parties. The Committee administering this fund also considers the research priorities of other government agencies to avoid duplication of research effort.

Industry associations such as the Joint Coal Board and the Australian Coal Association also undertake a process of prioritising research projects.

Research management

Management of NOHSC research is guided by the *Research Management Plan*. The Plan sets out various procedures for managing both the Institute research program as well as the external research program. The Plan provides a systematic process for project management which includes continuous review of progress of projects and reporting results. It also provides guidelines for management of the external program by the National Institute.

State government agencies involved in occupational health and safety research follow a number of procedures for the management of their research projects. The Queensland Division of Workplace Health and Safety follows State legislated rules and procedures governing the contracting of parties to provide government consultancies. This includes competitive tendering arrangements for projects over a certain value.

The Research and Education Grants Scheme, administered through the South Australian WorkCover Corporation, requires that a tripartite project management steering committee be formed for each research project before funding will be approved. The project committee is responsible for overseeing

the progress of research projects, including the provision of quarterly progress reports to the Schemes administrators, who can withhold funds for the next quarter if the project is not progressing satisfactorily.

Table S.1 Organisations involved in the funding of occupational health and safety research, 1993–94

<i>Name of research or administering agency</i>	<i>Research program or activity</i>	<i>Level of funding</i>
National Occupational Health and Safety Commission	National Institute of Occupational Health and Safety and the External Research Grants Scheme	\$4.2 million ^a
WorkCover Authority of NSW	Injury Prevention, Education and Research Grants Scheme	\$957 417 ^b
Queensland Division of Workplace Health and Safety	On a needs-only basis	\$225 000
South Australian WorkCover Corporation		
Research and Education Grants Committee	Research and Education Grants Scheme	\$488 000 ^c
Mining and Quarrying Occupational Health and Safety Committee	Mining and Quarrying Occupational Health and Safety Fund	\$600 000 ^c
Joint Coal Board Health and Safety Trust	Research grants	\$1.4 million
Australian Coal Association	Australian Coal Association Research Program	\$2.3 million
Insulation Wools Research Advisory Board	On a needs-only basis	(up to) \$150 000
Rural Industry Research and Development Corporations and Councils	On a needs-only basis	\$250 000

a About \$451 000 of this was provided for the extramural research grants program.

b Research component only.

c Includes funds allocated for other purposes, such as education and awareness campaigns.

Note: This is not a conclusive list of organisations involved in occupational health and safety research funding. Some funds are committed to research projects which will continue beyond 1993–94.

Source: Worksafe Australia 1994i, p. 53; various submissions, transcripts and personal communication.

Box S.1 The National Research Strategy for Occupational Health and Safety

In April 1993, the National Occupational Health and Safety Commission released the *National Research Strategy for Occupational Health and Safety*. The Strategy had been developed in consultation with members of the tripartite Research Standing Committee and NOHSC. Public submissions were invited after the release of a draft strategy for consideration for the final document. According to Stacey (1993), the development of the strategy had been encouraged by the (then) Commonwealth Minister for Industrial Relations in response to the 1990 Worksafe Australia and Commonwealth Department of Industrial Relations report, *Review of Occupational Health and Safety in Australia*.

According to Stacey, the intention of the Strategy is to 'provide a framework for activities in occupational health and safety research until the end of the decade' (1993, p. 415).

The aims of the Strategy are to:

- provide a national framework for the continuation, promotion and conduct of high quality, relevant and practically oriented workplace health and safety research and statistical development; and
- reduce levels of occupational injury, illness and death in Australian workplaces through communication and promotion of the use of the results of workplace health and safety research in preventive programs.

In particular, the strategy is concerned with occupational health and safety research at a national level and provides ideas, guidance and a framework for decisions about research activities that can be used by individual researchers, industry, trade unions, government operational agencies in the occupational health and safety field and funding agencies. The strategy is not intended as a master plan for all occupational health and safety research. However, the strategy indicates the priorities for Australian occupational health and safety research in the next decade and lists specific plans for coordination and promotion activities within the Worksafe Australia research program (1993, p. 15).

S.2 Statistics

Occupational health and safety statistical information is used primarily by three groups of people. The first category is workplace health and safety professionals, who use workplace health and safety data to undertake research and formulate prevention policy. The second group of people are workers, health and safety representatives and employers who use the information to identify hazards and prevent injury in the workplace. Government OHS agencies are also a major user of OHS statistical information. OHS statistics are

used to target enforcement, and set priorities for funding and resource allocation.

As reported in the Commission's recent inquiry into workers' compensation, there is a dearth of statistics in this area. The Commission expressed concern at this lack of information (1994a, pp. 48–54). The same concerns have been raised again by participants to this inquiry.

The level of injury and disease

Commonwealth, State and Territory workers' compensation statistics

Occupational health and safety agencies across Australia have historically used workers' compensation claims statistics to provide an indication of the extent of the workplace health and safety problem for their respective jurisdictions and to target industries or occupations with particular preventive strategies.

At a minimum, most OHS agencies publish a sub-set of the claims statistics as part of their annual reporting requirements. Some jurisdictions also publish separate workers' compensation statistics with varying levels of detail and analysis. For example, the South Australian WorkCover Corporation publishes annual statistics providing details of the main indicators, such as claims against industry, occupation, duration of absence, and cost of claim details. It also publishes a smaller supplementary publication which includes many minor variables. In a joint publication, the Department of Occupational Health, Safety and Welfare (DOHSA) and WorkCover in Western Australia, publish the 'State of the Work Environment' series. Additionally, most States and Territories also have comprehensive workers' compensation data-bases that contain additional information.²

It is generally recognised that workers' compensation data cannot measure the real level of injury and disease occurring at the workplace with any accuracy. For example, although the 'State of the Environment' series is used as the 'primary means of disseminating information about the occupational health and safety experience of the State', the publication goes on to add that '... the information ... must be viewed as only part of the total picture of the occupational health and safety problem within the community' (White 1990, p. 8).

² On request, the Commission has been provided with a number of special tabulations and other information for this inquiry from these data-bases which were unavailable in a published form.

There are concerns about OHS agencies relying on workers' compensation claims data as the primary source of information to target preventive strategies.

For example, the Northern Territory Trades and Labour Council stated:

It must be recognised that Workers' Compensation claim data does not fully reflect the extent of workplace accidents, injuries, diseases and death (sub. 214, p. 10).

Dr Ellis commented that:

The total reliance by governments on compensation data to drive occupational health and safety decision-making is as inadequate as a lawn-mower engine on a jumbo (sub. 164, p. 2).

Similarly, the Australian Nursing Homes and Extended Care Association argued that:

These [workers' compensation] statistics are a very poor indicator of what is happening in occupational health and safety for the following reasons:

- they are skewed statistics, [that is] time lapse;
- there is often under-reporting by either employee or employer; and
- they do not record the 'near misses' incidents in the workplace.

(sub. 234, p. 2).

Despite the recognised inadequacies, DOHSWA suggests that workers' compensation statistics are useful for some purposes.

There is sufficient information there for us to establish priorities without ... losing confidence in workers' compensation claims information and ... spending a decade ... sorting out what other indicators we should use ... (transcript, p. 2281).

Workers' compensation data does not show the full extent of work-related injury and disease for a number of reasons:

- the self-employed and volunteer workers are excluded;
- injuries or diseases which do not result in successful claims are excluded;
- occupational accidents or diseases where no compensation claim is made are not included; and
- occupational disease, particularly those with a long latency period, will be poorly covered.

There are a number of industries that, because of the high level of self-employed persons, are under-reported by workers' compensation data. According to the DEVETIR, about one-fifth of the workforce are self-employed (sub. 79, p. 35). The Queensland Farmers' Federation noted that about 70 per cent of the rural industry is not covered by workers' compensation arrangements (sub. 102, p. 3).

According to Davidson, 'it is difficult, and risky, to assume that self-employed people will have the same injury and (or) illness pattern as employed workers' (cited in Hegney 1993, p. 30).

A number of studies have found that there is a high degree of non-reporting of workplace injuries and disease. A 1993 NSW WorkCover survey (ABS 1994a) found that 53 per cent of workers who indicated that they had suffered a work-related injury or disease in the past year had not claimed workers' compensation. Studies also show that migrant workers claim at a lower rate than Australian-born workers (see Box S.2).

Box S.2 Migrant workers: under-reporting of injuries and disease

There is evidence to suggest that there is greater under-reporting of workplace injuries and diseases incurred by non-English speaking background (NESB) workers compared to English-background workers. A recent NSW WorkCover survey (ABS 1994a) revealed that under-reporting of workplace injuries and illnesses for NESB workers was 5 per cent higher than for English-speaking background workers. Reasons provided for not reporting a workplace injury or illness include:

- not aware of any workers' compensation benefits;
- did not think eligible;
- afraid of possible retrenchment or dismissal; and
- concerned about what others might think.

The Factory Information Project (for NESB workers) (cited in sub. 69 and 77) confirms that many NESB workers do not make claims at the same rate as other workers, for similar reasons as stated above. Similarly, a 1992 study by the Adelaide Working Women's Centre on musculo-skeletal injury among NESB women found that the main reason for widespread delays in reporting injuries among this group of workers was a fear of victimisation or dismissal (cited in sub. 144, p. 4).

Given a reluctance by NESB workers to report workplace injuries or illnesses, poorer performing workplaces may go unnoticed.

It is generally agreed that workers' compensation data are not a good indicator of work-related disease. The DEVETIR commented that:

The long latency of many work-caused diseases and the difficulty in diagnosing work-relatedness result in significant disparities between work-related disease incidence and the number of claims lodged with workers' compensation (sub. 79, p. 35).

In a recent study by the Queensland Division of Workplace Health and Safety, workers' compensation data in Queensland was found to underestimate the incidence of work-caused cancer by 97 per cent. Worksafe Australia provided a figure of 5 per cent for mesothelioma cases, and added that it is 'a stark illustration of the limitations of this database for occupational health and safety disease statistics' (sub. 50, p. 139).

Although some OHS agencies have provided no indication that they have taken steps to overcome some of the above problems with workers' compensation claims data, others, like DEVETIR, are attempting to address the problems. They are using a number of strategies aimed at supplementing the workers' compensation data from other sources (sub. 79, p. 36). These strategies include:

- the establishment of data collection systems in conjunction with general practitioners, hospitals and other health providers;
- conducting specific purpose surveys, for example, Rural Fatalities Study and the Rural Injury Survey;
- using a random audit program to collect compliance data which can predict levels of compliance in particular industries or workplaces and decide on targeting priorities; and
- monitoring industry, workplaces and work practices which have been identified in external research as likely to put persons at risk.

The New South Wales WorkCover Authority commissioned the Australian Bureau of Statistics to undertake a survey for them in late 1993. The objectives of the *Work-related Injuries and Illnesses Survey* (ABS 1994a) were to:

- assess the level of awareness of workers to their compensation rights when injured at work;
- quantify the level to which workers' compensation is not sought by those injured at work; and
- determine whether rehabilitation had been undertaken by injured workers.

This survey is another example of the type of strategies available to help understand the limitations of the current data.

National workers' compensation data collection

National data is collected by the Institute of Occupational Health and Safety on behalf of NOHSC. When it was established in 1985, one of NOHSC's statutory responsibilities was the collection, analysis and dissemination of national occupational health and safety statistical information. The rationale for the establishment of the National Data Set (NDS) was 'to assist in the prevention of

occupational injury and disease by the establishment of uniform national statistics that are timely and comparable' (NOHSC 1987, p. 9).

Worksafe Australia added that:

Reliable data assists the National Commission to meet its objectives of developing more relevant national occupational health and safety policies and priorities, as well as enabling the more appropriate targeting of preventive strategies for industry and the establishment of research priorities (sub. 50, p. 136).

The NDS comprises mainly workers' compensation claims data. According to Worksafe Australia, workers' compensation statistics were considered at the time to be the most attractive information source in terms of scope and coverage, ease of collection, and cost (sub. 50, p. 136).

Governments initially decided on a consistent set of data items of workers' compensation data for inclusion in the NDS because of the variations in workers' compensation schemes across jurisdictions — hence the type of information collected and the problems posed for comparability. Discussions on a consistent data set began in 1985 and through on-going consultative processes a standard set of data items, concepts and methods for the collection of workers' compensation data was agreed to by the Commonwealth, States and Territories in 1987, known as the *National Data Set for Compensation-based Statistics*, or NDS.

The statistics are provided by the Commonwealth, States, Territories, and some self-insurers to Worksafe Australia on a yearly basis. National statistics were first published by Worksafe Australia in a 'consistent' format in 1994, for 1991–92 claims data.³ According to Worksafe Australia, data for 1992–93 should be available in late 1995.

However, the NDS is generally perceived as an inadequate source of information on the level (and cause) of occupational health and safety in Australia. Although many participants cited concerns about the inadequacies of workers' compensation data in general, others are concerned about additional problems with the NDS. These are:

- the data-set is not complete;
- injuries and diseases resulting in less than five days off work are not recorded (less than ten for Victoria);
- workers employed under the Seafarers Act are not included;
- variations in claimable cases across schemes result in differences in coverage;

³ See Worksafe Australia (1994c).

- a number of important variables are not included in the data-set; and
- the categorisation of the nature of the fatality, injury or disease is of limited use in describing the cause of the occurrence.

Since the inception of the NDS, a major problem for Worksafe Australia has been its ability to obtain the data required from the workers' compensation authorities. For example, the 1991–92 NDS excludes Australian Capital Territory data as it was not available at the time of preparation of the compendium, and according to Worksafe Australia the information will not be available until 1995–96 (sub. 50, p. 138). Data from Victoria, Queensland, Comcare and the Northern Territory is excluded from a large part of the analysis as they failed to provide data that was coded according to the agreed classification system for all items.

During the preliminary stages of establishing the NDS, NOHSC recognised the importance of gaining commitment from the workers' compensation agencies:

For implementation of a national statistical collection to be successful, agreement must be reached between the respective areas (1987, p. 59).

The above problems suggest that some years on, commitment to the NDS has not been achieved from all jurisdictions. The Australian Chamber of Commerce and Industry (ACCI) comments that:

Despite the fact that NOHSC debated, agreed to and endorsed a 'National Data Set for Compensation-Based Statistics' implementation of the data set by the States and Territories has been slow and sporadic (sub. 133, p. 64).

An additional problem is the time taken to compile and publish the data-set — the 1991–92 statistics were not available until May 1994. The failure to provide data in a timely manner suggests that the States and Territories have little use for national statistics. In fact, the Health and Safety Organisation of Victoria (formerly the Occupational Health and Safety Authority) argued that the most important source of information on occupational health and safety is in the workplace. They stated that:

Collection and analysis of data within workplaces is more important in the long-term than any national or State database, as it is on the basis of this that real changes in occupational health and safety practices can be made (sub. 176, p. 31).

Worksafe Australia also indicated that an additional problem for them is that they are constrained by the time taken to get denominator data from the Australian Bureau of Statistics (sub. 50, p. 143).

Under the agreed NDS criteria, claims of less than five days duration (or ten in Victoria), are not included. This is a major omission as it means that minor injury occurrences or ongoing problems that only require a few days off at any

one time are excluded. It also represents the exclusion of a significant number of claimants. For example, Pioneer believed that 80 per cent of lost-time injuries were claims of less than five days duration (sub. 15, p. 5). Similarly, DEVETIR noted that since the Queensland scheme pays benefits from the day following injury, its claims records indicate that over one-third of claims lodged are excluded from the NDS (sub. 79, p. 37).

Across the jurisdictions, the different schemes vary in the admissibility of certain deaths, injuries and disease. This also reduces comparability. For example, the Victorian scheme allows claims for deaths resulting from heart disease that occur at work. The result is that it has the highest total number of work-related fatalities recorded for any jurisdiction. Similarly, the Tasmanian scheme does not allow deafness claims at all, while other schemes require a threshold of hearing loss before claims are successful.

In the Workers' Compensation report, the Commission made the following comment about the NDS:

The variety of statistics collected make it impossible to draw meaningful comparisons on occupational health and safety performance between jurisdictions, or even over time within a single jurisdiction. Lack of comparable measures of performance hinders 'benchmarking' within Australia (1994a, p. 53).

As indicated, non-uniformity across jurisdictions makes the NDS irrelevant for trying to measure occupational health and safety performance across Australia.

The usefulness of the NDS is also limited by the omission of important variables from the data-set. For example, employer size and ethnicity data was initially included in the list of data items, but no jurisdiction has yet provided this information to Worksafe Australia. With regard to ethnicity, Worksafe Australia commented that:

Current policy in some jurisdictions is not to collect this information for a variety of reasons including the sensitive nature of the information, potential for the data to be used for discriminatory purposes and major reservations about the quality of the reporting of the data items by injured workers and consequent misuse of resultant data (sub. 50, pp. 138–39).

Other important items excluded from the NDS include: hours of work, permanency of employment, working arrangements, employment experience in present position, and use of relevant protective clothing. The Commission has had first hand experience in trying to overcome these types of omissions in answering its terms of reference. These data items are important inputs for determining differences in workplace and workforce characteristics and to develop relevant workplace preventive policy — reflecting some of the difficulties that researchers and policy-makers have in trying to understand workplace health and safety among different groups of workers.

When agreement was being reached to establish the NDS in 1987, NOHSC recognised the potential inadequacies with the data-set and indicated that other data sources would also have to be tapped. NOHSC stated that:

To supplement ongoing data collection activities, it is acknowledged that there is a need for *ad hoc* or other regular data collections to be undertaken (1987, p. 6).

It appears that some years on, little has been done by NOHSC to overcome these deficiencies. Worksafe Australia stated in their submission to this inquiry:

Data is required to augment the workers' compensation statistics as these statistics provide only a partial picture and can sometimes result in a distorted view if the statistics are not interpreted carefully (sub. 50, pp. 141-42).

Given the problems with the NDS many participants were not supportive of it. For example, the Mr Phillips of the Curtin University of Technology state that:

The national statistics are limited because they must cater for the 'lowest common denominator' which is determined by the workers' compensation provisions in the states (sub. 34, p. 5).

Similarly, the MSB Hunter Ports Authority argued that:

... current statistical information is inadequate. ... This not only places doubt on current industry and national control priorities but also lulls the various industries into a false sense of achievement and security. The need for consistent, accurate and timely information, that is information on what is occurring now, not what has happened three years ago must be a national occupational health and safety priority (sub 87, p. 4).

The Victorian Institute of Occupational Safety and Health (VIOOSH) summed up the problem in saying that:

... the new national data set ... in my professional opinion isn't really going to do a great deal other than standardise the data between states. We will now be able to get fairly inaccurate nationalised data as opposed to being able to compare inaccurate data from the states (IC 1994a p. 51).

All parties, including Worksafe Australia, acknowledge that the NDS has a number of significant limitations. However, this is not to say that the NDS does not have some positive aspects. For example, it facilitates some jurisdictional comparisons and the relatively comprehensive analysis of specific industry classes.

A number of participants expressed support for the on-going collection of workers' compensation data. For example, DOHSWA stated that:

While there are limitations associated with data derived from workers' compensation systems, DOHSWA advocates continued development of this source of information. Debate over the limitations of workers' compensation data ... should not obscure the wealth of information available through workers' compensation data (sub. 222, p. 10).

And the ACCI commented that:

Despite the deficiencies of workers' compensation data as a mechanism for obtaining an accurate description of Australia's occupational health and safety performance, they are the best, most convenient mechanism available to get the National picture. The full implementation of the National Data Set is therefore essential to underpin this (sub. 133, p. 66).

Sources of supplementary data

Although there appears to be a great deal of reliance on workers' compensation data, a number of other sources of workplace health and safety data have been used in the past to supplement current collections. A number of participants were supportive of further study being undertaken on these alternative data sources to determine their feasibility as on-going sources of workplace health and safety information. These data sources include:

- disease and cancer registries;
- hospital in-patient and casualty department records;
- coroner's records; and
- various surveys.

Disease and cancer registries

The Australasian Faculty of Occupational Medicine commented that, with the exception of the Australian Mesothelioma Register, Australia lags significantly behind many overseas countries as it does not have any comprehensive systems in place to adequately record or analyse patterns of occupational disease (sub. 233, p. 1).

Each State has a cancer registry. It requires doctors to report all cancer cases to the relevant registry where the data is then compiled. An example is the South Australian Health Commission's Central Cancer Registry, which began publishing annual epidemiological data on incidence, mortality and survival by type of cancer in 1977. However, cancer registry information is limited because occupational history is not required to be collected.

The National Institute of Occupational Health and Safety has responsibility for the Australian Mesothelioma Register. It relies on notification of mesothelioma cases from State and Territory cancer registries, pathologists, clinicians, occupational physicians, hospitals and government divisions of occupational health.

Hospital records

Some participants have suggested that better use could be made of hospital information systems for extracting data on workplace injuries and diseases.

However, this source is presently limited for workplace health and safety purposes as there is little consistency across hospitals as to the type of information collected. Professor Cross commented that hospital records do not have to include how injuries occur (sub. 19, p. 3) and DOHSWA stated that:

In spite of a lot of work ... there has been no success in getting basic work-related information on the standard data collection forms in the hospital systems — resistance to additional costs and those sorts of things (transcript, p. 2285).

The compilation of a number of hospital's records is currently undertaken by the National Injury Surveillance Unit in South Australia (NISU). A database has been established which stores injury records forwarded to it by the Accident and Emergency Centres of a number of participating hospitals. However, workplace injury is only a subset of this information.

Coroner's records

Coroners investigate deaths that involve violence, unnatural or sudden deaths of which the cause was not known. Coroner's records could therefore provide a major source of information on death in workplaces. However, according to a recent study completed by National Injury Surveillance Unit (NISU), there are a number of general problems with the present collection:

Current coronial information systems are not able to provide the quality of information or efficient access to information which is required by both the coroners and major users of coronial data. They are mainly paper-based, have few systematic ways of indexing data and vary in terms of detail and quality of information (1994 p. i).

An additional problem is that work-related traumatic death is not distinguished from non-work deaths. This reduces the usefulness of this type of data as it is very time consuming to analyse every unit record to determine its relevance for workplace health and safety research.

Despite these problems, two useful studies of different coronial information have been examined for occupational health and safety purposes. The first is Worksafe Australia's Work-related Traumatic Fatality Study based on coroner's records from 1982 to 1984 (Worksafe Australia is currently repeating the study for the 1989–92 period). The second examination of coroner's records was based on Queensland data from 1985 to 1993. Its purpose was to seek more information on the incidence and causes of farm fatalities and was undertaken by the Queensland Division of Workplace Health and Safety.

An investigation into the feasibility of a national collection of coroners records by NISU (and part-funded by Worksafe Australia) recommended that a national coroner's database be developed during 1995–96. NISU also recommended that the Australian Coroner's Society, 'in conjunction with specialists with an

interest in particular causes of death, design standard investigation and recording protocols for significant classes of death' (1994 p. ii). A meeting of representatives of coronial jurisdictions and major user groups endorsed the recommendations of NISU in late 1994.

Surveys

A number of surveys have been undertaken over the past few years which add varying degrees of knowledge to the understanding of workplace health and safety in Australia. Some surveys have been quite specific, like the NSW WorkCover commissioned survey, *Work-related Injuries and Illnesses*, New South Wales, October 1993, and the Plastics and Chemicals Industries Association, *Survey of Workplace Injuries*, which is conducted on an annual basis and commenced in 1990. For the purposes of providing a better understanding of the level of the occupational health and safety problem in Australia, the Commission has also undertaken, over the course of this inquiry, a quarterly household survey which is reported in Appendix B. Like the NSW survey, the Commission's purpose-built survey was conducted through the Australian Bureau of Statistics.

Some surveys, although not OHS-specific, have the ability to provide some limited information on workplace health and safety in Australia. For example, the *1989–90 National Health Survey* — which is reported in Appendix B. Worksafe Australia acknowledged that the expansion of this survey to obtain more information is potentially worthwhile.

Causes of injury and disease

The causes of a workplace injury or disease is essential information for determining effective preventive strategies.

The causes of workplace injury or disease are largely due to a number of factors — each contributing varying degrees to the final outcome. As Mr Clementine suggested:

Occupational injuries and diseases are caused by a variety of factors ingrained in the engineering system, the environmental system and the managerial system of work (sub. 3, p. 2).

Given the systemic nature of occupational health and safety problems, there is a need to collect information on contributory factors if causality is to be adequately analysed and understood.

According to NOHSC, one of the objectives of the NDS was to facilitate the 'development of more relevant and necessary prevention strategies, principally

through the analysis of the causes of injuries and diseases' (1987, p. 9). When the NDS was established, a coding system to classify the 'cause' of the injury and disease was adopted. The coding system consists of four categories — nature, bodily location, mechanism and breakdown agency. Taken together, they describe the 'type of occurrence'.

However, the information does not describe the actual causes of occupational injury and disease. For example, a workers' compensation claim might describe the type of occurrence as 'a fall from a height'. However, the underlying cause, or contributory factors, of the fall remains unclear — for instance, the claimant may have not been wearing proper footwear or the person may have fallen from a ladder that was knocked over by a passing vehicle.

Many participants agreed that the information collected is inadequate. For example, MEND commented that:

The NDS statistics concentrate mainly on the outcome of the accidents, rather than on the causes. That is, the information is about the injuries rather than the accidents. Data which helps to further elucidate the underlying causes of the injury will have greater usefulness from a preventive point of view (sub. 28, p. 4).

Similarly, the Queensland Farmers' Federation stated that:

... injured body part is recorded and cost but the cause of the injury is not reported. Hence it is difficult to develop prevention programs from this data set as it doesn't provide the profile of injury that needs to be considered (sub. 102, p. 3).

And the CFMEU-Mining Division commented that:

Inquiries into injuries and deaths in coal ... focus on finding a single fault or cause of the particular incident or injury, as do proceedings for damages ... The event is decontextualised — taken out of the industrial, organisational, technical and human context in which it occurred. This prevents a real understanding of causation and the role played by work organisation (sub. 153, p. 8).

A number of studies have also commented on the inadequacy of currently available information to describe causation. For example, Quinlan and Bohle

argued that:

The available evidence on injury causation suggest that is can not be adequately understood in terms of the individualised and technical explanations that are now dominant. There is strong consensus, at least theoretically, between the major disciplines that the social and organisational factors that produce injury deserve much greater recognition (1991, p. 111).

The South Australian Government commented that one of the deficiencies of the NDS has been the inability to detect the significance of emerging ‘non-traditional’ occupational health and safety issues such as violence (sub. 147, p. 56). A number of participants were also concerned about the impact that lifestyle factors may have on occupational injury and disease — such as alcohol and tobacco. This is another aspect of causation that is not adequately dealt with by the NDS.

In an attempt to address the lack of adequate data and knowledge currently available, the Commission engaged a consultant with expertise in this area to prepare a report on the causes of workplace injury and disease. The results of the consultancy, *Occupational Personal Damage Causation: Causes of Occupational Injury, Illness and Disease in Australia* confirm participants’ views that workplace injuries and disease are caused by a number of factors. Findings of the consultancy are presented in Appendix B.

Cost of injury and disease

Work-related injury and disease results in costs being incurred by a number of parties — workers, their families and employer, governments and the community in general (discussed in Appendix C).

There is a paucity of data on the costs of workplace health and safety problems in Australia. Workers’ compensation data is frequently used to estimate the direct cost of workplace injury and disease.⁴ However, there are a number of limitations with this data (as discussed above). Moreover, direct cost estimates only provide a partial measure of all costs associated with workplace problems. Indirect costs, such as those borne by the worker, their family, employer, governments and the community in general are estimated to be at least as large, but very little data presently exists in this area. AMCOR stated that:

Three Australian studies have provided some indirect cost ratio numbers but these are of very limited validity due to restricted initial data, inadequate statistical control, double counting, and hypothetical and arbitrary assumptions (sub. 182, p. 17).

⁴ Direct costs are defined as those costs met by workers’ compensation and insurance. Indirect costs are all other costs.

A number of participants commented that better data and more research in this area is required before a full understanding of the extent of the workplace injury and disease problem in Australia is known. Importantly, cost information can provide an incentive for positive change. For example, MEND argued that:

... information on the indirect cost of injuries are currently not available on an industry wide basis. ... If this type of information can be disseminated within industry, it may change employers views on the cost of prevention. They may begin to see prevention as a more cost-effective strategy than they presently do (sub. 28, p. 3).

Additionally, the costs borne by firms in complying with occupational health and safety regulations is an important factor which firms will inevitably take into account when determining the extent of their fulfilment of obligations under the relevant regulations. Without data on such costs, it is difficult for policy-makers to choose the appropriate regulatory standard.

To date, there has been no effort to estimate the overall cost of compliance with occupational health and safety regulations in Australia, except for some Regulatory Impact Assessments, conducted for individual regulations. Most surveys which have attempted to quantify compliance costs (both in Australia and overseas) have reflected the full cost of the regulatory measures — regardless of the measures already implemented in the absence of these regulations.

Although little information was provided by participants regarding the costs of compliance, some did suggest that there needed to be more compliance cost data collected. For example, the Australian Liquor, Hospitality and Miscellaneous Workers' Union (ALHMU) commented that:

... more research is urgently needed in order to establish a comprehensive database. The database should include direct and indirect costs to industry of implementing regulations as well as the costs of injury or disease to workers, their families, and the community (for example, disability, quality of life, social impact) (sub. 91, p. 12).

Due to the lack of data available in this area, the Commission engaged consultants, Deloitte Touche Tohmatsu to survey firms on the cost of complying with occupational health and safety legislation (see Appendix D).

Workplace injury and disease recording standard

The Workplace Injury and Disease Recording Standard (AS 1885.1–1990) was developed by Worksafe Australia, and approved by Standards Australia. It is only the first part of a multi-part standard, which is yet to be devised. The main

purpose of the Standard is stated as:

... to provide employers with a guide on how to establish a relatively inexpensive and easy to use method of recording information on injury and disease experience at the workplace (Standards Australia, 1990, p. 5).

The objectives of the standard are:

- to provide information on the nature and extent of occupational injury and disease at the workplace;
- to provide a comprehensive set of data for the management of occupational health and safety at the workplace and enterprise level;
- to assist in the efficient allocation of resources;
- to identify appropriate preventive strategies; and
- to provide data to monitor the effectiveness of preventive strategies.

The standard recommends the minimum information that should be recorded by employers on workplace injury and disease. It does not attempt to cover workers' compensation reporting requirements because of the reporting differences between the jurisdictions. Consequently, there are only some areas of overlap between the Standard and the NDS, and where this has occurred, consistency between the two has been maintained. In the case of 'nature of occurrence' information, the Standard has only four broad classifications, whereas the NDS classification is more comprehensive (detailed information on this is provided in Appendix B).

Incidents that resulted in near-misses, or any journey cases, are outside the scope of the standard.

The Standard has been incorporated to varying degrees in Commonwealth, State and Territory legislation. According to NOHSC, New South Wales, Victoria, South Australia, Australian Capital Territory and the Commonwealth have adopted the common essential requirements of the Standard. The Standard is under consideration in Western Australia, but was not recommended in the Northern Territory.

Participants were generally divided as to the usefulness of the Standard.

The Health and safety Organisation Victoria (formerly the Occupational Health and Safety Authority) argued that the most important source of information on occupational health and safety is in the workplace. This source is more important than any national or jurisdiction based database. Consequently, they saw merit in using workplace recording systems such as those recommended in AS1885.1–1990.

The ACCI supported a workplace recording system:

... a workplace recording system is essential to the development of workplace culture that is aware of and concerned with health and safety. Raising awareness that incidents and accidents are occurring and that actions are required to prevent further occurrences is the first step towards the motivation required to effect change (sub 133, p. 68).

However, the ACCI argued that the present Standard was in need of review because it was seen as impractical for small businesses. The ACCI urged the adoption of a standard similar to the one in New Zealand (see Box S.3):

... New Zealand has what appears to be a much simpler reporting standard than we operate here and we have seen material produced by them which is able to be readily made available to enterprises (transcript, p. 3681).

Box S.3 Recording requirements in New Zealand

OHS legislation in New Zealand requires employers to record in an accident register events that harm, or might have harmed, employees and other people in the employer's place of work. Unless the event has resulted in 'serious harm' the register is to be used for internal purposes only.

The register contains a simple one-page form for the employer to fill in after an accident occurs. The information to be recorded includes:

- job description of the injured person;
- what happened to the injured person (for example, 'being hit by moving objects');
- what caused the injury or illness (for example, 'machinery' or 'non-powered hand-tools');
- injured body part;
- nature of injury or disease (for example, 'head injury' or 'puncture wound'); and
- a brief description of where and how the event happened.

Source: New Zealand Department of Labour.

The University of South Australia also commented on the lack of usefulness of the present Standard for industry, and also suggested that the recording of near-misses should be encouraged and formalised.

The Commission acknowledges that there are benefits in workplace injury and disease recording systems. It is important for all at the workplace to know and understand the workplace health and safety problems that are occurring and to

use this information to put in place workplace prevention strategies. However, there appears little incentive for firms to abide by the Standard when the probability of inspection is so low. Additionally, the Standard only requires workplaces to record the required information and retain it for their own purposes at the workplace — there is no mechanism in place to centrally compile the data for it to be available. This reduces the usefulness of such data.

ATTACHMENT S1**EXISTING RESEARCH ARRANGEMENTS****National Occupational Health and Safety Commission**

The *National Occupational Health and Safety Commission Act 1985* establishes the framework within which NOHSC both undertakes and funds external workplace health and safety research projects. Intramural research is undertaken by the National Institute of Occupational Health and Safety (the Institute), a working arm of NOHSC, which also provides administrative support for the extramural research program.

National Institute research program

During 1993–94, expenditure for the Institute’s research program was \$3.6 million (NIOHS 1994b). The majority of this was funded from appropriation money, with a limited amount from funds received for sponsored projects. About two-thirds of this was paid in wages and salaries for the 59 research, technical and administrative staff of the Institute.

In 1993–94, the Institute was working on 52 research projects. Each is managed by one of the seven specialist units within the Institute — Epidemiology and Surveillance, Ergonomics, Human Performance Analysis, Occupational Hygiene and Safety Engineering, Occupational Medicine, Statistics, and Toxicology. According to *Worksafe Australia*, some 40 per cent of Institute research projects are of a multi-disciplinary nature (sub. 50, p. 115).

External research program

The *National Occupational Health and Safety Commission Act 1985*, also established a National Occupational Health and Safety Research Fund. The fund is administered within a framework determined by the tripartite Research Standing Committee (RSC). The fund is vested in NOHSC and administered by the Institute.

External grants awarded during the 1993–94 financial year amounted to \$962 773; this was divided among 15 projects. Previous years’ grants were \$447 584 (five projects) in 1992–93, and \$777 607 in 1991–92. During 1993–94, six final external research projects were received from grants awarded in previous years. *Worksafe Australia*’s external grants program also allows for joint funding arrangements with other agencies.

Scholarships for PhD students have recently been established as a means to improve occupational health and safety research capacity in Australia. Three such scholarships were awarded during 1993–94.

Prioritisation of research

The Research Program conducted by the National Institute, as well as that sponsored through the Research Fund, is conducted according to the priorities identified in the *National Research Strategy for Occupational Health and Safety — a Framework for the Future* which was endorsed by NOHSC in 1993. The strategy recommended that research proposals should focus on the strategic directions and priorities formulated by the NOHSC and that the research effort should be focussed on the methods by which preventive actions can be implemented in the workplace.

Based on consultations with industry, unions, State and Territory governments, other interested parties and a call for public submission, the strategy identifies major areas for future research. Major areas for research include:

- improved data describing the ohs situation in Australia to provide a foundation for industry-based prevention strategies;
- regular descriptive surveys of exposure, effects, ohs awareness and attitudes in key industries;
- systematic health and safety monitoring of major exposure groups;
- research on preventive solutions;
- new technologies for biological monitoring;
- new technologies for risk and hazard assessment;
- improvement of workplace environmental monitoring techniques;
- analysis of total exposure from the general and work environment;
- evaluation of the effectiveness of ohs standards and codes of practice;
- evaluation of systems of delivering ohs in the workplace;
- integration of ohs into management systems;
- analysis of the implications of structural changes in the workforce;
- ohs implications of new technologies and new forms of work organisation;
- research on the efficiency of different types of rehabilitation; and
- development and promotion of a methodology for investigating ohs problems.

Management of research

Changes to the way both internal and external occupational health and safety research is managed have taken place recently. This follows a perceived lack of management control in the past, and was highlighted during completion of the National Research Strategy document.

A Research Management Plan, completed in February 1993, outlines the processes and guidelines for managing both the intramural and extramural research programs. Features of the Plan include:

- specific procedures for reviewing the progress of individual projects;
- reporting of results in both a strict scientific manner and in a more popular form to make findings more accessible to the wider occupational health and safety community; and
- multi-level reporting including popular reports and workshop presentations to encourage the adoption of research results by the implementors of workplace health and safety practices to bring about improvement through prevention in the workplace.

The management of internal research projects undertaken by the Institute are directed by a number of guidelines. Initial research proposals are developed by the principal investigator, in line with priority areas, and reviewed by the IRC for scientific merit — except where the total cost is expected to be more than \$80 000 in which case the proposal is reviewed externally. Investigators are also encouraged to seek external funding.

All internal projects are reviewed annually in conjunction with developing the business report, annual report, research report and development of the annual workplan. All continuing projects are subject to separate review of progress after two years by the IRC, with those extending beyond four years requiring a new proposal to be submitted to the IRC.

Priorities for the extramural research program are chosen from the priorities developed under the Research Management Plan. Advice is sought from the NOHSC member organisations and other interested parties in finalising topic selection. Priority research topics for 1995 included: work organisation and performance; improvement of workplace environmental monitoring techniques; evaluation of the effectiveness of OHS standards and codes of practice; OHS problems in small business; occupational rehabilitation; and emerging issues.

Once the topics have been determined, expressions of interest in undertaking research on identified and emerging issues are sought. After expressions are received, RSC members individually assess each proposal and calculate a 'score'. The Institute then ranks the research proposals based on the scores

given. Full applications are then sought from the top rated applicants which are then assessed by independent experts chosen by the RSC. All project assessments (along with all other applications) are then referred to a meeting of the RSC who recommends projects for funding, which then require endorsement by NOHSC to proceed.

The Institute has the responsibility of administering the on-going review process of all external research projects sponsored by NOHSC. Review procedures require that grant recipients submit progress reports — usually linked to the timetable or ‘milestones’ of the research project — which is sent to an external assessor for review. Financial reports are required every 12 months (or less for short-term work) which are reviewed by the Institute’s grants administrator.

The final report is submitted to the Institute for assessment by an independent assessor and returned to the investigator with comments. After finalisation of the project report, the final ten per cent of the total grant is paid. According to the Research Management Plan, projects can be terminated if there seems no likelihood that any part can be completed satisfactorily. Where completed projects are considered to have sufficient merit, NOHSC research funds of up to \$10 000 may be provided to print and distribute the work.

Additionally, a detailed *Annual Workplan* is prepared by the Institute as part of the process of reviewing and planning the research program. The Workplan provides details on each individual research project currently in progress, including background, aims, methods, findings to date and implications for the workplace. It also details work proposed for the forthcoming year. Since March 1992, *Research Updates* have also been written and distributed as a way of informing interested parties about the progress of research projects.

New South Wales WorkCover Authority

The New South Wales WorkCover Authority (NSW WorkCover) conducts, assists and sponsors research into occupational health, safety and rehabilitation and workers’ compensation. Research is conducted by NSW WorkCover for the development of regulations and codes of practice, the preparation of reference material and the conduct of scientific investigations. NSW WorkCover’s Londonderry Occupational Safety Centre and Thornleigh Laboratories also provide research and testing facilities for other organisations and individuals.

In November 1992, a \$2 million per annum NSW WorkCover Injury Prevention, Education and Research Grants Scheme was launched. In 1993–94, almost \$1 million of this scheme — funded from WorkCover premiums — was directed at workplace health and safety research projects.

The NSW WorkCover Authority identifies priority issues as a means of targeting grants, with priority given to industry-based projects. Annual advertisements are placed for expressions of interest according to the priority areas. After initial assessment, full applications are requested from selected researchers. The WorkCover Board has final approval for the allocation of research grants.

Health and Safety Organisation of Victoria

Prior to recent changes, an OHS Initiatives Grants program (established in 1985) operated in Victoria which provided funds for external research projects. However, all grants for 1992–93 were terminated early in 1993. The new Authority (HSO) will not be re-establishing the grants program as it views state-based research programs of minor importance in the field of workplace health and safety (sub. 176, p. 33).

Queensland Division of Workplace Health and Safety

The Division of Workplace Health and Safety has responsibility for conducting occupational health and safety research in Queensland. The Division is within the Queensland Department of Employment, Vocational Education, Training and Industrial Relations (DEVETIR). The structure of the Division provides for a number of Industry Committees who deal with issues specific to their industry (excluding the mining industry). The Committees are comprised of employer, employee, government representatives as well as independent health and safety experts with industry-specific knowledge. Each Committee recommends occupational health and safety research priorities to the Division for their particular industry.

Annual research priorities are advertised and tenders called for as per the normal terms and conditions for the purchasing of consultancy services by Queensland Government agencies. For most research projects, an initial payment of 25 per cent of the total contract price is paid on commencement of the research.

All research is contracted out and funded from budget. About \$225 000 was provided for research in 1993–94. Some of these funds were allocated to applied research projects carried out by Worksafe Australia. The Division has also provided staffing resources for research undertaken by Worksafe Australia.

Publications are produced as part of a strategy to disseminate practical information about workplace health and safety.

Occupational Health, Safety and Welfare Commission of Western Australia

The Department of Occupational Health, Safety and Welfare of Western Australia does not fund any external research, however it does conduct research in its own right from time to time depending on the needs of the Department or Commission.

South Australian WorkCover Corporation

Changes to the management of occupational health and safety in South Australia occurred in 1994. There are now two key agencies for administering occupational health, safety and welfare — the WorkCover Corporation (SA WorkCover) and the Department for Industrial Affairs. One of the functions of SA WorkCover, through its Research and Strategies Department (RSD), is to initiate, undertake, support or promote research projects on workplace health and safety. This function is provided under s. 13(1)(k) of the *WorkCover Corporation Act 1994*.

According to SA WorkCover (1994c), the work of the RSD is distinguished by its focus on the research and development of information systems and on the development and evaluation of occupational health and safety strategies. To date, the authority is not undertaking any specific research projects, either internally or on a contract basis. However, the RSD does have responsibility for administering and promoting the two previously established research committees in operation.

The two research committees are the Research and Education Grants Committee, which administers the Research and Education Grants Scheme; and the Mining and Quarrying OHS Committee, which administers the Mining and Quarrying Industries Fund. Funds provided for these two programs in 1993–94 were about \$0.5 and \$0.6 million respectively — with a component of each going towards research activities.

Research and Education Grants Scheme

The Research and Education Grants Scheme was established by the WorkCover Board in 1988. It is allocated funding of \$525 000 per year to sponsor a range of research, education and other workplace initiatives. Over \$1.7 million in funding covering 21 projects has been provided to a range of organisations under the scheme since its establishment. The scheme is funded from WorkCover premiums.

The Research and Education Grants Committee (REG Committee) recommends to the SA WorkCover Board the yearly priority areas for approval. Priorities are set for industries, occupations, injuries and diseases, and mechanism of accident.

Priority areas for research projects are identified through analysis of SA WorkCover claims data (taking into account the limitations of using this form of data) and consideration of the priority areas identified by Worksafe and the main State and Territory occupational health and safety agencies. Advice is sought from a range of external organisations (for example, unions and employer groups), and through internal consultation. Priorities chosen focus on state-based issues. Expressions of interest for research based on identified priority areas are advertised annually before selection is finalised.

All research projects approved under this scheme are required to form a tripartite management steering committee in order to involve all relevant interests. Each project committee must be approved by the REG Committee. The project committee is then responsible for overseeing the direction of the research being undertaken, including providing quarterly progress reports to the REG Committee. Funds are provided by the REG Committee on a quarterly basis and can be withheld if progress has been unsatisfactory.

Mining and Quarrying Industries Fund

The Mining and Quarrying OHS Committee is a tripartite body which was established in 1989 and reports directly to the Minister for Industrial Affairs. The Committee administers the Mining and Quarrying Industries Fund which has five main strategies: research, training and education programs, provision of information, improvement of statistics and promotion of workplace consultative structures and management arrangements.

The Fund operates similar to the Research and Education Grants Scheme discussed above, with an annual round of grants approved based on identified priority areas.

The Mining and Quarrying Industries Fund (formally the Silicosis Fund) was initially sourced from a fund established during the 1940s to provide workers' compensation to workers in the mining and quarrying industries. Until 1987, funding had also been provided from a levy collected from employers in the industry. This ceased when the *Workers Rehabilitation and Compensation Act 1986* came into force in late 1987. In 1993, the value of the Fund stood at about \$9 million (Mining and Quarrying OHS Committee 1993, p. 3). Interest income from investments (managed by SA WorkCover) is now used as the main source of funding for the annual research grant budget of about \$0.7 million.

The South Australian Government noted that since the establishment of the Committee, project funding has moved away from applied research and education predominantly undertaken by universities, in favour of consultants to work directly with employers on site, such as assisting operators to implement specific codes of practice. Additionally, a Group Health and Safety Service has also been established to help quarry operators implement improved systems for managing occupational health and safety. It is expected that these practical on-site initiatives will be favoured in future over applied research projects for the Mining and Quarrying industries under this particular scheme.

Tasmanian Department of State Development and Resources

The Department of State Development and Resources in Tasmania has carriage of all relevant Acts regarding occupational health and safety and workers' compensation, including those relating to the mining industry. This Department does not fund or undertake research. The Department believed that:

Funding of research and development we believe is better done at a national level and organised there (transcript, p. 1845).

Northern Territory

The Work Health Authority of the Northern Territory does not undertake or provide grants for workplace health and safety research. The Northern Territory government suggested that research opportunities in smaller jurisdictions is limited because of a lack of resources and restricted access to research facilities. They argued that research is 'most effectively carried out at the national level because of economies of scale' (sub. 43, p. 3).

Higher Education Institutions

Higher education institutions collectively account for the largest number of researchers in the field. According to participants, higher education institutions predominantly undertake basic research in the workplace health and safety area. However, a number of institutions do undertake more applied research for projects commissioned by government agencies and industry organisations and the like — such as the Victorian Institute of Occupational Health and Safety within the University of Ballarat.

The bulk of research funding for higher education institutions is provided by the Commonwealth Government via two arrangements — 'block' grants (administered through the Commonwealth Department of Employment,

Education and Training) and competitive grants for selected research projects or programs (administered through the Australian Research Council).

Other agencies

Joint Coal Board Health and Safety Trust

The Joint Coal Board Health and Safety Trust, which was established in December 1991, funds research into the health and safety of coal-mine workers. The Trust is made up of 9 members — 6 trustees who are members of the Joint Coal Board together with 3 non-Board trustees.

Identified priority areas include occupational disease, noise, ergonomics and manual handling. All research is contracted out by inviting applications on suitable projects based on stated priority areas (sub. 84, p. 8). Applications are peer reviewed and rated according to set criteria. Six monthly milestones reporting is expected from the contracted research parties. Research is funded from the interest earned from the trust.

Australian Coal Association

The Australian Coal Association through the Australian Coal Association Research Program (ACARP) has an established research program. The program is funded from a levy on coal producers at five cents per tonne of coal. In 1993–94, over \$9 million was available for general research in the coal industry with about \$2.3 million of this earmarked for workplace health and safety research projects.

The workplace health and safety research projects of the program are determined through a process of priority setting. Priorities have been identified through analysis of workers' compensation statistics — with an emphasis on longer term claims data. The Association is presently developing an occupational health and safety research strategy to assist in future priority setting.

The majority of the funds available for workplace health and safety research are provided through grants arrangements after an advertising and selection process similar to a number of other bodies. Some of the funds are allocated to specific research projects which are contracted out on a needs-basis.

All research projects are managed by a professional research management group — the Australian Mining Industry Research Association (AMIRA). Additionally, all projects have an appointed 'monitor' who is usually from private industry and appointed for the term of the project to oversee progress.

Rural Industry Research and Development Corporations and Councils

The Rural Industries Research and Development Corporations and Councils, collectively provide about \$250 000 for occupational health and safety research projects. The majority of research is contracted out rather than through grants arrangements, however, internal research proposals are considered. Joint research projects are encouraged, with an emphasis on the implementation of the research results.

T INQUIRY DETAILS

The inquiry terms of reference were received by the Industry Commission on 23 May 1994.

An issues paper was distributed to individuals and organisations with an interest in occupational health and safety. The paper defined the scope of the inquiry and raised issues of relevance to the inquiry.

Prior to the start of the public hearings, discussions were held with individuals, organisations and government departments to help the Commission set an agenda for the inquiry. Those visited by the Commission are listed in Attachment T1.

The Commission sought information from State and Territory OHS agencies on their programs. The questionnaires used for information requests are presented in Attachments T2.

Information and advice was also requested from many other organisations. The Commission is grateful for the high degree of co-operation.

Four consultancies were arranged:

- The legal, institutional and industrial relations environment governing occupational health and safety in other countries (Professor Neil Gunningham);
- The degree and cost of compliance with occupational health and safety standards (Deloitte Touche Tohmatsu);
- Request for advice as to Commonwealth Government power to legislate in respect of occupational health and safety (Attorney-General's Department);
- The causes of occupational injury, illness and disease in Australia (Geoff McDonald and Associates); and
- Advice on the duty of care and the practicability test (Dr Richard Johnstone).

The consultant briefs are reproduced in Attachment T3.

In addition, a quarterly household survey is being undertaken by the Australian Bureau of Statistics to measure the level of work-related health problems in Australia. The survey is still in progress.

Two rounds of public hearings were held in all Capital Cities. All those who participated and attended the public hearings are listed in Attachment T4.

ATTACHMENT T1**VISITS AND DISCUSSIONS**

The individuals and organisations visited by the Industry Commission are listed below.

New South Wales

Alcan Aluminium (Kurri Kurri)
AS Nicholas & Co (Stroud)
Association of Consulting Engineers Australia
Australian Building Services Association
Australian Chamber of Shipping Ltd
Australian Stock Exchange Limited
Bazely, Mr. C
BHP Collieries (Cordeaux Mine)
BHP Steel (Port Kembla)
Brooks, Dr A
Comcare Australia
Cross, Prof J
Current Affairs Study Centre
Du Pont Pty Ltd
Electrical Electronic Plumbing and Allied Workers' Union of Australia
Gwynne, Dr H
Hogbin Ercole and Associates Pty Ltd
Hunter Trades Hall Council
Labor Council of New South Wales
Maritime Services Board – Hunter Ports Authority
National Occupational Health and Safety Commission (Worksafe Australia)
National Safety Council of Australia Ltd
Newcastle Trades Hall Council
Pioneer Quarry (Bass Point)
Saxonvale Open Cut Coal Mine (Broke)
South Coast Labor Council
Southern Copper (Port Kembla)
State Chamber of Commerce
Sydney Hospital Occupational Health and Safety Unit
Tomago Aluminium
WorkCover Authority (New South Wales)

Victoria

ASP Ship Management
Australian Chamber of Commerce and Industry
Australian Chamber of Manufactures
Australian Council of Trade Unions
Australian National Maritime Association
Australian Nursing Federation
Australian Shipowner's Association
Australian Workers' Union
Ballarat Base Hospital
BHP Engineering
BHP Health Safety and Environmental Affairs
BHP Petroleum
Borden Australia Pty Ltd
Business Council of Australia
Construction Forestry Mining and Energy Union
Construction Forestry Mining and Energy Union –
Forestry and Forest Products Division
Construction Forestry Mining and Energy Union –
Pulp and Paper Workers Branch
Construction Forestry Mining and Energy Union –
Mining Division
Coburg Injured Workers Association
Creighton, Prof B
Deloitte Touche Tohmatsu
Department of Business and Employment (Victoria)
Dow Chemical Australia Ltd.
Else, Prof D
Health and Safety Organisation (formerly Occupational Health
and Safety Authority (Victoria))
ICI Dulux Australia
Institute for Human Safety and Accident Research (IPSO Australia)
Kemcor Australia Ltd.
Larrson, Dr T (IPSO Australia)
Linfox Distribution Group – Victorian Division
Metal Trades Industry Association of Australia
National Safety Council of Australia
Plastics and Chemicals Industries Association Inc (PACIA)
Shell Australia
Stock Exchange

Teicher, J
Australian National Maritime Association
Trenerry, D
Valcor Australia Pty Ltd
Victorian Injured Workers' Centre
Victorian Institute of Occupational Safety and Health
Victorian Trades Hall Council
WorkCover Authority (Victoria)

Queensland

ARCO Coal Australia Inc
Australian Council of Trade Unions
Chamber of Commerce and Industry
Department of Employment Vocational Education Training and
Industrial Relations
Department of Mines and Energy
Division of Workplace Health and Safety
Geoff McDonald and Associates
Government Statistician's Office
Kahler, Mr R
Queensland Mining Council
Queensland Workers' Compensation Board
Queensland Workers' Health Centre
Quinlan, M
Safework

Western Australia

Alcoa Australia
AMCOR Fibre Packaging
Applied Safety and Risk Management
Australian Builders' Labourers Federated Union of Workers – WA Branch
Australian Liquor Hospitality and Miscellaneous Workers Union
Chamber of Commerce and Industry
Chamber of Mines and Energy
Department of Minerals and Energy
Department of Occupational Health Safety and Welfare of Western Australia
Industrial Relations Commission
Injured Persons' Action and Support Association
Laing, Commissioner Bob
Thatcher, Mr T

Trades and Labor Council
West Australian Fishing Industry Council
West Australian Shearing Contractors' Association
Woodside Offshore Petroleum

South Australia

Australian Submarine Corporation Pty Limited
Brighton Cement
Chamber of Mines and Energy
Clements, S
Department of Industrial Affairs
Email
General Motors Holden
Henderson's Automotive
Jankewicz, G
Meegan, Dr T
Milton, Dr L
National Injury Surveillance Unit
Occupational Health & Safety Advisory Committee
Pisaniello, Dr. D
Self Insurers Association of South Australia
South Australian Employers' Chamber of Commerce and Industry
TUTA – Learning Resource Centre
United Firefighters' Union
United Trades and Labor Council
Western Mining Corporation
WorkCover Corporation (South Australia)

Tasmania

Cadbury Schweppes
Tasmanian Chamber of Commerce and Industry
Department of Development and Resources
Tasmanian Trades and Labor Council

Australian Capital Territory

ACT WorkCover
Australian Maritime Safety Authority
Australian Medical Association
Australian Mining Industry Council

Bureau of Air Safety Investigation
Comcare Australia
Commonwealth Department of Human Services and Health
Commonwealth Department of Industrial Relations
Commonwealth Department of Industry Science and Technology
Commonwealth Department of Primary Industries and Energy
Commonwealth Department of Transport
Department of Defence
Hopkins, A
National Farmers' Federation
Office of the National Health and Medical Research Council

Northern Territory

Department of Mines and Energy
Department of Mines – Mines Division
Department of Transport and Works
Insurance Council of Australia
Power and Water Authority
Northern Territory University
Chamber of Commerce and Industry
Trades and Labor Council
Small Business Association
Work Health Authority

Overseas

Oregon Occupational Safety and Health Administration (United States of America)

ATTACHMENT T2**INFORMATION REQUEST QUESTIONNAIRES****GENERAL OHS INFORMATION QUESTIONNAIRE****1 Policy information**

- 1.1 A copy of your mission statement and corporate plan.
- 1.2 Copies of current policy statements, second reading speeches and any recent reviews or reports that outline recent developments in OHS policy in your jurisdiction.
- 1.3 A list of the programs you conduct and any readily available information on these programs. Of particular interest are the elements of programs that deal with ethnicity and gender differences in the workplace.
- 1.4 Financial details on your programs (preferably at a greater level of detail than your annual report). Please complete the table in Attachment C—providing detailed breakdowns of your sources of revenue and your expenditure by program, and defining the revenue and expenditure categories.
- 1.5 Results of any evaluations that have been conducted into your current or past programs.
- 1.6 Details of the processes and criteria used to determine program funding priorities.
- 1.7 Copies of any reports reviewing your agency's performance, including information on any internal performance monitoring and the indicators used.

2 Regulation

- 2.1 An outline of the main features of the OHS regulatory arrangements in your jurisdiction. Please also check that Attachment A is correct, and amend as necessary.
- 2.2 Details of the process and the basis used to set standards and other OHS regulation in your jurisdiction.

- 2.3 List of industries or types of workers who are not covered by OHS regulation in your jurisdiction, and alternative arrangements, if any, which cover these employers and employees. Approximately how many workers and workplaces are covered and not covered?
- 2.4 A description of the procedures and processes for determining the impact of regulation, including who conducts the assessment, which costs and benefits are included and how they are measured, and how the assessment affects the regulation finally adopted.
- 2.5 Copies of any studies or information on the costs to employers of complying with OHS regulation (ie regulatory impact statements).
- 2.6 Copies of any studies on the percentage of firms that voluntarily observe a higher level of occupational health and safety than that required by legislation.
- 2.7 Copies of any studies or data on the extent of compliance with regulation in your jurisdiction (ie audits or enforcement studies).
- 2.8 Copies of any studies or information evaluating the impact of regulation on the level of injury, illness and disease in the workplace.

3 National Standards

- 3.1 Details of the actions which have been—or are soon to be—undertaken by your organisation in the process of national uniformity.
- 3.2 Descriptions of the practical difficulties you encounter implementing national standards in your state.
- 3.3 Copies of any studies estimating the cost to business (or specific businesses) of a lack of uniformity of standards between states.

4 Other legislation and programs

- 4.1 Description of how other legislation and the responsibilities of other agencies (ie common law, public safety, workers' compensation and labour market regulation) affect OHS outcomes in your jurisdiction.
- 4.2 Description of operational or financial arrangements with other government agencies and programs in your jurisdiction, for example the workers' compensation authority.

5 Statistical information

- 5.1 An update of Tables 2 to 21 in Attachment B (from the Workers' compensation report 1994) for 1992–93 and prior years if possible. To ensure consistency, please provide the data on the same basis as for the Workers Compensation report (a copy of the data and accompanying notes you submitted to that inquiry are attached). It would be helpful if you provided detailed definitions of the data and a contact person, to help us determine the extent to which comparisons between States can be made.
- 5.2 Copies of any studies or estimates on the overall cost of work-related injury, illness and disease in your jurisdiction, or the costs of particular injuries, illnesses and diseases.
- 5.3 Copies of any studies or information on the principal causes of the most common (or costly) work related accidents, injuries and diseases in your jurisdiction. (We are seeking general information, rather than specific information on individual cases.)
- 5.4 Descriptions of the statistics you collect other than those published by Worksafe, and the provision of any readily available tables.
- 5.5 Copies of any papers or studies you have describing the level and nature of occupational injury, illness and disease in your jurisdiction.

6 Other OHS issues

- 6.1 Description of the extent to which OHS is addressed under industrial awards or enterprise agreements in your jurisdiction.
- 6.2 Copies of any studies identifying the ways in which firms have improved their OHS performance and evaluating alternative ways of changing worker and management attitudes towards OHS and fostering a safe workplace culture.

CURRENT ENFORCEMENT ARRANGEMENTS QUESTIONNAIRE

1 Administration

- 1.1 A list of all government agencies (or divisions within agencies) which undertake OHS enforcement related activities (exclusively or partially) in your jurisdiction. This includes health departments and industry specific inspectorates.
- 1.2 How are enforcement activities funded? *For example, through workers compensation levies (premiums) paid by employers.* What is the total enforcement budget?

2 Targeting

- 2.1 Briefly describe how workplaces are targeted (prioritised) for inspection. Are small and big firms approached differently? Are any industries dealt with separately? What information (statistics) is used to target workplaces; *for example compliance records and workers' compensation data?*

3 Performance-based regulation

- 3.1 Has enforcement changed with the introduction of performance based regulation? How are performance based regulations enforced? What is the role of codes of practice in enforcement?

4 Enforcement activities

- 4.1 Briefly describe the types of enforcement activities carried out by enforcement agencies in your jurisdiction. *For example, accident and complaint investigations, random and targeted inspections, provision of advice and information, enforcement of legislation (monitoring compliance with PINs), and licensing equipment.* What proportion of total activities does each type of activity make up?

5 Inspectors

- 5.1 How are inspectors' roles organised? *For example do all inspectors carry out all functions, or are some specialised for certain tasks such as advisers, prosecutors, licensers and so on.* Please give details

- 5.2 Briefly describe the entry level qualifications, recruitment and training of inspectors? How have inspectors been prepared for a changing regulatory environment, ie from prescriptive standards to performance based regulation? (See Attachment 1, Table 2). How is performance of inspectors monitored and rewarded (wage or salary structure)?

6 Compliance and deterrence

- 6.1 How many initial inspections detected no breaches, ie full compliance on the first visit to any workplace in a one year.
- 6.2 An estimate of the number of breaches warranting advice *only*, ie those *not* dealt with by either notices or penalties.
- 6.3 The number (or estimated proportion) of work related incidents (accidents) investigated, which involved a breach of some sort (whether prosecuted or not).
- 6.4 Any studies or surveys gauging employers' perception or awareness of enforcement activity, that is, how much of a *deterrent* is enforcement activity considered to be.

QUESTIONNAIRE ON THE NATIONAL UNIFORMITY OF OCCUPATIONAL HEALTH AND SAFETY REGULATION

Business details

1. Please provide details of:
 - Name(s) of business units in your company which operate in each State and Territory
 - Number of workplaces in each business unit, by State and Territory
 - The principal industry (such as mining, manufacturing, construction, finance and insurance) of each business
 - Number of employees by State and Territory
 - What OHS legislation (such as principal State OHS Acts, Shops and Factory Acts, Construction Safety Acts, Coal Industry Acts etc) does each business unit operate under?
 - Contact details (for the purpose of the survey)

Areas of non-uniformity that increase compliance costs

It is sometimes asserted that a lack of uniformity of occupational health and safety (OHS) regulation imposes costs on business.

2. *Is this true for your business(s)?*

It is said that lack of uniformity occurs in a number of areas including standards (such as plant and equipment), auditing and accident reporting requirements and the role of safety committees and/or employee workplace representatives.

3. *What are the main provisions in OHS regulation where a lack of uniformity — either in the regulatory requirements or their interpretation by inspectorates — causes problems for your enterprise?*

Consequences

4. *For each of the provisions identified in question 3, please provide examples of how the lack of uniformity affects your administration and operations, and where possible, what costs these impose on your firm.*

The Industry Commission is interested in identifying the costs imposed by a lack of uniformity in OHS regulation. These are the costs (for example, in additional training) imposed by having to meet a number of differing standards

and/or regulations. They should be distinguished from the additional costs of meeting more stringent requirements in some States and Territories.

5. *What is the total cost imposed on your firm by the lack of uniformity of regulation? Where possible, please identify the costs imposed by each of the main provisions in OHS regulation.*
6. *Are there any benefits for your firm from the lack of uniformity of regulation? If so, give examples.*

Compliance where national uniformity has been achieved

National uniformity of OHS standards has been achieved in the area of manual handling. However, it is claimed that this standard has been implemented differently in different States and Territories.

7. *Are there any differences in the regulation and enforcement of manual handling between the States and Territories in which you have establishments? Please provide examples of how these differences impact on your business(s).*

ATTACHMENT T3**CONSULTANT BRIEFS****Consultancy into the legal, institutional and industrial relations environment governing occupational health and safety in other countries.***Aim*

The aim of this research task is to review the legal, institutional and industrial relations environment in other countries, in order to identify any methods of setting, legislating and enforcing occupational health and safety standards that would improve outcomes in Australia.

Purpose

The purpose of the review is to collect information on overseas arrangements and identify practicable reform options for Australia in setting, legislating and enforcing occupational health and safety standards.

The Commission wishes to examine the following aspects of overseas occupational health and safety arrangements, in order to identify possible areas of reform:

- the division of responsibilities between national governments and state governments;
- the coverage of legislative occupational health and safety protection;
- the legal responsibilities of employers and employees;
- the role of *industrial relations* institutions in setting, legislating and enforcing occupational health and safety standards, including the roles and powers of health and safety representatives, drawing from Australian, US and Scandinavian experience;
- legal requirements to conduct *regulatory impact* statements and to review regulation after a nominated time or trigger, and the value of such requirements;
- the use of *complementary legislation* to create incentives through premiums, enforcement strategies or audit programs that reinforce or substitute for direct regulation of standards;
- the relationship between regulation, complementary legislation and *common law provisions*;

- the processes used to *harmonise standards*, implement *nationally uniform standards* and ensure *mutual recognition* of regulation, both within countries and between countries, and the outcomes of such processes, with particular reference to USA and Canada;
- the approach taken to International Labour Organisation Conventions on occupational health and safety and their ratification and implementation;
- the types of instruments used to enact policy, such as legislation, subordinate legislation, codes of practice and guidelines;
- the use of *performance standards* as opposed to design standards and the changes required for their enforcement, with particular reference to the USA;
- *enforcement powers* of agencies, their representatives, employees, employee representatives and individuals, comparing and contrasting USA, UK and Scandinavian experience; and
- alternative strategies which may be applied to improve occupational health and safety outcomes, with particular attention to the comparative experience of other areas of social policy, such as those adopted by the USA Environmental Protection Authority.

Methodology

It is anticipated that the consultant will draw on their personal knowledge and experience, international contacts, and literature searches of relevant data bases.

The countries that could be included:

- Australia;
- Scandinavian countries;
- United Kingdom; and
- USA.

Analysis is expected to examine current developments in occupational health and safety practices, and any identifiable international trends in occupational health and safety management.

Output

The report should include the following:

- a full description of the methodology and sources used;
- a summary table of the major features of each country's legal, institutional and industrial relations environment;

- a discussion of the legal framework within which occupational health and safety arrangements operate;
- a description of the institutional framework for the setting, legislating and enforcing of occupational health and safety standards;
- a description of the links between occupational health and safety and industrial relations; and
- identification of overseas approaches that would improve occupational health and safety in Australia, and a discussion of implementation issues.

The commentary should cover, but is not restricted to, the areas outlined above that the Commission wishes to examine.

Consultancy into the degree and cost of compliance of occupational health and safety standards

Consultants tendering for this project are asked to provide separate tenders for Part A (extent of compliance) alone, as well as for Parts A and B (cost of compliance) together.

*The consultancy brief is designed as a **guide only** and should **not** preclude other methods or questions being considered to fulfil the overall aim of the project.*

Aim

There are two distinct parts to this research task:

- to investigate the extent of compliance with occupational health and safety (OHS) standards in the workplace; and
- to estimate the direct cost to business of compliance with the manual-handling standard.

Purpose

A: Extent of compliance

The purpose of the investigation is to collect information that will provide data on the extent of compliance with the relevant OHS regulations. Specifically we want to find out the following:

- to what extent are businesses complying with the relevant OHS regulations in their jurisdiction?
- are firms practicing significantly above legally required standards?

The Commission would also be interested in examining the correlation (positive or negative) between the extent of compliance and characteristics such as:

- workplace organisation;
- degree of unionisation;
- the commitment to training;
- the effectiveness of safety representatives;
- AS/ISO quality assurance accreditation;
- size and type of firm (for example, number of establishments, national or multi-national);
- state;
- profitability or other measures of performance; and
- industry.

B: Cost of Compliance

The reason for focusing on the cost of compliance with manual-handling regulations is that it is the main nationally uniform standard which has been in place for some time. The aim is to use a single regulation as a case study. The Commission is willing to consider focusing on an alternative regulation, other than manual-handling, if it were considered more appropriate to do so.

The aim of part B is to provide an answer to the question:

- what compliance costs would the firms have avoided if there were no regulations?
- what would firms have done in the absence of OHS regulations?

In evaluating the costs of complying with OHS regulations, a distinction must be made between:

- the costs that would have been borne voluntarily;
- the additional costs imposed by legislation that improves safety as a by-product of meeting other objectives; and
- any additional costs imposed by occupational health and safety regulation.

The cost of compliance with OHS regulation is only the latter. This is the only cost that we are interested in for this consultancy.

C: Supplementary Questions

It would be useful if, in the course of researching parts A and B, some supplementary information could be obtained. As a second order priority, such information could include:

- are the present standards relating to manual-handling easier to understand and to comply with than the previous standards which covered this area?
- whether firms are adhering to codes of practice or their interpretation of the performance standards related to manual-handling?
- what impact have OHS standards had — both positive or negative — on productivity?

Methodology

One way the questions could be answered would be by a random (as practicable) survey of firms. Nevertheless, we will consider other methodologies or approaches if they are considered more appropriate.

The reported extent of compliance should be representative across States and Territories, firm size and industry.

The consultant is required to maintain the confidentiality in reporting information of the firms surveyed. All establishments must be non-identifiable and comment must be non-attributable.

Note: The consultant doing this work is not required to make recommendations on how the firms surveyed should improve their OHS standards. For our purposes, we are only concerned with an assessment of the degree of compliance, the factors which appear to be correlated with compliance levels, and the costs associated with compliance.

Output

The report should include the following:

- a description of the survey methodology;
- the statistical results of the survey;
- a summary of the results (in table form where appropriate);
- a section on data limitations; and
- a discussion of the main issues involved and key conclusions which emerged from the investigation.

Request for advice as to the Commonwealth Government's power to legislate in respect of occupational health and safety.

Aim

The aim of this advice is to establish the constitutional position of the Commonwealth Government in the area of occupational health and safety, in order to inform the Commission's recommendations in respect to the most appropriate occupational health and safety arrangements for Australia.

Specific areas of interest

The Commission wishes to have the following questions addressed:

- the nature and extent of any specific powers the Commonwealth Parliament may have to make laws with respect to occupational health and safety;
- any other powers available to the Commonwealth Parliament to make laws with respect to occupational health and safety;
- the potential to use the External Affairs Power (s.51(xxix) of the Constitution) to legislate so as to implement an international agreement concerning occupational health and safety; and
- the constitutional consequences of the Commonwealth's ratifying the International Labour Organisation Convention No. 155 on occupational health and safety.

Consultancy into the causes of occupational injury, illness and disease in Australia

Aim

The aim of this research task is to report on the causes of occupational injury, illness and disease in Australia and report on whether existing regulation directly addresses causality.

Purpose

The purpose of this research task is to identify whether existing and proposed, but yet unimplemented, national regulation is effective in addressing the underlying causes of occupational injury, illness and disease. This assessment is to be the precursor of assessments of the cost-effectiveness and efficiency of regulatory, complementary legislation and promotional strategies to identify whether there are any deficiencies in existing approach.

Specifically, the Commission is seeking expert advice on the principal causes of work-related injury, illness and disease and an evaluation of the extent to which existing regulation is likely to reduce the overall incidence and severity of workplace injury, illness and disease brought about by these causes.

The Commission also wishes to examine the extent to which the following factors contribute to occupational injury, illness and disease:

- *workplace environment;*
- *work organisation* arrangements such as participative decision making, shift work and overtime;
- the level of workforce *skill;*
- *worker behaviour;*
- *gender, ethnicity, social morés and lifestyle* factors; and
- *occupational health and safety awareness and training.*

However, the consultant should feel free to comment on any other factors that cause occupational injury, illness and disease.

The information is also required to assess the improvement offered by newer performance-based standards, such as the national standards, over the standards that remain in State legislation.

In a broader context, the nature of the information should be such that it assists workers and employers to determine effective strategies within the workplace that address the underlying causes of injury, illness and disease.

Methodology

It is anticipated that the consultant will draw on their personal knowledge and research experience, contacts and literature searches of the relevant data bases.

The areas of regulation to be examined are:

- hazardous substances;
- manual handling;
- noise; and
- plant and equipment.

Output

The report should include the following:

- a full description of the methodology and sources used;

- a description of the underlying causes of occupational injury, illness and disease in Australia;
- a listing of the workplace hazards that are typically associated with frequent and severe injury, illness and disease;
- a description of the influence of contributing factors and occupational injury, illness and disease;
- the identification of other factors affecting occupational health and safety performance generally;
- an assessment of the effectiveness of existing State and national regulation in addressing causality; and
- an assessment of the effectiveness of current State and national strategies aimed at improving occupational health and safety performance.

The commentary should cover, but not be restricted to, the areas outlined above.

Request for advice about the duty of care and the practicability test

Aim

The aim of this advice is to determine:

- the legal differences between the NSW and Queensland legislation;
- the legal differences between the expression of the duty of care in NSW legislation and in other States' legislation; and
- the impact of recent case law on practicability.

Specific areas of interest

The Commission wishes to have the following issues addressed:

- the difference between *duties* in NSW legislation and *obligations* in Queensland legislation, other than the scope of these duties or obligations;
- the difference between the two defences provided in the NSW legislation (section 53) and the evolution of the NSW Act through case law, and the four defences provided in the Qld legislation;
- whether making practicability a defence conflicts with the common law or any legislative standards Acts;
- the arguments for and against expressing practicability as a defence, as in NSW, compared to how it is expressed in other States; and
- whether case law has expanded the meaning of practicability beyond what was said in the draft report.

ATTACHMENT T4

INQUIRY PARTICIPANTS

Organisations and individuals who made submissions to the inquiry are listed below. Participants marked * presented submissions at public hearings. The remainder made written submissions only.

<i>Participants</i>	<i>Submission No.</i>
ACOHS Pty Ltd*	245
AcrossTech	256
ACT Workcover	373
Aged Services Association of NSW and ACT Inc*	23, 202,312
Alara Risk Management Services Pty Ltd*	318
Alber, Ms M	324
Alcohol and Other Drugs Council of Australia*	76
Altree-Williams, S*	62
AMCOR Limited	182
Armour, J	29
Asbestos Removal Contractors Association (NSW)	283
Atlas Steels Limited	228
Australasian Faculty of Occupational Medicine*	17,233,330
Australia Post	86
Australian Association of Audiologists in Private Practice*	162,363
Australian Chamber of Commerce and Industry*	133,349
Australian Chamber of Manufactures*	128,329
Australian Coal Association*	112
Australian Council of Trade Unions*	149,336
Australian Council of Trade Unions (Queensland Branch)*	77,268,369
Australian Council on Smoking and Health*	169
Australian Defence Force	131
Australian Education Union (Tasmanian Branch)*	85
Australian Education Union*	160
Australian Environmental Health Services Pty Ltd	285
Australian Furniture Research and Development Institute Limited	157
Australian Health Pty Ltd*	217
Australian Hotels Association	180,402
Australian Institute of Health & Welfare	260
Australian Institute of Occupational Hygienists Inc*	121,265,389

Australian Institute of Petroleum Ltd*	137,381
Australian Licensed Aircraft Engineers' Association*	24
Australian Liquor Hospitality and Miscellaneous Workers Union	91
Australian Liquor Hospitality and Miscellaneous Workers Union – Western Australia*	22,263
Australian Manufacturing Council Secretariat	51
Australian Manufacturing Workers Union – Victoria State Office	335
Australian Manufacturing Workers Union (West Australian Branch)*	287
Australian Mines and Metals Association Inc (Tasmanian Branch)*	212,375
Australian Mines and Metals Association Inc*	98, 138,304
Australian Mining Industry Council*	63
Australian Nuclear Science and Technology Organisation*	111
Australian Nursing Federation	60
Australian Nursing Federation (Victorian Branch)	126
Australian Nursing Homes and Extended Care Association	234
Australian Paint Manufacturers Federation Inc	7
Australian Petroleum Exploration Association	137
Australian Plaintiff Lawyers Association Inc*	319
Australian Salaried Medical Officers Federation	292
Australian Services Union*	159
Australian Sports Commission*	298
Australian Tinnitus Association (Western Australia)*	227
Australian Trade Commission	235
Automotive Food Metals and Engineering Union (National Office)*	116
Automotive Food Metals and Engineering Union (Queensland Branch)*	194
Automotive Food Metals and Engineering Union (Victorian Branch)*	93, 135
Automotive Food Metals and Engineering Union (West Australian Branch)*	221
Australian Workers' Union - FIME Amalgamated Union*	154, 200, 206,337
Bagu, M*	179
Ballarat Base Hospital	26
BHP	141, 244,344
BHP Steel – Tower Colliery	258
Biggins, Dr D*	35,317
Birrus Engineering Pty Ltd	5
Blundstone Pty Ltd	213
Bowie, Mr V*	173,307
Brooks, Mr P M	64
Brownlea, Prof A*	371
Building Owners and Managers Association of Australia Ltd*	110,224
Burke, Mrs K	211

Business Council of Australia*	158,243,380
Butler, Mr S	294
Caltex Oil (Australia) Pty Limited	175
Carborundum Resistant Materials Ltd	297
Chamber of Commerce and Industry Western Australia*	165,379
Chamber of Manufactures of New South Wales	90
Chamber of Mines and Energy of Western Australia Inc*	31,251
Chiropractors Association of Australia (National) Limited*	273
Clementine, Mr H	3, 27
Coburg Injured Workers Association	2
Collins, Mr H*	190
Comcare Australia*	174
Commonwealth Department of Human Services and Health	168,403
Commonwealth Department of Primary Industries and Energy	326
Communication Electrical Plumbing Union (Communication Division)*	40
Community and Health Services (Tasmania)	386
Community and Public Sector Union (Melbourne)*	155,291,339
Concerned Citizens' Association of Australia*	92
Construction Forestry Mining and Energy Union – Construction & General Division*	183
Construction Forestry Mining and Energy Union – Mining and Energy Division*	153
Construction Forestry Mining and Energy Union – Pulp & Paper Workers' Branch*	146,322
Cross, Prof J*	19, 49,303,370
Culvenor, Mr J/Goodbourn, Mr B	406
Cyanamid Australia Pty Ltd	59
David Caple and Associates Pty Ltd	252
Dawson, Dr D	171
Deafness Council of New South Wales	390
Deafness Forum of Australia*	73,320
Deafness Foundation (Victoria)	140
Department of Defence	299
Department of Employment Vocational Education Training and Industrial Relations (Queensland)	79,316
Department of Environment and Natural Resources	399
Department of Health and Community Care	388
Department of Industrial Relations*	74, 177,338
Department of Mineral Resources	257

Department of Minerals and Energy (Western Australia)*	205,262
Department of Occupational Health Safety and Welfare of Western Australia*	222,269
Department of Transport (Western Australia)	48
Dornan, C J	9
Doull, S*	134
Dunhill Madden Butler	8
Effective Change	328
Ellis, Dr N	164
Engineering Employers Association	167
Environment Protection Agency	400
Environment Protection Authority	392
Esso Australia Ltd	70
Evans, O	340
Farmsafe Australia Inc	241,270,366
Farr, Mr T	78, 293
Finance Sector Union of Australia (CBO Section)	119
Finance Sector Union of Australia (National Branch)	127
Fire Trainers Association of Australia Inc*	53, 225,343
Forestry Tasmania	229,361
Gardner, Ms N*	11,323
Geoff McDonald and Associates Pty Ltd	378
GIO Australia*	114
GM Consulting Pty Ltd	33
Goldsmith, C*	6
Goodbourn, Mr B/Culvenor, Mr J	406
Hague, Mr J	358
Haztech Environmental	83
Health and Safety Organisation (formerly The Occupational Health and Safety Authority (Victoria)	176
Health Department of Western Australia	387
Health Industry Occupational Health Safety/Workcover Advisory Committee	66
Hopkins, Dr A*	286
Hoskins-Marr, Ms S*	289

Humphreys, M W	38
Hunter Action Group Against WorkCover*	123,332
ICI Australia	125
Industrial Relations Portfolio (Joint submission of Comcare Australia, Department of Industrial Relations and Worksafe Australia	395
International Safety Audit Systems*	254,376
Johnston, G	14
Johnstone, Mr R*	277
Joint Coal Board*	84
Kellogg (Aust) Pty Ltd*	117
Knott, Mr P	281
Labor Council of New South Wales	145,305
Lamaan Whyte Consulting*	357,359
Law Society of Western Australia*	218
Lay, Dr P	261
Local Government Association of South Australia*	54,271,290
Mayhew, Dr C	142
McCormack, J	247
McIntyre, Mr A	52
Maritime Services Board of New South Wales	
Hunter Ports Authority (Port of Newcastle)	87
Medical Industry Association of Australia	20
MEND*	28, 207
Miller, Ms B L*	186, 240
Mitch Mitchell and Associates	124
MMI Insurance Group*	296
Mobil Oil Australia Ltd (Melbourne)	65
Morganite Insulating Products Pty Ltd	282
Mount Isa Mines Limited*	103,302
Morrison, Mr D	10
Metal Trades Industry Association of Australia	143,278
Nabalco Pty Limited	311
National Acoustic Laboratories*	12, 120
National Association of Testing Authorities (Australia)	284
National Farmers Federation*	184,345

National Safety Council of Australia Ltd*	89
National Standards Commission	204
National Tertiary Education Union	178,321
National Union of Workers*	130,346
Neely, G	237
Nevill, Mr M MLC	259
New South Wales Coal Mine Managers Association	383
New South Wales Farmers' Association	118,334
New South Wales Government	397
New South Wales Health Department	396
New South Wales Minerals Council	327
New South Wales Workers' Compensation Self-Insurers' Association	18
Newcastle Trades Hall Council	384
Newtec Woolharvesting Pty Ltd*	210, 223
Nicholls, Mr A	191
Niven, A	81
Northern Territory Chamber of Mines and Petroleum Inc*	152
Northern Territory Department of Mines and Energy*	188
Northern Territory Government*	43,350
Northern Territory Trades and Labor Council*	214,351,365
O'Donnell, C	170, 192,250
Occupational Health Safety and Rehabilitation Council of NSW*	105,306
Office of Multicultural Affairs	144
Office of the Hon E G Whitlam AC QC	189
Oliver, Mr T	193
Oxenburgh, Dr M	32
Pacific BBA Limited*	185
Pascall, V	13
Pasminco Metals – Sulphide Pty Ltd	333
Penrice Soda Products Pty Ltd*	163,347
Phillips, M	34
Pioneer International Limited	15,230
Plastics and Chemicals Industries Association*	96, 208, 220,377
Preferred Care Networks Pty Ltd	36
Prostitutes Collective of Victoria Incorporated	368
Public Interest Advocacy Centre*	109,356
Public Sector Union	72
Public Transport Union	310

Qantas Airways Ltd	68
QBE Workers Compensation (NSW) Ltd	115
Queensland Chamber of Commerce and Industry*	100,300
Queensland Department of Environment and Heritage	398
Queensland Farmers' Federation*	102,362
Queensland Health Environmental Health Branch	391
Queensland Mining Council*	301,364
Queensland Nurses Union*	104
Queensland Police – Union of Employees	352
Queensland Teachers – Union of Employees	69
Rawlins, Ms B*	113
Retailers Council of Australia*	99,309
Returned Services League of Australia Ltd	46
Roberts, E	1
Roof Safe	215
Roads and Traffic Authority (New South Wales)*	107
Rudge, Mr J	374
Rural Industries Research and Development Corporation*	276
Rust PPK and Luminico Pty Ltd*	264
Safety Equipment Australia Pty Ltd	106
Safety Institute of Australia Inc*	151,255
Safety Institute of Australia – Health Care Industry Branch (Victorian Division)*	16,315
Safety Institute of Australia Inc (ACT Division)*	56
Self Help Network for Injured Workers*	101,253
Self-Insurers of South Australia*	41, 196, 242,279
Shell Company of Australia Ltd	67,308
Sherriff, Mr B	199
Shop Distributive and Allied Employees Association (Victorian Branch)*	156,248

Shop Distributive and Allied Employees Association (New South Wales Branch)	209
Shop Distributive and Allied Employees Association (Queensland Branch)	71
Silvester, Mr G	360
Skills for Caring Pty Ltd*	44
Snowden, P	341
South Australian Employers' Chamber of Commerce and Industry Inc*	95,272
South Australian Farmers Federation (Industrial Association)*	55,274
South Australian Government*	147, 236,275
South Australian Health Commission*	4,394
Spickett, Prof J	37
Springvale Community Health Centre*	172
Standards Australia*	108,249
State Public Services Federation (Tasmania)*	45
State School Teachers' Union of Western Australia Inc	25
Stewart, Dr D	181
Sydney Hospital Occupational Health and Safety Service*	122
Tasmanian Association of Vocational Rehabilitation Providers*	136
Tasmanian Farmers' and Graziers' Association*	61
Tasmanian Government*	195,401
Tasmanian Trades and Labor Council	88
Taxi Employees' League*	42, 57
Taxi Industry Service Association of New South Wales	216
Taylor, Mr G*	342,404,405
Textile Footwear and Clothing Union of Australia (Victorian Branch)*	80
Textile Footwear and Clothing Union of Australia	367
Thatcher, Mr T	10
The Effective Change Consultants*	161
The Ergonomics Society of Australia Inc*	166, 198,266
The Metal Roofing and Cladding Association of Australia Ltd	226
Therapeutic Goods Administration	385,393
Tillinghast Management Consultants and Actuaries	267
Tobacco Institute of Australia Limited	239
Trades and Labor Council of ACT Inc*	75,295
Trades and Labor Council of Western Australia*	148, 219
United Trades and Labor Council of South Australia*	197, 201
University of South Australia School of Physiotherapy*	30

Victorian Association of Forest Industries	150,353
Victorian Automobile Chamber of Commerce	139,314
Victorian Deaf Society*	58
Victorian Employers Chamber of Commerce and Industry*	97, 238,313
Victorian Farmers' Federation*	129,354
Victorian Government	382
Victorian Institute of Occupational Safety and Health, The*	246,355
Victorian Trades Hall Council*	187,348
Vogt, J	82
W D & H O Wills (Australia) Limited	232
Western Australian Shearing Contractors Association Inc	94
Western Mining Corporation Ltd	47
Wigglesworth, Dr E C	132
Women's Health in Industry NSW Inc	203
Woodlawn Mines	372
Woodward-Clyde	325
Workers Compensation Development (Australia)	21
Workers Health Centre*	331
Worksafe Australia*	50, 231
WRK International*	288
Wyatt Consultants Pty Ltd	280
Young, M D	39

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