



INDUSTRY
COMMISSION

Packaging and Labelling

REPORT No. 49
14 February 1996

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ISBN 0 644 36054 2

Moving towards the Productivity Commission

The Federal Government, as part of its broader microeconomic reform agenda, has announced its intention to merge the Bureau of Industry Economics, the Economic Planning Advisory Commission and the Industry Commission to form the Productivity Commission. The three agencies are co-located in the Treasury portfolio so that amalgamation can begin on an administrative basis.

While appropriate arrangements are being finalised, the work program of each of the agencies will continue. This report has been produced by the Industry Commission. The name change will take effect when the relevant legislation is enacted.

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14 February 1996

The Honourable George Gear MP
Assistant Treasurer
Parliament House
CANBERRA ACT 2600

Dear Minister

In accordance with Section 7 of the *Industry Commission ACT 1989*, we have pleasure in submitting to you the report on Packaging and Labelling.

Yours sincerely

Nicholas Gruen
Presiding Commissioner

Maurice Joyce
Commissioner

TABLE OF CONTENTS

Abbreviations

Glossary

OVERVIEW

PART A INTRODUCTION

1	Packaging and labelling in Australia	1
1.1	Scope of the inquiry	1
1.2	The benefits and costs of packaging and labelling	1
1.3	The packaging and labelling industries	3
1.4	Material inputs	5
1.5	Innovation	10
1.6	Users of packaging	11
1.7	Workforce skills and training	20

PART B COMPETITION AND PERFORMANCE

2	Assessing competition and performance	25
2.1	Competition and efficiency	25
2.2	Glass	27
2.3	Metal containers	32
2.4	Paper and board packaging	39
2.5	Plastics packaging	43
2.6	Labelling	46

3	International trade issues	49
3.1	International trade in packaging	50
3.2	Tariffs on imports	52
3.3	Prospects for export growth	61
3.4	Anti-dumping	65
3.5	Trade liberalisation in foreign markets	73
4	Enhancing competition	79
4.1	Industry measures	79
4.2	Controlling concentration	83
4.3	Prices oversight	87
PART C	PACKAGING WASTE MANAGEMENT	
5	Packaging and waste	95
5.1	Packaging in the waste stream	95
5.2	The environmental benefits of packaging	98
5.3	The environmental costs of packaging	99
5.4	Full social cost pricing	106
5.5	Policy mechanisms	111
6	Recycling and reuse of packaging	131
6.1	Attitudes to the environment and recycling	131
6.2	Recycling	133
6.3	Waste management policy and the use of targets	135
6.4	Collection of post consumer packaging	138
6.5	Reuse	149
6.6	Costs and benefits of waste reduction and recycling targets	153
6.7	Other regulatory approaches	160

PART D PACKAGING AND LABELLING REGULATION

7	Packaging and labelling regulation	163
7.1	Design and responsiveness of regulation	164
7.2	Performance based regulation	166
7.3	Labelling regulation	171
7.4	Labelling standards, enforcement and international trade	190
7.5	Regulatory institutions	193

APPENDICES

A	Terms of reference	
B	Inquiry procedures	
C	International trade statistics	
D	Tariff provisions	
E	Waste management policies in Australia and other countries	
F	Packaging and labelling regulation	
G	Regulatory co-operation	

References

ABBREVIATIONS

ACA	Australian Consumers Association
ACI	Australian Consolidated Industries Packaging
ACCC	Australian Competition and Consumer Commission (formerly the Trade Practices Commission and the Prices Surveillance Authority)
ACTDG	Australian Committee on the Transport of Dangerous Goods
ACTU	Australian Council of Trade Unions
ADA	Anti-Dumping Authority
ADG Code	Australian Code for Transport of Dangerous Goods by Road and Rail
agvet	Agricultural and veterinary chemicals
AIP	Australian Institute of Packaging
ALCM	Association of Liquidpaperboard Carton Manufacturers
ANZEC	Australian and New Zealand Environment Council
ANZECC	Australian and New Zealand Environment and Conservation Council
APEC	Asia Pacific Economic Cooperation
AQIS	Australian Quarantine and Inspection Service
ASDA	Australasian Soft Drink Association
BHP	Broken Hill Proprietary Company
BIE	Bureau of Industry Economics
BRRU	Business Regulation Review Unit
CD	Compact disc
CDL	Container deposit legislation
CEDA	Committee for Economic Development of Australia
CEPA	Commonwealth Environment Protection Agency
CER	Closer Economic Relations

CIDS	Cleaner Industries Demonstration Scheme
CIF	Cost, insurance and freight
COAG	Council of Australian Governments
CPI	Consumer product information sheet
CRC	Co-operative Research Centre for Waste Management and Pollution Control
CRR	Council recycling rebate
CUB	Carlton and United Breweries
DEST	Department of the Environment, Sport and Territories
DFAT	Department of Foreign Affairs and Trade
DHSH	Department of Human Services and Health
DIST	Department of Industry, Science and Technology
DPIE	Department of Primary Industries and Energy
DSD	Gesellschaft Duales System Deutschland mbH
EC	European Commission
ECA	Environmental Choice Australia
EIA	Environmental Impact Assessment
EPA	Environment Protection Authority
EPL	Extended producer liability
ESD	Ecologically sustainable development
FBCA	Federal Bureau of Consumer Affairs
FDA	Food and Drug Administration of the United States of America
GATT	General Agreement on Tariffs and Trade
GMA	Grocery Manufacturers of Australia
HDPE	High-density polyethylene
IAC	Industries Assistance Commission (a predecessor to the Industry Commission)
ISO	Standard of the International Standards Organisation
IWRA	Industry Waste Reduction Agreement

KAB	Keep Australia Beautiful National Association
KESAB	Keep South Australia Beautiful
LATMA	Label and Tag Manufacturers Association of Australia
LCA	Life Cycle Analysis
LDPE	Low density polyethylene
LLDPE	Linear low density polyethylene
LRRA	Litter and Recycling Research Association
Mt	megatonne
MRF	Material recovery facility
NATA	National Association Testing Authorities
NDPSC	National Drugs and Poisons Scheduling Committee
NFA	National Food Authority
NHF	National Heart Foundation
NIEIR	National Institute of Economic and Industry Research
NRA	National Registration Authority for Agricultural and Veterinary Chemicals
NRS	National Registration Scheme for Agricultural and Veterinary Chemicals
NSC	National Standards Commission
NSWGPT	New South Wales Government Pricing Tribunal
OECD	Organisation for Economic Co-operation and Development
ORR	Office of Regulation Review
PACIA	Plastics and Chemicals Industries Association
PATEFA	Printing and Allied Trades Employers' Federation of Australia
PCA	Packaging Council of Australia
PET	Polyethylene terephthalate
PMAA	Proprietary Medicines Association of Australia
PP	Polypropylene

PSA	Prices Surveillance Authority (a predecessor of the Australian Competition and Consumer Commission)
PUPA	Promoting the use of plastics again and again and again
PVC	Polyvinyl chloride
RCH	Rodda Castle and Hind
RIA	Regulatory Impact Assessment
RIS	Regulatory Impact Statement
RMIT	Royal Melbourne Institute of Technology
RRRC	Recycling and Resource Recovery Council
SUSDP	Standard for the Uniform Scheduling of Drugs and Poisons
TEXCO	Tariff export concession order
TGA	Therapeutic Goods Authority
TGC	Therapeutic Goods Committee
TGO	Therapeutic Goods Order
TPA	<i>Trade Practices Act (Commonwealth) 1974</i>
TPC	Trade Practices Commission (a predecessor of the Australian Competition and Consumer Commission)
UN	United Nations
UNESCO	United Nations Educational Scientific and Cultural Organisation
WMC	Waste Management Council
Worksafe	National Occupational Health and Safety Commission

GLOSSARY

Bodystock	Aluminium sheeting used for can bodies.
By-product emissions	Emissions which are the outcome of a process designed primarily to produce another product.
Canstock	Aluminium sheeting used in the production of aluminium cans, comprising bodystock, endstock and tabstock.
Contract and tort	The body of judge-made law which provides recourse to individuals. These remedies are available as well as the remedies created by Acts of Parliament.
Converting	The process of transforming material inputs into a package; that is, the manufacture of packaging. For example, along with other material inputs, polymers are 'converted' into various forms of packaging, such as plastic films and bags.
Endstock	Aluminium sheeting used for can ends.
Environmental Impact Assessment	Assessment of the environmental impact of a project or initiative.
Externalities	Costs that are imposed on society as a result of production and consumption decisions by individuals and are not captured by the price system, for example, air pollution from factories and cars.
Fillers	User industries such as food processors that insert their product into packages.
Incineration	Combustion (by chemical oxidation) of waste to treat or dispose of waste materials.
Landfill	Site for the disposal of waste by burial.
Leachate	Water contaminated while percolating through a landfill.
Life Cycle Analysis	Analysis of the environmental impacts incurred during the life cycle (the production, consumption and disposal) of a product.

Machinery provisions	Regulatory provisions which govern administration and application of standards rather than impose standards themselves.
Material inputs	Semi-finished packaging products, for example, tinfoil.
Mutual recognition	Two or more jurisdictions agree to accept goods (occupational registration, administrative decisions or official approvals) which comply with the regulations of any one of them.
Packaging	A series of processes involving the production of material inputs, the conversion into packaging (eg the production of cans from tinfoil), and the filling of packages by user industries (eg food processors).
Primary legislation	Acts of Parliament (Commonwealth or State).
Putrescible waste	Waste that decomposes, such as food scraps.
Raw materials	Those materials that are extracted from the ground and processed into material inputs. For example, bauxite is processed into aluminium.
Recycling	The recovery of the energy, chemicals or material contained in used packaging.
Reduce	Avoidance of waste generation.
Regulatory Impact Assessment	Assessment of the costs and benefits of a proposed regulation or initiative.
Reuse	Using packaging more than once.
Social costs	The total cost to society of an economic activity. It is the sum of the opportunity costs of the resources used by the agent carrying out the activity <i>plus</i> any additional costs imposed on society from the activity.
Tabstock	Aluminium sheeting used for can opening tabs.
Waste-to-energy	Recovery of energy in waste by heat exchange from hot combustion gases. It may be used for the generation of heat and electricity.

OVERVIEW

A INTRODUCTION

The 'packaging' industries may be divided into three activities — the production of material inputs (such as steel tinsplate), their 'conversion' into packaging (for example, the conversion of steel tinsplate into steel cans) and the 'filling' of packages by user industries (such as food processors). This report focuses upon plastics, metals (tinsplate and aluminium), paper and paperboard, glass and composite materials packaging.

Turnover in the Australian packaging market was about \$5.5 billion in 1993–94 — equivalent to about 1.3 per cent of GDP. The Australian packaging activities employ over 50 000 people, while capital investment is about \$7 billion. Australian packagers represent about 1 per cent of world packaging production. While there is little trade in converted packaging products, packaging is traded when it is 'embodied' in trade of packaged products. The major users of packaging are the food processing industries and wholesale and retail trades.

There has been a rationalisation of converters in Australia. Ownership in most packaging sectors is concentrated. The four major suppliers of converted packaging in Australia (Amcor, ACI Packaging, Southcorp, and Visy Board) account for about 75 per cent of the sales value of all packaging material.

In contrast to packaging, the labelling industry is less concentrated.

In accordance with its terms of reference, the report provides discussion and policy recommendations in three broad areas:

- the economic efficiency of packaging and labelling producers and the rigour of competition between them;
- the management of environmental problems associated with packaging production, consumption and disposal; and
- the regulation of the packaging and labelling of goods.

B COMPETITION AND PERFORMANCE

The Australian packaging industry has become more concentrated in recent years, as have the packaging industries of many other countries. In some sectors (for example, glass packaging and tinsplate) there is effectively only one

Australian producer. In some other sectors two producers dominate. The limited size of the Australian market means that only a few firms are able to achieve the scale and sophistication in packaging processes and products necessary for technical efficiency.

The number of domestic producers can be an unreliable indicator of the level of competition in an industry. Other important sources of competitive pressure are:

- imports;
- the threat of entry (either domestically or from imports); and
- actual or threatened competition from substitutes.

The high sunk costs involved in investment in the production of most material inputs to packaging, such as the manufacture and rolling of steel tinplate and aluminium canstock, lead to relatively high domestic barriers to entry. Such barriers are often lower in converting activities. In many cases, such as the conversion of packaging papers into corrugated board, near duopolistic market structures appear to be fairly competitive because of relatively low barriers to entry.

Although users of packaging, particularly in the food and beverage sector, have criticised the price and quality of Australian packaging over the years, performance appears to have improved. More innovative products, greater substitution possibilities and a change in industry culture towards collaborative problem solving between firms have all made a difference.

B.1 Pricing of packaging and packaging inputs

The pricing of material inputs to packaging has a direct effect on the price of converted packaging. Several participants have claimed that Australian converters are unable to obtain some material inputs to packaging (for example, steel tinplate and various polymers) at prices which are similar to those on major overseas markets. Some material inputs to packaging are priced at or close to the price (including duty) of imported substitutes; that is, the 'import parity price'.

Some Australian producers of material inputs to packaging — for example, producers of aluminium and steel tinplate — are also substantial net exporters. This suggests that they are efficient compared to overseas producers. When exporting they receive the world market price less transport costs. This 'export parity price' is below the import parity price by an amount equal to duty and transport costs to and from Australia.

If Australia is a net importer of a material input — as, for instance, it is in the case of most plastics — the economically efficient domestic price on the domestic market for the input is likely to be import parity. (Whether any tariff or dumping duties should be levied is a separate matter considered below.)

But where Australia enjoys a comparative advantage in the production of the product and is, therefore, actually or potentially a net exporter, import parity pricing to the domestic market is likely to impose unnecessary costs on the economy. This is likely to constrain domestic sales of the product and domestic value adding to that product downstream.

B.2 Facilitating competition from imports

As the previous section outlined, because economies of scale are important and the Australian market is not large, all sources of competition in the packaging industry are important. In this context, reducing barriers to imports (tariffs and anti-dumping arrangements) would benefit users of packaging.

B.2.1 Tariffs on material inputs to packaging

Tariffs on most packaging products will be 5 per cent after 1 July 1996. It is current government policy to leave general tariffs at this level.

Evidence from inquiry participants highlighted some of the costs of this policy. While the post 1996 tariff level represents major progress from less than a decade ago, tariffs can still impose important costs on industry. Where they do so, they are unlikely to be achieving their central objective of protecting Australian producers because in protecting some Australian producers, they harm others.

As a result of tariffs, user industries become less competitive on domestic and export markets. As markets become more competitive, the costs of even small tariffs can be significant. Tariff reductions will generate particular improvements in downstream industry competitiveness where:

- the protected product is predominantly an input to production; and
- there is little or no product differentiation both between suppliers in world markets and between them and domestic producers; thus where tariffs are reduced, lower costs will be passed on to users.

This is the case with virtually all packaging products.

However, these considerations also apply to many other products. The Commission does not consider that the case for further tariff reform is stronger for packaging products than for other tariff-assisted products. Accordingly, in

the absence of tariff reductions across the board, the Commission has not recommended general tariff reductions for all packaging products. However, there are two areas — steel tinplate and aluminium canstock — for which the cases for specific tariff reductions are particularly strong.

Australian tinplate and aluminium canstock appear to be internationally competitive (as shown by significant exports and, in the case of steel tinplate, heavy export oriented investment). Both tinplate and canstock are produced by sole domestic suppliers with scope to raise domestic prices up to the price of imports. For these products to be available in Australia at export parity prices would improve efficiency in the Australian economy. Tariff reductions would at least ensure that the price of imports is reduced. This is unlikely to increase imports, but it will strengthen competitive disciplines on Australia's producers, which will enhance the competitiveness of user industries.

The Commission understands that currently BHP's price for domestic users, other than exporters, is substantially above export parity, although it is below import parity. Its prices to domestic exporters are currently at export parity. This situation could change with changes in world market conditions. Because BHP's tinplate production is sufficiently efficient to continue to be profitable at duty free import parity prices, removing the tariff on tinplate would enhance the performance of user industries without significant adverse effects.

Australia is also a net exporter of aluminium canstock. Because there were two producers of aluminium canstock at the time of the Draft Report the Commission did not make a similar recommendation in relation to canstock. As a result of the KAAL/Comalco merger, there is now only one producer of aluminium canstock. The Commission considers that the circumstances of the canstock producer are now analogous to those of the producer of steel tinplate and has recommended accordingly.

In both cases, tariff cuts are unlikely to increase imports appreciably. They will lower the price of imports, but because the Australian producers of steel tinplate and aluminium canstock are highly competitive, they will meet this intensified competition, if necessary, by lowering their domestic prices. In these circumstances demand would increase, but it would be met by expanded Australian production. Thus, apart from possible marginal reductions in producers' profitability there would be gains without adjustment costs.

Recommendation 1

The Commonwealth Government should remove the tariff on tinplate and aluminium canstock from 1 July 1997.

B.2.2 Anti-dumping action

Australia's anti-dumping system allows action to be taken — that is, duties to be imposed or price undertakings to be agreed to — on goods imported to Australia at a price below their 'normal' value in their country of origin. However, this action may only be taken if the dumped imports injure, or threaten to injure, Australian firms producing 'like' goods.

Anti-dumping action is intended to protect Australian producers from competition that can be regarded as unfair and from unacceptable risks in markets subject to strong commodity cycles. The Commission has previously expressed concerns about aspects of the anti-dumping system. However, this report focuses upon packaging and labelling, and does not review the anti-dumping system itself.

An acceptance of the desire to protect Australian producers against unfair import competition highlights some important ways in which Australia's current anti-dumping system actually does the reverse. Because many industries, such as packaging, produce inputs for other industries, anti-dumping action can directly disadvantage downstream industries.

Here anti-dumping action leads to two effects: it assists Australian producers competing with dumped inputs, and it penalises firms using these products. There can be no presumption that the benefits generated by the first effect — in terms of Australian activity and jobs — will outweigh the costs associated with the latter effect. Indeed, where users sell into highly competitive markets, as is the case with exporters, the presumption would run strongly in the other direction.

Since the Anti-Dumping Authority's inception on 1 September 1988, it has undertaken and reported on final investigations for ten packaging related materials. Seven of these investigations resulted in anti-dumping duties.

In addition to the direct costs of anti-dumping duties on users, the anti-dumping system generates costs which are both indirect and well hidden from public view.

First, where dumped goods threaten injury, the anti-dumping system permits — indeed deliberately encourages — exporters to Australia to raise their prices in order to avoid anti-dumping action. These effects may impose costs greater than the direct effects. Where suppliers engage in voluntary export restraint, they in effect levy anti-dumping duties on themselves by raising their prices.

Second, the dumping inquiry process can promote a climate of uncertainty and threat which discourages importers from competing too vigorously for fear of anti-dumping action.

Anti-dumping action will impose its heaviest costs on Australian producers where they are competing in the most competitive markets — especially where they are competing against producers who have access to ‘dumped’ inputs. This occurs particularly where Australian firms are competing on the world market.

Whatever action is taken domestically, the foreign firms against whom Australian anti-dumping action is taken will continue to sell to other buyers in the region at dumped prices. As Australia’s tariff barriers fall, and as our exports grow, the costs of anti-dumping action to downstream industries will also grow. This is because downstream users will face increasing competition from competitors with access to cheaper dumped inputs.

A substantial number of anti-dumping actions have been initiated by Australian manufacturers of polymer resins that are inputs to packaging. Dumping action has not been taken recently in other markets for inputs to packaging but remains available to all Australian producers.

Finding

Anti-dumping action in the plastics market reduces the competitiveness of plastics packaging producers and users. The capacity of the anti-dumping system to work to Australia’s advantage is limited to the extent that it fails to consider the costs which anti-dumping imposes on users.

B.3 Enhancing competition

Two Australian packaging products face relatively weak competitive disciplines — glass containers and steel tinplate. They have been the subject of significant comment from users concerning quality and/or prices.

Both are currently under prices surveillance by the Australian Competition and Consumer Commission (ACCC) (formerly the Prices Surveillance Authority (PSA)). Both areas of surveillance are currently under review. To be effective and avoid counterproductive results — either overpricing or lack of investment in an industry — prices surveillance requires regulators to determine producers’ costs accurately. This is a difficult task for any regulatory authority, especially where costs per product fall as output increases.

Further, the cost-based approach to surveillance currently adopted by the PSA is probably not well suited to addressing the issues outlined here. This has been acknowledged by several sources, including the former PSA and the Commission. For this reason, the Commission has taken the view that prices surveillance should not be used unless there is confidence that substantial market power is being exercised.

B.3.1 Glass containers

The Commission was provided with evidence of considerable dissatisfaction among customers with ACI's prices and service. Its prices for some important commodities such as wine bottles are substantially above prices available from firms with similar facilities in offshore markets. Material before this inquiry suggests that barriers to entry in the manufacture of glass containers in a number of applications are probably relatively high and imports offer limited competitive discipline. These applications include wine bottles and medium to large food containers. Given this, the sole supplier status of ACI and the limited scope for substitution in important glass packaging applications, there appears to be an in principle case for prices surveillance of Australia's sole supplier of these products.

ACI faces stronger competition from substitute products in certain applications, particularly for beer and soft drink packaging, weakening the case for prices surveillance in these areas. However, ACI was unprepared to supply the Commission with data which would support its contention that its prices were competitive. In these circumstances, the Commission was not prepared to recommend that prices oversight be removed for other ACI products.

Recommendation 2

Given the strength of ACI's bargaining position in the market, prices surveillance for wine bottles and medium to large glass food containers should continue.

B.3.2 Steel tinsplate

The case for continuing prices surveillance is weaker for tinsplate than it is for glass containers. Tinsplate enjoys natural protection of about 12 per cent whilst transport costs of imported glass containers are up to 50 per cent of value. Thus, despite very low import penetration currently, the prospect of import growth provides a somewhat stronger discipline on domestic tinsplate prices.

In addition to imports, tinplate also faces competitive pressure from other packaging media although in many traditional tinplate applications (for example, hot fill) other materials are currently poor substitutes.

In contrast to glass containers, the price of tinplate did not change from early 1991 to late 1995. BHP claims that this is due to competitive pressures from imports and other packaging media. These competitive factors suggest that the less intrusive approach of prices monitoring may be more appropriate for tinplate.

B.4 Enhancing exports

B.4.1 Anti-dumping action and inputs to export

Many successful anti-dumping actions in Australia are initiated by firms that are the sole Australian producer of their particular product and these firms are likely to exercise some market power. The cost of the duties is often borne by Australia's exporters, who invariably face vigorous competition in their export markets, often from other firms who have access to dumped inputs. Until 1988 users were able to obtain duty drawback of dumping duties on inputs to export.

Where anti-dumping action raises the cost of inputs to export, it is likely that it will lead to greater losses in export activity than it will stimulate import replacement against dumped imports.

Finding

Where packaging users compete either in the domestic or export markets against firms with access to dumped inputs, the costs of anti-dumping action (to users of material inputs to packaging) are likely to exceed the gains to intended beneficiaries (suppliers of goods competing with dumped imports).

Finding

Providing administrative and compliance costs are sufficiently low, the interests of efficient exporters of packaged products could be promoted by allowing them access to duty drawback mechanisms in the case of anti-dumping duties.

B.4.2 Embodied exports

Australian producers of packaged products typically find themselves in extremely competitive conditions in export markets. In these circumstances, a small price change will typically produce a substantial response in customers' demand. Import parity pricing of domestic material inputs to packaging is a particular problem for firms in this situation.

Where they consider it will influence the extent of their domestic users' demand, material input producers have an incentive to supply inputs to exports at prices below import parity. As a consequence many offer export rebates. This price discrimination in favour of users facing highly competitive markets will especially benefit the economy where excess capacity can be used to supply extra material inputs at low marginal costs. Indeed, in principle, it can entirely eliminate the efficiency costs of the market power of material input producers.

However, the information requirements on the seller to enable the practice of such price discrimination are formidable, while the costs of ensuring that low priced products go only to price-sensitive users can also be significant. As a result, price discrimination in favour of exporters can be expected to fall short of the ideal with export rebates being substantially smaller than an economically efficient level. This expectation was supported by evidence from sellers of material inputs and users; particularly small and medium-sized users.

Finding

There is scope for gains — both to individual firms and to the economy — if sellers of packaging and packaging materials could pass greater price reductions to users who are exporters.

Where prices oversight is already in place, it should focus, amongst other things on this issue.

Recommendation 3

If the Commonwealth Government decides that the ACCC should continue oversight of glass or tinsplate, the ACCC should report on prices to the domestic, secondary export and export markets, acknowledging that users who export face highly competitive markets.

C PACKAGING WASTE MANAGEMENT

The world is beset by environmental problems. Many resist attempts to reduce them to simple economic values. For example, how much should those who emit air pollutants pay to compensate children who suffer asthma as a result? How much should a firm pay if its activities endanger a species or an ecosystem?

However, in contrast to the intractability of these issues, the Commission has found that the environmental problems posed by the disposal of packaging waste appear to be relatively tractable.

The environmental issues raised by the disposal of used packaging can be dealt with *on their merits* and as issues to do with economic, environmental and aesthetic preferences within the community.

The disposal of used packaging provides a *symbol* for many who participated in this inquiry of the perceived ills of our society — from society's extensive use of natural resources to its preparedness to exploit the environment in damaging ways. But much regulatory action to restrict packaging attacks symptoms rather than causes, generates environmental outcomes which are often symbolic rather than substantive and if it does promote environmentally beneficial outcomes, does so inefficiently. Approaches that target substantive rather than symbolic environmental objectives could achieve the same level of environmental improvement at lower economic cost or greater environmental improvements for the same economic cost.

C.1 Packaging waste and landfill

There is good reason to believe that we generate too much waste for our own good. Improved use of economic instruments can help deliver outcomes which combine greater economic efficiency without compromising environmental amenity or sustainability. Alternatively, where we choose to forego economic wealth for higher levels of environmental protection, economic instruments enable us to do so most efficiently, gaining the greatest environmental gain for the least possible cost.

Packaging waste represents about one-quarter of municipal waste and much packaging waste currently goes to landfill. Landfill has often been poorly managed in the past leading to unacceptable environmental outcomes. It is not uncommon for old landfill sites to have contaminated surrounding areas and groundwater with leachates from toxic waste. Existing environmental damage to landfill sites should be handled on a case-by-case basis, as part of the general management of the handling and disposal of toxic wastes.

Although it raises the cost of landfill management, the expertise is available to locate and manage landfill sites to reduce the risks of unacceptable environmental outcomes to very low levels. In any case, reducing the amount of used *packaging* going to landfill is unlikely to substantially reduce environmental risks, because packaging is only one part of landfilled waste and most packaging is environmentally benign in landfill.

The politics of landfill is becoming intractable in some areas. In Sydney, only large publicly owned landfills are permitted to take general household waste. Understandably, people oppose new landfill facilities in their own neighbourhood.

Local campaigns in Sydney have prevented the development of major new landfills. As a result, existing public landfills absorb several times their designed capacity (and so several times the amount the local community were originally told they would be hosting). This can be particularly unfair where local communities are not compensated for the loss of amenity created by a nearby landfill.

Even relatively ambitious waste to landfill reduction targets will not prevent the need for substantial landfill capacity. On the other hand, if local community objections can be satisfied with proper planning and consultation, there is no shortage of land for landfill. Elsewhere (for example, Melbourne) private landfill sites have alleviated community pressures.

Provided it is subject to rigorous environmental safeguards, including effective planning and design requirements, landfill can be operated by private firms which will have a competitive incentive to obtain local community consent to site new or expanded landfill. Compensation to host communities if necessary would be appropriate although compensation should complement, not replace, good planning. Increases in landfill charges resulting from compensation would increase incentives to minimise waste.

Recommendation 4

State Governments should allow for the private development of new landfill facilities (subject to the same rigorous environmental standards as public landfills).

New facilities should not proceed without the consent of host communities expressed through their locally elected governments. Where appropriate, operators should be allowed to compensate communities for any loss of amenity in hosting such facilities.

Full social cost pricing seeks to impose the economic and environmental costs of the disposal of used packaging — through reuse, recycling, landfill, or incineration — on those who generate those costs. Although some progress has been made in recent years, most Australian landfill is still underpriced to commercial users. And while households pay for disposal of used packaging through their rates, they generally pay no less if they reduce their use of garbage disposal through waste minimisation and increased recycling. Greater use of user pays principles would encourage waste minimisation throughout the chain of production and disposal.

Recommendation 5

State and local governments responsible for landfill charges should ensure that landfill users face the full social costs of disposal, including, where appropriate, allowance for loss of environmental amenity for host communities and insurance against future environmental contingencies. In most cases this will result in continuing increases in charges.

C.2 Kerbside collection costs

Australian householders pay for the bulk of the costs of landfill disposal through their rates. This clearly offers no incentive to households to reduce their use of waste disposal services. It would be preferable to charge on a user pays basis where households are billed according to use. While it is difficult to measure household disposal precisely, proxy measures, such as bin volume, are available.

Recommendation 6

In so far as is practical, waste disposal charges should be fed down to individual decision makers in the waste chain. In particular, post consumer waste collected

at the kerbside should move more fully towards user pays systems with users billed according to use.

C.3 Packaging waste, incineration and waste to energy

The principles that apply to landfill apply also to incineration, including the incineration of non-toxic waste to produce energy. It is now possible to construct incineration and waste-to-energy facilities to comply with very strict environmental standards. Indeed, waste-to-energy incineration is now widely used, and sometimes mandated in Europe, to meet environmental objectives.

(This must be distinguished from policies regarding the incineration of toxic waste, to which different considerations may well apply and which the Commission has not investigated.)

Recommendation 7

State Governments should treat arrangements for the incineration of packaging and other non-toxic materials and their conversion to energy on their economic and environmental merits. However, new facilities should not proceed without the consent of host communities. Where appropriate, operators should be allowed to compensate communities for any loss of amenity in hosting such facilities.

(This recommendation does not refer to the incineration of toxic waste.)

C.4 Litter

Evidence suggests that used packaging is a major contributor to litter. Litter imposes costs external to the litterer in four ways: it is ugly, dangerous to wildlife and human health, and costly to collect — estimated local government clean-up costs are \$70 million.

Litter policy seeks to return litter to the waste management system. Litter policy uses a combination of approaches such as anti-littering laws, public bins, education, litter clean-up operations and product design to reduce litter. Private firms can also benefit from contributing to anti-litter campaigns, especially where their used packages are readily identifiable. Public identification of firms that manufacture specific items in the litter stream could encourage such firms to take greater responsibility for reducing the contribution their products make to the litter stream — by, for instance, more vigorous litter reduction campaigns.

Container deposit legislation is also promoted as a means of litter reduction. However, several studies suggest that while it has a beneficial effect on litter these benefits are small and they are unlikely to exceed the many small costs that such legislation imposes.

C.5 Targets and other non-price based measures

Australia and other countries have adopted a range of strategies that target particular waste minimisation and recycling objectives.

A national waste strategy was adopted by Commonwealth, State and Local Governments in 1990 aiming to reduce waste to landfill by 50 per cent by the year 2000. When it was first adopted the strategy envisaged the national target being achieved in a non-uniform manner depending on local circumstances, with some regions reducing waste to landfill by less than 50 per cent and others reducing it by more. However, the 50 per cent figure appears to be assuming the status of a minimum objective with many individual Shires and States.

Likewise, a range of recycling targets for different packaging materials have been adopted. These voluntary recycling targets were negotiated with industry, but they have been adopted against a backdrop of considerable political pressure for mandatory targets at a higher level.

The Commission has found a range of problems with target setting. Targets are likely to generate hidden economic costs which will ultimately be passed on to ratepayers and consumers. Further, although targets reflect environmental values, they do not embrace coherent environmental objectives. Recycling and reuse are seen as ends in themselves, rather than tools which can deliver better environmental performance. The aim of policy in this context should be to address the identified environmental problem or externality.

Targets have been used to substitute symbolic for substantive environmental objectives. In some circumstances and with some materials, such as used glass and aluminium packaging in large cities, recycling is likely to generate environmental benefits by reducing energy use. In other circumstances, the environmental benefits of recycling will be less clear while its economic costs will be more substantial. Some recycling schemes probably make negative environmental contributions as energy is consumed transporting used packaging huge distances to recycling plants. An extreme but telling example is that, at considerable economic cost per tonne, used glass is shipped from Broome to Perth for recycling.

Recycling targets also fit uneasily with the complexity of packaging production and the waste management task. Frequently, objectives which seem

environmentally attractive in themselves (such as ‘lightweighting’ packaging, or increasing levels of reuse or recycling) actually militate against each other and against other environmental objectives. For example, increased reuse of packaging typically requires the production of heavier packaging, as packages need to be sturdier for reuse.

Some participants in the inquiry stated that industry should be required to reuse packaging, as is required in several European countries. The environmental tradeoffs here are complex. They depend crucially on distances travelled between filling and consumption, the number of times each package is reused and the characteristics of the various materials able to perform the required packaging task. It is likely that reuse will remain economically viable for some time to come in some segments of the packaging market and where it is commercially viable it is likely (though not certain) that it will have environmental benefits. Where it is not economically viable it is by no means universally the case that reuse will generate environmental benefits.

These considerations suggest that, to guarantee environmental benefits and avoid needless economic costs, target setting requires considerable information and expertise. It would also need to be complex and adaptable to differing circumstances.

This does not describe target-setting as it is being practiced. Targets have rarely been set with clear environmental objectives or with a clear understanding of the likely environmental and economic benefits and costs. Indeed, the 50 per cent reduction target in waste going to landfill was adopted with poor information about the amount of waste going to landfill at the time. Efforts continue to estimate the level of waste that actually went to landfill in 1990 so as to clarify the target adopted!

The Commission has also found that target setting can have perverse effects on incentives and on the politics of packaging waste management. A National Kerbside Recycling Strategy was announced in 1992 to bring kerbside recycling to 90 per cent of urban Australian homes by 1994. Again, little attention was given to the costs and benefits of such an initiative although the net economic costs are likely to amount to tens of millions of dollars nationwide. Australia’s local councils have been building the infrastructure for kerbside recycling. Local councils and packaging manufacturers have disputed who should fund these facilities — ratepayers or packaging firms through the price they pay for recyclates.

New measures are currently being considered by Australian and New Zealand Environment and Conservation Council (ANZECC). The Commission is

concerned that the process being pursued is not consistent with established Council of Australian Governments (COAG) principles.

Recommendation 8

DEST and the Office of Local Government should co-operate to prepare a national inventory of waste management modelling tools currently in use.

Subject to evaluation of tools currently available, DEST and the Office of Local Government should co-operate to fund the development and maintenance of a municipal waste management and recycling planning and decision modelling tool, incorporating economic and environmental parameters.

The modelling tool could be used in the development of any future recycling strategy.

Recommendation 9

Local government should not proceed with recycling schemes unless clear economic and/or environmental benefits have been established.

Where this is the case, the scheme should proceed if it can be funded on a commercial basis.

Where recycling schemes are not commercially viable, local governments should consult their constituents in deciding the extent to which:

- the council commits funds to establish recycling services; and
- such funds might be allocated to more highly valued environmental or other uses (including being rebated to ratepayers).

Recommendation 10

Decisions to introduce a measure (at the local, State and/or Commonwealth Government level) to reduce packaging waste going to landfill and/or to assist recycling should not be made unless clear economic and/or environmental benefits from such initiatives have been established.

Where this is the case, the initiative should proceed if it can be funded on a commercial basis.

Where commercial funding is not viable, the initiative should only proceed if, according to regulatory impact analysis, it is:

- justified on a balance of economic and environmental costs and benefits (including external costs and benefits); and
- the initiative is the most economically efficient way of meeting those objectives.

Recommendation 11

COAG should take action to ensure that the process undertaken by ANZECC in the preparation of industry waste reduction agreements is consistent with established COAG principles regarding national standard setting and regulatory action. Specifically, this would involve consideration of the likely costs and benefits of any waste reduction agreement.

Existing waste management targets (namely, waste reduction targets contained in the National Waste Minimisation and Recycling Strategy) should be reviewed according to these principles within 12 months.

D PACKAGING AND LABELLING REGULATION

Packaging and labelling is regulated by the Commonwealth, States and Territories. There are several objectives for which specific regulations have been made:

- protection of people's health, safety and property including their interest in accurate product information;
- protection of consumers' interests;
- protection of agricultural and domestic animals and plants;
- protection of the environment; and
- satisfaction of treaty obligations.

In many areas, for example food, extensive bodies of specific regulation exist. But general laws also impose requirements, including rules imposing liability for losses caused by faulty packaging or misleading labelling, and the regulation of misleading and deceptive conduct.

Together these form a large and complex body of regulation. The Commission has not attempted to conduct a comprehensive review of all regulation as it applies to labelling but has focused on areas in which inquiry participants expressed particular concern.

This report addresses the mechanisms and principles that promote efficient and appropriate regulation. This includes the considerations relevant when implementing new regulatory proposals, the mechanisms for the review of existing regulations and the growing use of performance based regulation.

Finally, the Commission has considered the performance of the structure of regulatory institutions and the allocation of functions between them. To enable national uniformity many packaging and labelling regulations are set by inter-governmental structures. Enforcement is often the responsibility of each State and Territory. The way in which these functions are allocated and performed varies greatly.

D.1 Performance-based label regulation

One critical aspect of mandatory labelling requirements is the performance of labels overall in communicating information. There is growing evidence that labelling regulation is too prescriptive, and that much regulation which mandates minimum levels of information on labels does not perform well against its own regulatory objectives.

Recent research supported by participants' comments shows that the multiplicity of requirements hampers producers' ability to design labels to effectively impart information to consumers. 'Crowding out', whereby the information required competes for space on the product label, is a significant problem. Given the very poor performance of some labels in some surveys, and the important role of labels in promoting health and safety, the potential gains from improved label performance are likely to be substantial — although difficult to quantify.

Performance based regulation can improve labelling by expressing requirements in terms of performance objectives or outcomes. The approach is gaining currency in packaging and labelling regulation as in other areas of regulation.

Regulatory authorities could be given the power to deem alternative prescriptive regulations to comply with the performance based regulation. Initially, the *existing* prescriptive regulations should be deemed to comply. Regulatory authorities should also consider deeming overseas regulations and proposals made by industry or the community to comply providing they perform well. In time, several 'deemed to comply' specifications would exist.

Recommendation 12

Legislatures and regulatory agencies involved in setting packaging and labelling standards should consider drafting regulations in terms of specific objectives or outcomes which producers are required to satisfy, instead of prescriptive standards.

When regulating on this performance basis, regulatory authorities should have the capacity to deem prescriptive standards to comply with the performance based standard.

D.2 Nutrition and health claims

There is strong market demand for information on the nutritional and health effects of different foods. However, producers may not want to provide all the information they have on their products. This is because not all the information about food products will confer positive nutrition and health images.

Currently the Food Standards Code permits 'nutrition messages' on food labels but not 'health claims'. The distinction between the two is explained by the National Food Authority (NFA) as follows:

Nutrition messages ... relate to 'good health' consequences, they highlight the basic nutritional relationship between specific nutrients (not foods) and their contribution to the achievement of physiological health, for example 'this food is a good source of calcium, calcium helps build strong bones and teeth'. In contrast, health claims relate to 'a disease or health-related condition' ... for example 'this food is a good source of calcium, if we don't obtain enough calcium, this often leads to osteoporosis'. (NFA, 1994a, p. 24)

The distinction has been drawn because many experts have advised that individual foods cannot directly promote health or reduce disease. Some regulation of health claims is likely to serve a useful purpose.

On the other hand, a simple perusal of the health claim instanced above suggests that there could be substantial community benefits from allowing food sellers to direct some of their marketing expenditure to informing their customers of the health effects of certain foods. A small reduction in disease where diet is important, such as heart disease and osteoporosis, would mean large benefits to the community.

The US permits health claims on labels. Strict enforcement of the ban in Australia might prohibit programs such as the National Heart Foundation's 'Pick the Tick'.

The Commission considers that while some level of specific regulation of health and nutritional claims is probably justified, an outright ban on health claims on labels is not.

Recommendation 13

The Commonwealth, through agencies such as the National Food Authority, should establish a procedure for the approval of model health claims. The criteria for approval of the health claims should be:

- there are community benefits to allowing the claim;
- the claim has been supported by valid and substantial evidence; and
- the claims are not made in ways which mislead.

The responsible agency should also accredit bodies that can demonstrate that they can certify health claims for products with sufficient competence and integrity. Certifications by accredited bodies could be signified by logos on labels.

After five years the operation of this new system should be reviewed.

The National Food Authority should also consider this model as part of its Review of the Food Code.

D.3 Labelling of place of origin

Country of origin claims on products are mainly regulated by the 'misleading conduct' provisions of the *Trade Practices Act 1974* (TPA) and the Food Code. In applying these provisions, the courts have interpreted the words "Made in Australia" when applied to product labels. In the courts' interpretation, a product which is "Made in Australia" has acquired its 'essential character' in Australia. This test can usually be satisfied even though important ingredients are imported.

Press reports have suggested that country of origin claims on product labels are often misleading. The National Food Authority has stated that:

Few instances of specific alleged malpractice have been identified to the Authority although the media coverage has at times given the impression that false and misleading country of origin labelling of products is endemic. (NFA 1994b, p. 20)

Nevertheless, in 1992 the Government proposed the Trade Practices Amendment (Origin Labelling) Bill.

As currently drafted the Bill would redefine the terms “Made in Australia” and “Product of Australia” and prohibit the use of other claims of Australian origin. The Bill would cause some significant costs. For example, claims such as “Made in Tasmania” would not be allowed.

This imposes much greater constraints on firms’ marketing than can be justified by the regulatory objective of preventing misleading claims.

Recommendation 14

In accordance with the principles for regulatory action agreed to by COAG, the Trade Practices Amendment (Origin Labelling) Bill should not proceed until:

- the nature of the problem to be addressed has been identified;
- interested parties have been consulted;
- alternative regulatory and non-regulatory options have been considered; and
- the costs and benefits of those proposals have been addressed.

The NFA is currently working to implement an agreement between consumers, farmers, the food industry and unions for regulation to require that for most foods the claim “Made in Australia” would mean that the ingredients are Australian.

Although this proposal is not ideal, the Commission considers that it is substantially better than the TPA amendment Bill and some previous Food Code amendment proposals. The proposal continues to impose some constraints which are unnecessary to meeting the objective of truthfulness in labelling. For instance, under the current proposal it would not be possible to label a food “Made in Western Australia” without also labelling it “Made in Australia”.

D.4 Import and export labelling regulation

There are some good reasons for specific labelling requirements for imported and exported products, but generally this regulation duplicates other regulatory protections.

Export regulation can be justified to give effect to Australia’s international obligations. In industries with many Australian producers, export regulation can also protect Australian producers from other Australian producers who might damage Australia’s reputation by selling inferior quality products. Import

regulation might be appropriate to mirror the regulation of domestic production processes.

Additional requirements on the labelling of exported and imported products increase import prices, and reduce the gains from trade to consumers and industry users, with little or no offsetting benefits. In particular, the *Commerce (Import) Regulations*, which contain prescriptive labelling requirements for a range of imported products, impose unnecessary costs.

Recommendation 15

The Department of Industry, Science and Technology should, as part of its portfolio review of regulation, by July 1997:

- initiate action to remove the requirements contained in Regulations 8, 15, 15A, 15B, 17 and 20 of the *Commerce (Imports) Regulations* which contain prescriptive labelling requirements for a range of imported products; and
- in relation to each of the other regulations of the *Commerce (Imports) Regulations*, initiate action to remove any other requirements that do more than mirror the regulations applying to domestically produced goods. This should be done subject to consultation with responsible line agencies.

1 PACKAGING AND LABELLING IN AUSTRALIA

Packaging and labelling activities are a major manufacturing activity in Australia with sales turnover for packaging alone estimated at about \$5.6 billion per year. Packaging and labelling uses a broad range of material inputs, and packaging products are important inputs to other industries. Accordingly, efficiency in the production and supply of packaging and labelling products in Australia is clearly of significance to Australia's economy.

1.1 Scope of the inquiry

The terms of reference require the Commission to report on regulatory, institutional and any other arrangements that impede efficiency in Australia's packaging and labelling activities. Particular attention is directed towards the materials used to manufacture packaging, that is, paper and paperboard, glass, metal, plastics and composite materials.

Matters taken into consideration include: competition between, and the performance of, packaging and labelling producers; barriers to international trade; the regulation of packaging and labelling activities; and the management of packaging waste and by-products including litter, waste minimisation, recycling and disposal. These issues are to be examined with a view to improving the overall economic performance of the Australian economy.

The terms of reference for the inquiry are set out in full in Appendix A.

1.2 The benefits and costs of packaging and labelling

This section outlines first the benefits and then the costs associated with packaging and labelling.

Modern packaging has had a profound effect on manufacturing and distribution. It has enabled centralisation of manufacturing, streamlining of wholesaling, and development of self-service retailing in a wide variety of products. It is labour saving, with developments in packaging and labelling technologies making possible innovation in retailing, such as bar coding and retail information systems.

Packaging reduces wastage by preventing spillage or pilferage of products and can reduce the risk associated with handling harmful chemicals. It safeguards public health standards by preventing the contamination of food products and protects food products against environmental and physical conditions that could result in their spoilage.

Packaging can also substantially reduce wastage during the processing of food. Offcuts and other unwanted portions remain in substantial quantities at the place of processing where they can be economically recovered and used to manufacture valuable by-products (see Section 5.2).

Packaging is used in the protection of products during their distribution. Packaging also serves to apportion products into units which are conveniently-sized for the purposes at hand. Thus corrugated fibreboard containers are used as transport packaging for many products which are also packaged in smaller portions within those containers for resale at the retail level.

Labelling of packaging informs consumers of various attributes relevant to the goods they are purchasing. Labels provide a standard means of communicating information to consumers. They can help consumers to make informed purchases by identifying products, their quantity, their ingredients and for food products, their nutritional value, storage information and preparation and serving instructions.

Labels are also an important aspect of advertising and marketing. For example, the Winemakers' Federation observed that:

With literally thousands of different brands of wine on the market, label appearance is regarded as a significant factor in the process of product differentiation and prominence. (sub. 45, p. 6)

While packaging provides a wide range of benefits to the community, it also imposes important costs.

The benefits of packaging are short-lived. They disappear once the packaging has served its purpose. Packaging is then disposed of either through the waste management system or as litter.

Often, however, packaging users do not directly incur the costs associated with disposing of packaging waste and cleaning up litter. Rather these costs are incurred by government, particularly local government, and the community.

Chapters 5 and 6 give detailed consideration to these issues.

1.3 The packaging and labelling industries

Packaging is not an industry in itself. Rather, it is a series of processes involving the production of material inputs, their ‘conversion’ into packaging (for example, the production of cans from tinplate), and the ‘filling’ of packages by user industries (for example, food processors). It also includes important value-adding processes such as printing.

It is with reference to these processes that the term ‘packaging industry’ is used in this report.

Packaging manufacturers, known as converters, are the focus of this inquiry. However, the nature and extent of the economic linkages between material input suppliers, packaging manufacturers, and users of these products is integral to this inquiry. Particular attention is directed towards material inputs, especially where these inputs are semi-finished packaging products such as tinplate, aluminium canstock, and certain grades of plastic and paper.

The Commission has considered labelling as an integral part of packaging. It includes any printing (or other method of marking) on a package or on a label (or tag) attached to a package.

The Label and Tag Manufacturers Association of Australia (LATMA) represents about 90 per cent of pressure sensitive label and tag manufacturers in Australia. It claims that labelling operations exhibit the following characteristics.

- The industry is comprised of mostly small to medium sized family-owned companies. The larger firms include JAC Australia and Fasson.
- Labelling is the fastest growing part of the printing industry. The growth rate (in amount of paper used) of the label and tag sector is approximately 20 per cent per annum above general printing.
- Labelling operations are very diverse because they service a wide range of industries.
- Market requirements of pictorial, textured surface, and multi-language features have made labelling operations one of the most technologically advanced sectors.

In 1994–95 the value of exports of labels (printed and non-printed) was \$20 million — exceeding imports by approximately \$3 million (see App. C, Table C.3). Similar to packaging products, substantial amounts of exported and imported labels are not reflected in trade figures as they constitute ‘embodied’ trade.

1.3.1 Size

BIS Shrapnel (1995a) has estimated annual sales of the Australian packaging market to be about \$5.6 billion in 1993–94 — equivalent to around 1.3 per cent of GDP. This estimate includes all domestic manufacturing of packaging and imports of empty packaging. The Packaging Council of Australia (PCA) has estimated that the Australian packaging industry directly and indirectly employs over 50 000 people.

On a global scale, packaging activities are valued at about \$400–\$500 billion (Amcor, sub. 69). Australian packagers thus represent about 1 per cent of world packaging production.

Available evidence suggests that for many years the Australian packaging market has grown more slowly than the economy as a whole. A number of different studies provide a range of estimates — the packaging market grew on average 1.4 per cent per year between 1982 and 1992 (Potter Warburg 1993) or 2.2 per cent per year between 1980 and 1990 (BIS Shrapnel 1995a). The latter of these reports predicts the Australian packaging market will grow (on average) by 2.5 per cent per annum until the year 2000, while Visy Board sees “the Australian [packaging] market as a mature one with annual growth rates of around 3 per cent through to the turn of the century” (sub. 64, p. 16).

1.3.2 Structure

The Australian packaging industry is highly concentrated. The four major suppliers of packaging (Amcor, BTR Nylex, Southcorp and Visy Board) represent around 75 per cent of the total sales value of all packaging material. Currently, there are one or two suppliers dominating each major sector of the packaging industry (see Table 1.1). Concentration is greatest in the production of glass containers and aluminium cans. ACI Packaging (a subsidiary of BTR Nylex) is the sole producer of glass containers, while Containers Packaging (a division of Amcor) and Southcorp Packaging supply all aluminium cans.

High concentration in packaging production helps provide access to scale economies, including the scope to fund research and innovation. However, concentration can also reduce competition (see Chapter 2), increasing prices to users.

Increasing concentration has been a feature of the Australian packaging industry over the last 20 years. During this period, a world-wide consolidation has been underway and has resulted in the formation of a number of very large multinational producers (see also Amcor, sub. 69, p. 7). Competitive pressures, which have been intensified by tariff reductions in Australia, have encouraged

Australian packaging producers to consolidate to improve performance. Converters are also forming closer links with material input suppliers and packaging users.

Table 1.1: Market share held by top two suppliers in each packaging sector, per cent of total packaging market value

<i>Packaging Type</i>	<i>Major suppliers</i>	<i>Market share</i>
		(%)
Glass containers	ACI Packaging (BTR Nylex)	100
Aluminium cans	Containers Packaging (Amcor); Southcorp	100
Corrugated containers	Amcor; Visy Board	96
PET bottles	ACI, Southcorp	95
Paper multi-wall sacks	Amcor; Visy Board	95
Liquidpaperboard paperboard packaging	Amcor; Visy Board	95
Sacks, bags, other	Amcor; SA Brewing	95
Steel cans	Containers Packaging (Amcor); Southcorp	80
Plastic films	National foods; Amcor	72
Aluminium foil	Amcor Aluminium; National Foods	72
Folding cartons	Amcor; Visy Board	66

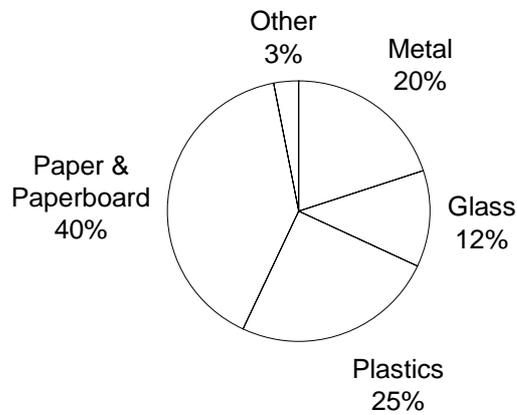
Source: BIS Shrapnel 1995b, p. 10; PCA, sub. 57

1.4 Material inputs

Major packaging materials are glass, metals, plastics, and paper and paperboard (see Figure 1.1). The relative shares of these materials has changed over time, albeit slowly (see Figure 1.2). Glass, plastics and paper have taken an increasing share of the market.

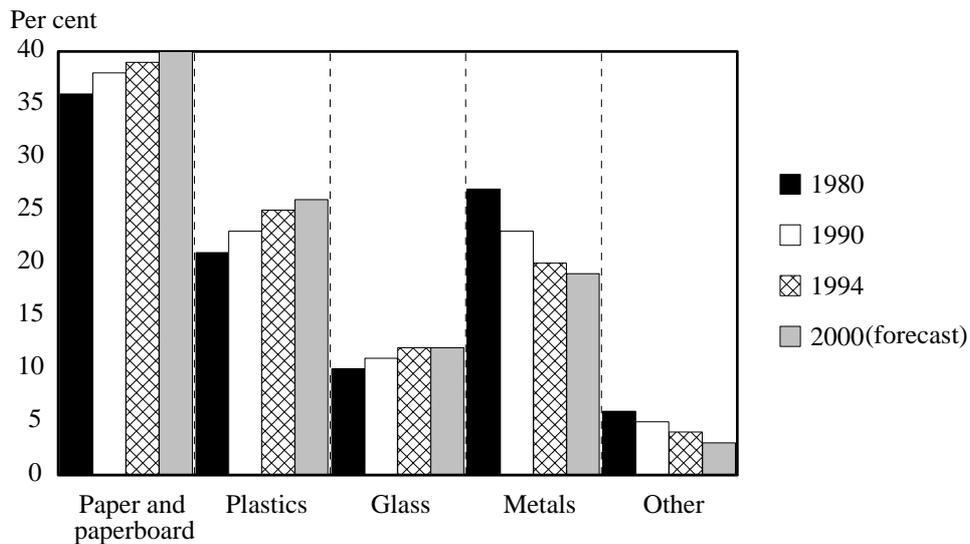
Through innovation and the development of new applications, plastics have steadily increased their market share from 21 per cent in 1980 to 25 per cent in 1994. Plastics are increasing their share of the beverage market at the expense of glass, aluminium and liquidpaperboard paperboard. For example, the increased market penetration of plastic milk bottles is largely at the expense of fibre-based cartons.

Figure 1.1: Packaging consumption by material, 1993–94



Source: BIS Shrapnel 1995a, p. 14

Figure 1.2: Market share by packaging materials, 1980–2000



Source: BIS Shrapnel 1995a, pp. 15–16

Within individual packaging material sectors there is also substitution. For example, flexible plastics are increasing their market share at the expense of rigid plastics and steel beverage cans have lost market share to aluminium beverage cans. For some markets there may be little substitution; for example,

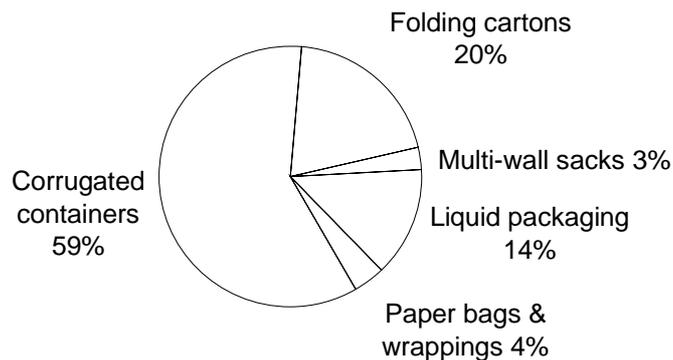
high quality wine is sold only in glass because of consumer preferences. The impact of product substitutability is discussed in Chapter 2.

1.4.1 Paper and paperboard

Paper and paperboard packaging includes products such as paper bags, liquidpaperboard paperboard cartons, and corrugated and solid fibreboard containers.

Paper and paperboard are the most common materials used in packaging, accounting for nearly 40 per cent of all packaging materials by value (see Figure 1.1). Corrugated containers account for about 60 per cent (by value) of paper and paperboard packaging (see Figure 1.3).

Figure 1.3: Estimated market value of paper and paperboard packaging, 1993–94



Source: BIS Shrapnel – personal communication

1.4.2 Metal

Aluminium and steel are the two main metals used in packaging. They each account for about 10 per cent (\$560 million) of the packaging market. Metal packaging has substantial market share in two major areas: food and beverage containers; and pharmaceutical packaging.

Steel

The main use of steel packaging is cans for food, fruit and pet foods, comprising 72 per cent of steel packed products. Other uses of steel packaging are aerosols

(5 per cent), drums (7 per cent) and paints (6 per cent). BHP is the only domestic producer of tinplate for steel cans. Steel converters include Southcorp Packaging, Amcor, and National Can Industries.

Substitutes for steel in packaging include plastic containers, aluminium aerosol cans, plastic drums, and aluminium and plastic closures.

Aluminium

Aluminium packaging is mainly in the form of beverage cans. A smaller portion is foils and aerosol cans. According to Alcoa, the aluminium can currently holds 36 per cent of the packaged beer market and 33 per cent of the packaged soft drink market, with glass and PET being aluminium's major competitors in the beer and soft drink markets respectively (sub. 122).

Aluminium is semi-fabricated into canstock by KAAL Australia.¹ Canstock is sold for further processing to can producers. Containers Packaging (a division of Amcor) and Southcorp Packaging are the only domestic aluminium canstock converters.

1.4.3 Plastics

Table 1.2: Plastics packaging by product and processing method, 1993

<i>Product</i>	<i>Process</i>	<i>Tonnes ('000)</i>	<i>Per cent</i>
Film and sheet	extrusion	192	52
Bottles	blow moulding	102	27
Rigid containers	injection moulding	50	13
Foam	pouring/moulding	10	3
Other packaging	various	18	5
Total		372	100

Source: PACIA, sub. 83, p. 9

The large number of different types of plastics means that plastics can be used in a wide range of packaging applications. Film and sheet (which also includes strappings, wrappings, cups and tubs) represent just over half of all plastic packaging products (see Table 1.2). Some other major types of plastics

¹ KAAL Australia (a joint venture between Alcoa International Holdings and Kobe Steel Australia Pty Ltd) recently acquired Comalco's aluminium rolling mills at Yennora, NSW. Alcoa's Point Henry aluminium rolling facility is being sold into KAAL in 1996.

packaging include bottles, caps and closures, protective padding and insulation, and sacks and bags.

Plastics account for about one quarter of all packaging materials (see Figure 1.1). According to the Plastics and Chemicals Industries Association (PACIA), the local plastics industry:

- generates employment for approximately 15 500 people; and
- is the largest consumer of polymers (the basic substance of plastics), representing approximately 30 per cent of total polymer usage in Australia.

Major converters include Amcor, ACI Packaging and Southcorp.

1.4.4 Glass

Glass packaging represents about 12 per cent (\$650 million) of total packaging materials by value. In some of its traditional markets glass faces strong substitution pressures from other packaging materials. For example, the traditional glass milk bottle has been almost completely replaced by both plastic and paperboard packaging, and there have been similar trends in some other beverages. However, glass is finding new market niches such as the packaging of high margin 'designer' soft drinks.

Major users of glass include soft drink companies, breweries and the wine industry. Other users include cosmetics, toiletries and some pharmaceuticals.

With the exception of economically insignificant 'boutique' operations, ACI Glass Packaging is the sole manufacturer of glass material inputs and glass packaging in Australia.

1.4.5 Composite materials

Advances in technology have made possible the combining of different material inputs to form composite packaging materials. Composite materials can sometimes provide better barrier and strength properties than packaging made from one material. For example, to continue lightweighting without losing strength properties, some glass bottles were enclosed with a plastic sleeve. Further, the strength and suppleness of certain plastics are combined with the barrier properties of metal foils.

1.5 Innovation

The level of innovation within the Australian packaging industry has varied between sectors. Most advances in packaging technology have originated overseas and been imported by local industry.

Research and development is scale sensitive. Innovation is often an expensive and complex venture carried out on a large scale. In many areas, only large firms can afford the funds and bear the risks demanded by such an effort. Consequently, there is an incentive among Australian packaging producers to import technology developed overseas.

Overseas firms have equity control in a number of Australian packaging producers and material input suppliers. This facilitates the transfer of technological developments into Australia. In the past, this may have further reduced the incentive to innovate within Australia. For some materials, such as liquidpaperboard paperboard, overseas firms supply not just the technology but the filling equipment and materials under the one contract.

Packaging firms that have been domestically owned and cater to unique Australian circumstances, such as the corrugated fibreboard container sector, have been more innovative in their own right than many other sectors of packaging. The large distances that separate Australia's major commercial centres have made Australian industry dependent on good quality packaging that will protect goods during transit and make their handling easier. In response to this demand, Australian producers of corrugated fibreboard containers have been successful innovators.

Australian packaging producers are increasingly using vertical alliances to establish closer links with material input suppliers and packaging users. Vertical alliances are collaborative relationships between two or more businesses that lie somewhere between full vertical integration and arms-length market transactions, such as contracting for supply of material inputs. Alliances can be informal in nature or they may involve contractual agreements between involved parties.

Alliances are becoming increasingly common throughout the Australian economy. In a recent analysis of alliances, the Bureau of Industry Economics (1995) found that close to two-thirds of Australian manufacturing firms are currently involved in some form of alliance. These businesses are co-operating with customers, suppliers and other firms including competitors. Co-operation is being increasingly used to gain market advantage (through improved market knowledge, the cultivation of new customers and suppliers and/or the development of new products) and improve production efficiency.

Alliances can also improve the performance of converters by rationalising the product range; this assists converters to realise larger economies of scale. Southcorp stated that alliances were:

... better characterised as sensible strategic partnerships. ... Our experience has been achievement of cost/price stability, predictable volumes, some rationalisation of sizes, and outstanding product and service quality. All such co-operative efforts to meet consumer expectations have proved productive to both partners — and to the detriment of no other party. (sub. 97, p. 14)

The benefits of alliances include increased profits and enhanced market knowledge that can produce other spin-off benefits such as improved production processes, improved quality and product development.

1.6 Users of packaging

1.6.1 Methodology and problems with the data

In determining the major users of packaging products, the Commission has used 1989–90 input-output data published by the ABS. These are the latest data that the Commission has had access to as the ABS had not released the 1992–93 input-output tables at the time of this report. The 1989–90 input-output tables are still useful because, although changes will have occurred since 1989–90, they are unlikely to be large.

While input-output tables provide a useful indication of who the major users of packaging are, there are a number of difficulties with the data which make it hard to accurately determine amounts of packaging used. First, confidentiality provisions of the ABS limit the data available on glass packaging. ABS data only provide information on the usage of glass packaging by the beverage industry and the wholesale trade sector. To estimate the usage of glass containers by the food processing industry, which was expected to be a large user, the Commission used data available in the Prices Surveillance Authority's report into Glass Containers (PSA 1995).

Second, for confidentiality reasons, ABS data on metal containers are not sufficiently disaggregated to get an accurate picture of their use in packaging. The data do not distinguish between aluminium and steel cans. Further, the use of non-packaging metal containers, such as tool boxes, is included in the metal containers category, although the values involved here would probably be small. Also, data on container use is not disaggregated from the use of container seals, such as bottle closures and crown seals. Consequently, ABS data cannot provide a detailed analysis of major uses of metal container packaging.

However, it can provide a good guide as to who the major users of metal packaging are, although the amounts of each major packaging metal that they use cannot be determined accurately.

Data available on plastics also include plastic items not directly used as packaging.

1.6.2 Major users of packaging

Table 1.3 identifies the major users of packaging to be the food processing and beverage industries and the wholesale and retail trades. Combined, these industries consumed 68 per cent of the total value of packaging products produced in 1989–90.

Table 1.3: Major users of packaging, 1989–90

<i>Industry</i>	<i>Percentage share</i>
Food, beverages & tobacco	45
Wholesale and retail trading	23
Chemical, petroleum & coal products	9
Transport and storage	6
Paper, paper products, printing & publishing	4
Other machinery and equipment	4
Agriculture, forestry, fishing & hunting	3
Public administration & defence	2
Other ^a	4

a Includes Textile clothing & footwear; Basic metal and fabricated metal products; Miscellaneous manufacturing; Finance, property & business services; Recreational, personal & other services, Mining; Wood, wood products & furniture; Non-metallic mineral products; Transport equipment; Electricity, gas & water; Construction; Communication; and Community services.

Source: ABS, Australian National Accounts, Input-Output Tables, 1989–90, Cat. No. 5209.0

Table 1.4: Value of packaging used by major packaging users, 1989–90

	<i>Food processing</i>		<i>Beverages</i>		<i>Wholesale trade</i>		<i>Retail trade^a</i>	
	(\$m)	(%)	(\$m)	(%)	(\$m)	(%)	(\$m)	(%)
Paper and textile bags and packets	70 527	6	3 078	..	33 968	5	28 137	10
Solid paperboard containers	63 301	6	31 113	4	25 128	4	18 664	6
Fibreboard bags, packets & containers	3 152	..	2 152	..	10 662	2	12 201	4
Corrugated fibre containers, bags and packets	188 354	17	71 539	9	133 746	21	95 137	32
Flexible plastics	254 807	22	104 804	13	169 536	27	126 002	42
Rigid plastics	174 837	15	112 800	14	99 282	16	14 811	5
Metal containers	213 853	19	301 511	36	271	..	2 314	..
Glass containers	170 970	15 ^b	210 278	25	156 632	25	n.a.	n.a.
Total ^c	1 139 801	100	837 275	100	629 225	100	297 226	100

.. Less than 1 per cent.

a The figures in these columns are only approximations due to the non-availability of glass packaging data.

b PSA, 1995.

c Figures may not add due to rounding.

Source: ABS, Australian National Accounts, Input-Output Tables, 1989–90, Cat. No. 5209.0

The food processing industry is the largest user of packaging, consuming over \$1 billion of domestically-produced packaging in 1989–90 (see Table 1.4). Current consumption of packaging by the food processing industries is likely to be well above this figure in constant price terms as the Australian economy has grown and the industry has grown at a faster pace through greater exports.

Plastics comprised the greatest proportion of packaging costs to the food processing industry in 1989–90. Combined, rigid and flexible plastics made up 37 per cent of the cost of packaging. Metal and glass packaging and corrugated fibreboard containers also represented a significant cost.

In the same year, the beverage industry, which includes the production of soft drinks, cordials, syrups and alcoholic beverages, consumed just under \$1 billion of domestically-produced packaging. It is likely that the value of packaging used by the beverage industry now exceeds \$1 billion as the industry has grown. A significant contributor to this growth will have been the wine industry following the expansion of wine exports over the 1990s.

Metal containers represented the beverage industry's largest cost in terms of packaging. However, it is expected that with advances in plastics packaging technology, plastics packaging would now command a greater share of this market.

The wholesale trade sector uses packaging when it re-packages imported goods for distribution to retail outlets around Australia. Flexible plastics, glass containers and corrugated fibreboard containers comprise the largest proportion of packaging costs faced by this industry. In contrast, the greatest proportion of packaging costs faced by the retail trade industry (which includes fast food restaurants and take-aways) is accounted for by flexible plastics. This reflects the large quantities of plastic carry bags used by retailers such as supermarkets and department stores. Flexible plastics, other than plastic bags, are also used in the packaging of items at the retail end. For example, fresh meats are packaged in plastic film for individual sale.

1.6.2.1 Glass containers packaging

The beverage industry was the largest user of glass containers in 1989–90 (see Table 1.4), consuming around 30 per cent of the value of domestically-produced glass packaging. Soft drinks, cordials and syrups were responsible for using around half this value (see Table 1.5). However, the development of the PET bottle, and its popularity with consumers, has reduced the value of glass packaging consumed in the packaging of soft drinks, cordials and syrups.

Table 1.5: Use of glass packaging by the beverage and wholesale trade industries, 1989–90

	<i>Value</i>	<i>Share of total value</i>
	(\$m)	(%)
Food processing industry	97 500	15 ^a
Soft drinks, cordials & syrups	113 686	17
Beer & malt	47 073	7
Other alcoholic beverages	49 519	8
Wholesale trade	156 632	24
Other industries	185 590	28
Total	650 000	100 ^b

a PSA, 1995.

b Figures may not add due to rounding.

Source: ABS, Australian National Accounts, Input-Output Tables, 1989–90, Cat. No. 5209.0

In 1989–90, the wholesale trade sector was also a large user of glass containers (see Table 1.4). Glass bottles are used in the re-packaging of bulk imported alcoholic beverages such as whisky.

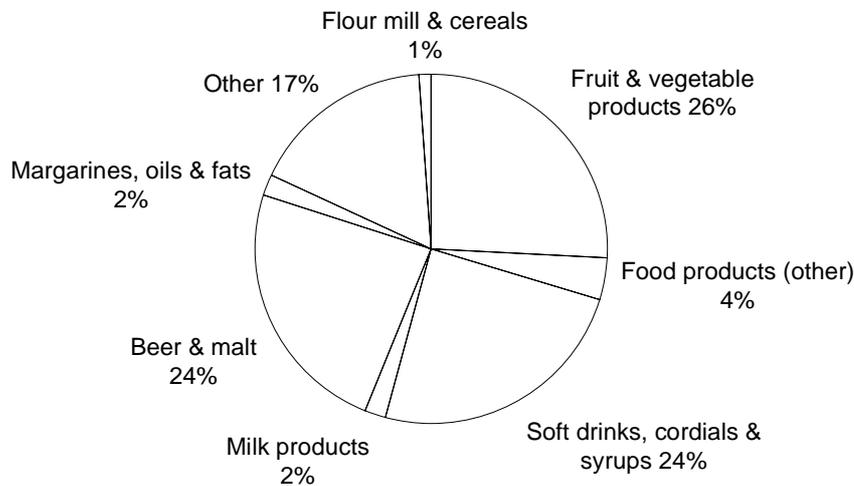
1.6.2.2 *Metal containers*

In 1989–90, the food processing and beverage industry accounted for around 80 per cent of the value of metal containers produced. Principally, metal containers were used for the packaging of fruit and vegetable products; beer and malt; and soft drinks, cordials and syrups (see Figure 1.4).

The value of metal packaging being used by the food processing and beverage industry has fallen in recent years due to the increasing use of plastics packaging in this industry. This is particularly evident in the packaging of soft drinks, cordials and syrups where the PET bottle is being increasingly used. However, the use of plastics to package frozen fruit and vegetables may also have reduced the value of metal packaging for this purpose.

The other large user of metal containers was the chemical, petroleum and coal industry. This industry consumed around 8 per cent of the total value of metal containers produced. These containers are primarily used in the packaging of paints. However, small but significant amounts are also used to package pharmaceutical and veterinary products, and pesticides.

Figure 1.4: Use of metal containers by the food and beverage industry, 1989–90



Note: Other includes meat products; bread, cakes & biscuits; confectionery & cocoa products; and other alcoholic beverages.

Source: ABS, Australian National Accounts, Input-Output Tables, 1989–90, Cat. No. 5209.0

1.6.2.3 Paper and paperboard packaging

In 1989–90, the usage of paper and paperboard packaging was concentrated in the food and beverage industry and wholesale and retail trade industry (see Table 1.6). Combined, these industries account for around 56 per cent of the total value of paper and paperboard packaging output.

The food processing industry used significant proportions of paper and textile bags and packets and solid paperboard containers (see Table 1.7). These contain the processed food purchased by consumers at the retail end of the distribution chain. For example, a significant amount of processed meat products, such as burger patties, are packaged in solid paperboard containers for sale through supermarkets. Similarly, flour mill and cereal food products are packaged in paper and textile bags at the manufacturing level for retail sale.

Table 1.6: Major users of paper and paperboard packaging, 1989–90

<i>Industry type</i>	<i>Value</i>	<i>Share of total</i>
	(\$m)	(%)
Food & beverage manufacture	442 118	31
Wholesale trade	203 504	14
Retail trade	154 139	11
Non-metallic mineral products	84 213	6
Paper, paper products, printing & publishing	74 758	5
Agriculture, forestry, fishing & hunting	69 919	5
Chemical, petroleum & coal products	68 994	5
Transport and storage	66 974	5
Other machinery and equipment	63 887	4
Textile clothing & footwear	43 680	3
Miscellaneous manufacturing	41 303	3
Basic metal and fabricated metal products	35 507	3
Public administration & defence	34 421	2
Transport equipment	15 733	1
Other ^a	30 185	2
Total	1 429 335	100

a Includes mining; wood, wood products & furniture; electricity, gas & water; construction; communication; community services; finance, property & business services; recreational, personal & other services.

Source: ABS, Australian National Accounts, Input-Output Tables, 1989–90, Cat. No. 5209.0

Once the processed foods have their initial packaging, they are then packaged into corrugated fibreboard containers for distribution (see Table 1.7). This facilitates their handling during transportation and also protects the processed food from contamination and damage. For similar reasons, the beverage industry is also a large user of corrugated fibreboard containers. The extensive use of plastic crates in transporting milk products is borne out by Table 1.7 which shows this industry's low use of corrugated fibreboard containers compared to other food processing industries.

Wholesalers use large quantities of corrugated fibreboard boxes (see Table 1.8) for packaging imports into more convenient sizes for distribution. The retail trade industry uses paper and paperboard packaging in fast food restaurants and take-aways and when retailers such as supermarkets purchase directly from the producer. An example of this latter situation is the packaging of fresh fruit and vegetables, bakery items and some delicatessen products by supermarkets. The value of corrugated fibreboard containers used by the wholesale and retail trade industry (76 per cent of the value of containers used by the food processing

industry) indicates the large contribution that imported and fresh products make to the retail stream.

Table 1.7: Use of paper and paperboard packaging by the food processing industry, 1989–90^a

	Paper and textile bags and packets		Solid paperboard containers		Corrugated fibre containers, bags and packets	
	(\$m)	(%)	(\$m)	(%)	(\$m)	(%)
Meat products	4 509	1	25 786	8	43 511	13
Milk products	10 607	3	3 834	1	5 784	2
Fruit & vegetable products	2 344	..	8 850	3	47 007	14
Margarine, oils & fats	372	..	5 541	2	13 558	4
Flour mill & cereal food products	19 016	6	4 452	1	11 450	4
Bread, cakes & biscuits	3 101	1	824	..	30 771	10
Confectionery & cocoa products	1 117	..	13 498	4	10 234	3
Other food products	29 461	9	516	..	26 039	8
Total^b	70 527	20	63 301	19	188 354	58

.. Less than 1 per cent.

a Fibreboard bags, packets and containers are also used by the food processing industry. However, the quantity used is less than 1 per cent of the total of paper and paperboard packaging used. Consequently, their usage has been excluded from this table to improve readability.

b Totals may not add due to rounding.

Source: ABS, Australian National Accounts, Input-Output Tables, 1989–90, Cat. No. 5209.0

Table 1.8: Use of paper and paperboard packaging by the wholesale and retail trade industry, 1989–90

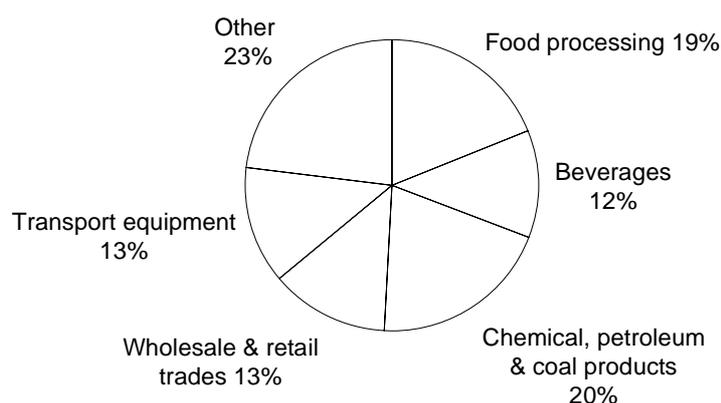
	Paper and textile bags and packets		Solid paperboard containers		Fibreboard bags, packets & containers		Corrugated fibre containers, bags and packets	
	(\$m)	(%)	(\$m)	(%)	(\$m)	(%)	(\$m)	(%)
Wholesale trade	33 968	10	25 128	7	10 662	3	133 746	37
Retail trade	28 137	8	18 664	5	12 201	3	95 137	27
Total	62 105	18	43 792	12	22 863	6	228 883	64

Source: ABS, Australian National Accounts, Input-Output Tables, 1989–90, Cat. No. 5209.0

1.6.2.4 *Plastics packaging*

In 1989–90, the chemical, petroleum and coal products industry consumed the largest proportion of the total value of rigid plastics produced. Rigid plastic containers are used extensively in packaging chemicals and pesticides (see Figure 1.5).

Figure 1.5: Major users of rigid plastics, 1989–90



Source: ABS, Australian National Accounts, Input-Output Tables, 1989–90, Cat. No. 5209.0

Table 1.9: Use of rigid and flexible plastics packaging by the food and beverage industry, 1989–90

	<i>Rigid plastics packaging</i>	<i>Flexible plastics packaging</i>
	(%)	(%)
Meat products	..	3
Milk products	6	2
Fruit & vegetable products	7	..
Margarine, oils & fats	3	..
Flour mill & cereal food products	..	2
Bread, cakes & biscuits	2	6
Confectionery & cocoa products	..	2
Other food products	..	3
Soft drinks, cordials & syrups	10	1
Beer & malt	..	1
Alcoholic beverages	2	..

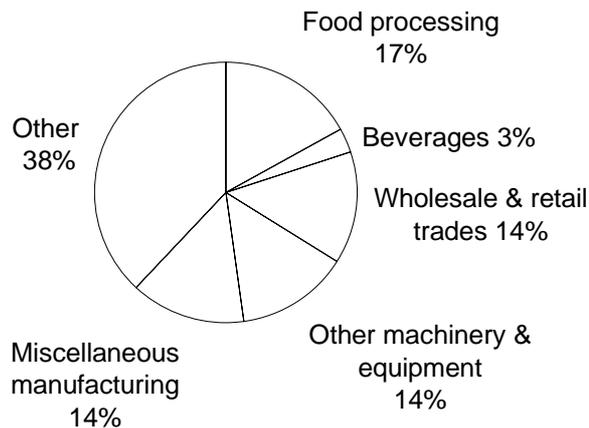
.. Less than 1 per cent.

Source: ABS, Australian National Accounts, Input-Output Tables, 1989–90, Cat. No. 5209.0

The packaging of milk products and fruit and vegetable products accounted for the major proportion of rigid plastics consumed by the food processing industry

(see Table 1.9). Milk products are using more rigids because of the introduction of the plastic milk bottle. The industry's extensive use of margarine tubs is also highlighted by these data as is the use of rigid plastic biscuit trays.

Figure 1.6: Major users of flexible plastics, 1989–90



Source: ABS, Australian National Accounts, Input-Output Tables, 1989–90, Cat. No. 5209.0

The large value of rigid plastic containers consumed by the beverage industry in 1989–90 is due to the introduction of PET and other plastic bottles for the packaging of soft drinks and cordials (see Table 1.9). The value of rigid plastics packaging being used by this industry has increased with the introduction of the PET bottle during the early 1990s.

The food processing industry is the largest user of flexible plastics packaging (see Figure 1.6). This industry uses flexible plastics in all forms of processed foods with the largest usage being the packaging of breads, cakes and biscuits (see Table 1.9). The packaging of meat products also consumes large quantities of flexible plastics.

1.7 Workforce skills and training

Many participants commented on the importance of a skilled workforce to the achievement of international competitiveness in packaging and labelling.

Packaging and labelling manufacturers stand to gain from a more skilled workforce. The Australian Institute of Packaging (AIP) argued that many users

of packaging and labelling are over-reliant on their suppliers for technical knowledge, thereby placing them at a competitive disadvantage.

If the industry is to become competitive then it is essential that both users and suppliers alike should be well informed and knowledgeable about the materials, their properties and the systems for filling, closing and collating. (sub. 12, p. 8)

Development of industry training needs at the national level has taken place in the context of economy-wide microeconomic reform. Reforms include the establishment of competency-based training and significant changes to training delivery. However, the rate of reform has varied considerably across industries. Training reform is now taking place within packaging and labelling — which includes printing.

1.7.1 Skill shortages

Several participants considered a shortage of skilled labour to be a major impediment to improved performance. Participants referred to shortages in several occupations within packaging and labelling.

The PCA nominated a lack of trained packaging designers and engineers, commenting that this is a “serious bottleneck to Australian innovation and to obtaining productivity increases which will improve cost competitiveness” (sub. 57, p. 125).

Many participants raised printing as the area of greatest skill shortage. National Can, for example, claimed to experience ongoing difficulty finding skilled printers for its decoration line (transcript, p. 755). A survey of printing industry members, undertaken as part of the development of an industry training plan, revealed a broad range of specific skill shortages, including graphic artists, lithographers, prepress-reproduction, press operators and electronic publishing design. Although this survey was undertaken a few years ago, it is indicative of the range of skill shortages which are apparent today.

Two major factors have contributed to skill shortages in printing trades, and, indeed, other trades. First, as in most industries, the number of apprentices fluctuates according to economic conditions — declining during recessions and increasing during periods of economic growth. A mismatch between supply and demand tends to occur because of the lead time involved in training apprentices. Several participants, including PATEFA, LATMA and Amcor, referred to this phenomenon, with Amcor noting that it maintains a relatively constant level of apprentices.

Second, the introduction of new technology, such as prepress computer equipment, has occurred without a corresponding provision for training.

Technological change will continue to affect training needs, and, according to the National Printing Industry Training Council (NPITC 1994), will necessitate a more flexible and multi-skilled workforce.

1.7.2 Current training provision

Providers of training relevant to packaging and labelling include:

- many firms, such as National Can and Amcor — providing in-house enterprise specific training;
- TAFE — providing trade courses;
- universities — offering courses such as Graphic Design;
- the AIP — specialising in packaging specific courses, including a Diploma of Packaging Technology;
- PATEFA — operating non-technical courses related to sales, supervising etc; and
- machinery and equipment suppliers, such as Heidelberg — involved in industry training.

Industry involvement

Both PATEFA and LATMA have been working with TAFE, Industry Training Boards and state governments to improve the skills and training of workers involved in packaging and labelling.

These industry associations, and packaging and labelling firms, have identified a range of problems relating to current training needs and arrangements.

In some instances, appropriate courses do not exist. For example, National Can runs its own in-house can-making course because no suitable external trade course exists (transcript, p. 756). Hannapak, on the other hand, has recruited trained operators from overseas — at considerable cost of time and money (sub. 6, section iv).

In other instances, there have been insufficient places available. PATEFA cited a recent example where apprentices were told that they would not be able to undertake their final year because of a lack of places. The problem was eventually resolved to the students' satisfaction (transcript, p. 364).

Some participants considered that low levels of literacy and numeracy were severely hindering skill development, particularly in areas of technological change. Literacy training appeared to have addressed the problem at Amcor, while the AWU-FIME Amalgamated Union is focussing on similar training in

several glass manufacturing plants where up to 90 per cent of the workforce has English as a second language.

PATEFA noted that Amcor and Visy were key drivers of a new training course in fibreboard finishing, to be provided by RMIT (Royal Melbourne Institute of Technology). A similar course was attempted some years ago with training taking place on-site at various companies' plants. This arrangement proved unsatisfactory as the firms supporting the initiative felt that they were being taken advantage of by those that did not contribute.

The AIP presented a very different view to the Commission of the extent of industry interest and involvement in skills development and training, in packaging in particular. The AIP stated that:

... its very difficult to get companies to (a) send people along and (b) to allow some of their own personnel to pass on what may be not be terribly commercially sensitive knowledge but rather general knowledge which benefits as much the supplier as it does the user. (transcript, p. 349)

The AIP added that:

... the Institute has in fact been very progressive in seeking companies, in encouraging companies to send students on a course. In other words, the initiative has come from within the Institute. It has not come from the companies. That's a real worry. (transcript, p. 350)

Examples cited by the AIP as evidence of continued "lack of support for education and training specific to the packaging industry" (transcript, p. 347) include:

- a Graduate of Diploma in Packaging course, first offered in 1980 and developed in consultation with major employers, was cancelled;
- the possibility of no enrolments in a Packaging Technology course offered by the Victoria University of Technology; and
- the cessation of specialist short courses in packaging conducted by the AIP (sub. 12, pp. 5-7).

An industry association, LATMA, also drew attention to a TAFE Design course for label manufacturers which was poorly supported by industry.

1.7.3 Improving skills and training

There are a variety of ways in which skills development and training can be improved in packaging and labelling. Several participants, such as the PCA, suggested specific changes to existing courses or the introduction of new courses. Others, such as Ferrero and LATMA, believed that change had to

come from the school system — which does not encourage children to develop technical skills or look favourably on apprenticeships as a career path.

Many of the key training reforms undertaken in other industries in recent years are similarly recommended in the NPITC Printing Industry Training Plan (1994). This Plan develops a comprehensive package of recommendations of relevance to that part of packaging and labelling. However, Recommendation 1 of this Plan epitomises the view expressed by many participants in relation to packaging and labelling. It states:

The printing industry recognises that all elements of the industry must respond to the challenge of change in co-operation with education and training providers if the printing industry is to realise the potential benefits for employers and employees of higher productivity and effective international competitiveness based on the use of state of the art technology by highly competent and motivated staff. (sub. 130, p. 39)

The Commission supports the co-operative intent of this statement.

2 ASSESSING COMPETITION AND PERFORMANCE

Packaging is an important input to many industries. Because of its impact on costs, product life, performance and security, the performance of the packaging and labelling sector is important for key user industries such as horticulture, and processed food and beverages.¹ In the past, firms in these user industries have claimed that high packaging costs and poor quality have impeded their growth, particularly in export markets.²

Many participants expressed concern about the level of competition in sectors of the packaging industry and highlighted impacts on prices, innovation and quality. In some cases, Government concerns about the weakness of competitive pressures have resulted in prices surveillance to reduce the ability of particular firms to abuse market power.³

The terms of reference require the Commission to report on the efficiency of the Australian packaging and labelling industries and their current structure and competitiveness. This chapter examines these issues. Chapters 3 and 4 examine steps that can be taken to improve the efficiency of the sector. The next section discusses the approach that the Commission has used to assess performance.

2.1 Competition and efficiency

Competition provides strong incentives for firms to operate at least cost and pursue on-going improvements in performance. Where competitive disciplines are weak, firms have scope to raise prices above the efficient level. They can also become complacent as they can survive even if they put little effort into reducing costs, improving quality and funding innovation.

In assessing the strength of competition in an industry, the first step is to define the market. Markets should be defined so as to include all sources of closely substitutable products and this exercise often requires considerable judgement. The scope for substitution can be affected by the technical attributes of the

¹ See App. C, Table C.4 for information on the importance of packaging in the costs of production of food and beverages.

² See for example IAC (1989) pp. 24-26.

³ Government policies designed to improve the efficiency of the sector are discussed in more detail in Chapters 3 and 4.

products in question. Geographic considerations may also affect such factors as transport costs, timeliness of deliveries and service. Substitution possibilities will also vary over time with technological change.

The number of domestic firms (that is, the level of domestic concentration) can affect the strength of competition. Other things being equal, and providing they do not collude, competition is likely to be reasonably strong if there are three or more firms in a market.⁴ In these circumstances, poor performance of one firm is likely to be punished by the loss of market share to more efficient rivals. Persistent poor performance by a firm would be expected to lead to failure or the exit of the firm from the market. However, where there are economies of scale competition comes at the cost of duplication. Here trade-off may be necessary between the vigour of competition and lowering the costs of production and innovation.

Furthermore, existing domestic competitors are not the only source of competitive discipline. Where transport costs are not prohibitive, domestic firms, however many there are, will be constrained by the price of imports. The threat of entry may also act as a discipline on the behaviour of firms in a concentrated market.

Information on the price, quality and innovation performance of firms in the packaging and labelling industries varies in quality and reliability. As noted in Chapter 1, the confidentiality provisions of the ABS restrict the availability of statistical information on the most highly concentrated sectors. Reasonably reliable information is available from industry surveys such as those undertaken by the Agri-Food Council and the Hartigan Committee.⁵ These provide responses from a relatively large number of firms in a uniform format and hence tend to highlight important trends or commonality of views.

However, while some information on costs, prices, quality and innovation of Australian packaging firms is available, it is not adequate for the task of thoroughly assessing outcomes for the packaging and labelling industries. As a consequence, much of the information used for considering the price, quality and innovation performance of firms in the packaging and labelling industries is

⁴ For a detailed discussion on this point see IC (1992c and 1994) and TPC (1992b).

⁵ During 1994-95 Price Waterhouse, on behalf of the Agri-Food Council, undertook a survey of 54 food processing companies (of which 70 per cent responded) regarding the cost, quality and technical sophistication of Australian packaging. From these responses 19 chief executives were asked to participate in more detailed interviews (all agreed) and it is on these interviews that the published Agri-Food survey used here is based. The Hartigan Committee was a 1994 Victorian Government study of the packaging industry, comprising packaging and food industry representatives chaired by the Hon. W. A. Hartigan MLC.

based on comparisons of domestic industry outcomes with those observed in overseas markets.

For several reasons, international comparisons of prices for packaging products should be treated with caution. First, it is important that the prices that are compared are for similar products and that specification, quality and service differences are considered. Second, international differences in prices may reflect the limited ability to achieve scale economies in the Australian market and prices of inputs which are different from those available overseas.

Third, international price comparisons are sensitive to the time at which they are made. A number of packaging sectors, as well as the industries supplying them with material inputs, have been subject to both changes in international economic conditions and bouts of unusually intense domestic competition.⁶ Like many commodities, prices for material inputs such as resins, packaging paper and aluminium have been very volatile in recent years. Recent improvements in the relative performance of Australian packaging producers may make recent observations and perceptions of performance somewhat out of date.

2.2 Glass

Australian Consolidated Industries (ACI) has been the sole Australian manufacturer of glass containers for 80 of the last 100 years. Transport costs are high, both within Australia and overseas. Imports are low in many sectors of the market while substitution possibilities vary significantly between market segments.

ACI has production facilities in all State capitals and produces a comprehensive range of products. Thus for many items production must generally be tailored to manufacturing, what is by some international standards, relatively small quantities of a diverse range of products.

The prospects for competition from imports is limited in several major market segments. Direct imports make up around 5 per cent of the market, up from 3 per cent in 1991. These are often specialised lines that ACI does not make, and include containers for pharmaceuticals, toiletries and cosmetics, premium wine bottles and small food jars. There is no tariff on glass containers but natural protection is generally high. The main sources of overseas competition are the potential for overseas bottling of bulk exports and the imports of small containers.

⁶ An example is Smorgon's involvement in cardboard packaging in the 1980s.

On the significance of competition from imports, Master Foods (sub. 99) argued that importing empty glass containers does not significantly limit ACI's market power because freight costs to Australia effectively confined imports to small sizes (less than 300 ml). The Prices Surveillance Authority (PSA 1995) also concluded that imports are unlikely to provide substantial competition in the major market segments. Information provided by participants shows freight costs ranging from 20 per cent to 50 per cent of the landed prices of glass container imports, depending on the size and shape of the item.

In some important markets, particularly beverages, the availability of close substitutes provides effective competition for glass. For example, producers of non-alcoholic beverages can package their products in glass, aluminium or plastic. Glass and aluminium also compete in the packaged beer market. In other segments, such as premium wine bottles and food containers, substitution possibilities are more limited (see Chapter 4).

There are significant barriers to new entrants in glass container production due to high sunk capital costs and scale economies. ACI currently has capacity to meet domestic demand in most products at current prices and any competitor entering the market at an economic scale would generate significant over capacity. This also increases the threat of retaliation against a new entrant and raises the possibility that the entrant would fail to recover its fixed costs in the event that it decided to exit the market.

The difficulty of two competitors successfully surviving in the Australian market was demonstrated by the failure of Smorgon to achieve satisfactory profitability during its nine years in glass containers production. The facilities operated by Smorgon represented the only new entrant to glass containers production since ACI commenced in 1890.

Overall, the market structure for some types of glass containers — in particular premium wine bottles and larger food containers — does not provide enough competitive discipline to ensure efficient outcomes. This conclusion was supported by the available evidence on ACI's profit, price and service outcomes in the less competitive parts of the glass packaging industry. The PSA (1995) found that ACI's profitability was high and consistently exceeded that of the paper and packaging industry and of manufacturing in general. For other segments of the glass market, such as beer and the carbonated beverages, more competitive conditions are suggested by the presence of large buyers with alternative packaging choices.

A number of submissions claimed that glass container prices were significantly in excess of world levels. For instance, the Winemakers Federation of Australia (WFA) observed that:

Price comparisons undertaken by Australian wine companies reveal that prices of bottles sourced from ACI Operations are at least 30 per cent and up to 50 per cent more expensive than comparative standard bottles in overseas markets. ...The evidence also shows that due to the significant savings in the cost of bottles, offshore bottling and packaging could deliver a 5 per cent cost saving for the lowest priced wine exports. (sub. 45, p. 7)

ACI (sub. 181) indicated that the WFA had stated that co-operative efforts between the industry and ACI to reduce the number of bottle types had lowered some wine bottle prices towards international levels (PSA transcript, p. 17). However, the WFA remained cautious about assuming continued improvement and requested continued surveillance of ACI's prices.

The Australian Wine and Brandy Corporation (AWBC, sub. 115) claimed that cheaper European bottle prices led to around 25 per cent of Australian wine being exported in bulk for overseas bottling/value adding. Master Foods of Australia (sub. 99) blamed high domestic glass container prices for the loss of potential export markets to overseas group companies. The Australian Chamber of Manufactures (sub. 119) also complained of the high cost and limited availability of more specialised glass containers.

The Agri-Food Council (Price Waterhouse 1995) survey showed that glass container prices were significantly higher than those on overseas markets. Sixty per cent of participants that used glass indicated a 9 to 25 per cent disadvantage and a further 30 per cent claimed a greater than 25 per cent disparity.

A survey by the Hartigan Committee (1994) on the packaging industry in Victoria, pointed to glass jar prices being from 15 to 60 per cent more expensive in Victoria than in major overseas markets. The committee concluded that the available evidence suggested Australian packaging costs were least competitive in glass.

For many glass products, the Australian market does not allow full achievement of the significant scale economies available in glass container production. This is particularly so given the Australian market's demand for variety combined with high transport costs which limit the ability to aggregate production.

Despite the cost penalties arising from short production runs, some counterbalancing effect is provided by Australia's relatively low energy costs. Studies by the BIE (1994c & 1994d) concluded that average Australian energy prices (both gas and electricity) to industry were lower than those in many

industrialised nations.⁷ Energy inputs (mostly gas) constitute around 10 per cent of ACI's costs.

ACI did not directly comment on the international competitiveness of its prices. Rather, it argued (sub. 114) that in most markets it did not have market power because it faced significant competition from other forms of packaging and from the increasing presence of imports. In addition, ACI suggested that many of its food and beverage customers were large companies with internationally branded products well placed to benchmark packaging prices and thereby able to identify excessive prices.

ACI has commented on international comparisons of its prices on other occasions. In evidence to the PSA hearing into the review of the glass containers declaration, ACI stated that it was confident that in major volume bottles it will, within reason, be internationally competitive and that it was world class in beer bottles. In soft drink bottles, ACI felt prices were fairly competitive after allowing for volume differences, but that the diversity of shapes and sizes of bottles used by the food industry results in a price disadvantage with overseas producers (PSA transcript, pp. 35–36).

ACI (sub. 181) also argued that only a few clients complained about its prices and that the majority of customers had not expressed dissatisfaction. Certainly ACI's three largest customers (representing over 40 per cent of its output) did not register any complaints with the Commission or the PSA. This could suggest that they are satisfied with their glass packaging prices or believe that any government action would be unlikely to improve upon commercial negotiations with ACI.

However, as noted earlier, the WFA, representing a large number of big and small wine producers, complained strongly about wine bottle prices as did the AWBC. The PSA (1995) also observed that a number of wine and food producers in ACI's top ten customers, together with small and medium size users, had expressed concern about ACI's pricing. This is consistent with the weak competitive disciplines for wine bottles and food containers.

In contrast to several other producers, ACI was unwilling to provide the Commission with more detailed information, on a confidential basis, to support their argument that domestic cost disadvantages are the cause of concerns about glass container prices exceeding international levels.

⁷ Australia had the third lowest average natural gas prices to industry of a group of nine industrialised countries, being a little above the average in the United States but 15-20 per cent below France and the UK and nearly 50 per cent cheaper than Germany and New Zealand. A broadly similar picture emerged for electricity prices.

The very limited competitive constraints in the markets for some types of glass packaging (for example, certain food containers, premium wine) suggests that some of the cited price disparities reflect the impact of market power, either in terms of excessive margins or poor productive efficiency. This view is reinforced by ACI's high profitability. These concerns, particularly for prices charged to smaller users, led the PSA to recommend the continuation of the declaration of glass containers for prices surveillance. The PSA (1995) considered prices for beer bottles were probably satisfactory but that in most other products prices and profits were high.

In the area of product quality and technological sophistication of glass containers the evidence was more mixed. A number of participants complained of poor service or unavailability of product with regard to glass packaging.

The Department of Primary Industries and Energy (DPIE, sub. 102) claimed that glass packaging quality was below that of overseas competitors. The Grocery Manufacturers of Australia (GMA sub. 66) indicated that ACI was unable to supply some glass bottles, such as those for pharmaceutical type products, with all such bottles being imported. Bulmer Australia (sub. 50), Goodman Fielder (sub. 8) and Schweppes/Cottees (PSA transcript, p. 81) all complained of delays and supply problems for glass containers.

The PSA found that nearly all customers approached saw ACI as a producer of quality products and it also found good evidence of technical progress in bottle production. However, the PSA also said:

While the quality of glass containers appears to be satisfactory to end users, smaller companies have complained vigorously of what they see as critical problems in supply and other services. (PSA 1995, p. xv)

While Master Foods (sub. 99) found Australian glass packaging to be equivalent in terms of quality to that of international competitors, it criticised ACI's performance in introducing new lightweight products. In order to address problems with developing and introducing new technologies into the local packaging market, ACI has signed technical agreements with international producers.⁸ As a result, ACI claims that much of its technology is world class.

⁸ ACI is part of the International Partnership in Glass Research which consists of six of the world's largest glass manufacturing companies. This group undertakes technology research which ACI is able to access under licence. ACI is a member of the BTR group of companies which is the third largest producer of glass containers in the world. This approach to research offers the opportunity of amortising research expenditure over a far greater production volume than is possible in the Australian market.

2.3 Metal containers

Steel and aluminium cans are important forms of packaging for food, beverages and assorted grocery products. Steel is also used for a variety of other containers, for example, drums and paint tins. In the beer market, aluminium cans provide the main competition to small glass bottles, although steel cans could be economically used by beverage producers if aluminium prices rose sufficiently.

2.3.1 Aluminium cans

All sectors of the aluminium containers market are highly concentrated. However, countervailing market power between the different stages of the industry, significant substitution possibilities from other forms of packaging and the potential to import material inputs, all provide important competitive disciplines. The absence of critical customer comment may indicate that price and quality outcomes are satisfactory and could also reflect the very limited exposure of fillers to export markets or import competition.

There are two suppliers of aluminium beverage cans, Amcor (with around 77 per cent market share) and Southcorp (23 per cent). There has been strong competition between them in recent years. Amcor (Containers Ltd) obtained the \$100 million per annum Carlton and United Breweries (CUB) can contract and the Coca-Cola account from Southcorp in 1994, while Southcorp will be taking over the Lion Nathan/Pepsi contract from Amcor. Southcorp anticipates that this will return them to a 40 per cent market share.

In the material inputs market there are a number of domestic producers of primary aluminium and the market appears highly competitive with domestic prices being export parity based. Around 75 per cent of primary aluminium production is exported.

Until late 1995, two of the primary aluminium producers (Alcoa and Comalco) also manufactured can bodystock. However, Comalco's aluminium rolling mill has been sold to KAAL Australia, a joint venture between Alcoa International Holdings Company (a wholly owned subsidiary of the Aluminium Company of America) and Kobe Steel Australia Pty Ltd (a wholly owned subsidiary of Kobe Steel Ltd of Japan), creating a single domestic supplier of aluminium can bodystock. Alcoa is the sole domestic producer of end and tabstock.

The Australian Competition and Consumer Commission (ACCC) has indicated concerns about the limited constraints on the pricing of aluminium canstock provided by competition from other forms of packaging products. However, it

has cleared the acquisition on the basis that the tariff on bodystock be removed via KAAL applying for a Tariff Concession Order, with the aim of increasing the role of potential imports in restricting any market power of the sole domestic supplier (ACCC 1995). Since this time, however, there has been bi-partisan support for removing the tariff concession system.

Exports of can bodystock are significant, with Comalco (sub. 84) exporting 60 per cent of production, while Alcoa's canstock exports are also substantial. This export focus is expected to continue under the new joint venture structure.

An important source of competition for aluminium can producers is alternative forms of packaging in the beverages market. In the beer market, glass has an estimated 67 per cent market share. In carbonated beverages, PET containers have a 58 per cent share compared to 34 per cent for aluminium cans and 8 per cent for glass. In both markets steel remains a potential competitor if aluminium prices remain at current levels and/or steel lightweighting technology is introduced. The substantial investment program currently being undertaken by BHP reinforces this threat.

While these competing packaging types sometimes operate in separate sectors of the relevant market, there is sufficient overlap to provide significant competitive pressure. For example, in overseas markets Coca-Cola has indicated that it would replace aluminium cans with steel ones in some European and Pacific Rim markets (Beverage World 1995). In the US soft drink market, fillers continue to move from aluminium cans to PET bottles, based on recent price differentials.

In addition, the bulk of aluminium packaging is used for beverages. There are a number of very large buyers in these markets and this provides important countervailing power to any market power enjoyed by the material input suppliers and can converters. The ability of these buyers to switch very large volumes from one supplier to another, intensifies competition between suppliers.

In the case of aluminium canstock, Southcorp (sub. 97) stated that it consistently paid more than Asian producers who were supplied in part by Australian aluminium companies. Amcor (sub. 69) also observed that its aluminium costs had been significantly higher than those of major US can producers, but attributed some of the difference to the thinner gauge of US cans. It suggested that Australian suppliers find it difficult to justify the expenditure on the aluminium rolling capacity needed to produce thinner gauge, because of the small size of the domestic and potential export markets.

Comalco (sub. 84) stated that it was competitive in the South East Asian, Middle Eastern and African canstock markets and that benefits derived from competing successfully in these external markets are passed on to the domestic market.

Alcoa (sub. 122) stated that primary aluminium prices in Australia were similar to those in other can manufacturing markets and the revenue obtained from converting ingot to canstock had been relatively stable and at levels equal to or less than prices in the US or Asia.

The Australian integrated canstock producers now link the price of the primary aluminium input into canstock manufacture to prevailing world commodity market prices (London Metals Exchange). Both Comalco (sub. 84) and Alcoa (sub. 122) viewed this approach to canstock pricing as transparent and in line with international market practices. They considered that converters had risk management instruments available to them to lock in long-term stable primary aluminium prices if they wish to do so.

No complaints were received from fillers regarding the price of aluminium cans. This may reflect the competitive power of some of the large purchasers of these containers and their very limited involvement in direct export markets.

On the limited evidence available, the quality and technological sophistication of domestic aluminium can production appears satisfactory. The Commission received no complaints from fillers regarding the quality of aluminium cans. Alcoa and Comalco both stated that they produced a high quality canstock product based on up to date technology. Southcorp and Amcor both cited lightweighting, improved can end production facilities, introduction of new can sizes and improved can line speeds as evidence of recent advances in can conversion.

2.3.2 Steel cans

Steel can making is one of the less concentrated sectors of packaging, but tinplate is supplied by a sole domestic producer. The major focus of customer dissatisfaction has been tinplate supplied by The Broken Hill Proprietary Company (BHP). Concerns were expressed about the international competitiveness of tinplate prices and the level of domestic tinplate prices compared to those charged for direct exports. There appears to have been some recent improvement in performance with BHP undertaking a major expansion, which will improve quality and expand product range, and also increasing its rebates on the export of filled cans.

There are two major steel can converters, Amcor and Southcorp (accounting for 80 per cent of the market), one significant smaller converter — National Can — plus a number of other small niche market producers. Until recently Golden Circle also manufactured steel cans to package its food and beverage output (120 million cans annually). However, it has now sold its can manufacturing operations to Amcor, which will supply Golden Circle with cans for the next 15 years. There are some imports of empty steel cans, mainly in specialist markets where domestic sales are small and scale economies cannot be realised by local converters.

BHP is the sole domestic supplier of the tinplate used in steel can production. Imports make up less than 2 per cent of the market, while canned food imports are over 15 per cent of domestic food can sales (BHP, sub. 86). It is the potential for tinplate imports, rather than the level of imports actually observed, that provides some competitive pressure on domestic prices. As tinplate tariffs have fallen BHP's prices have remained constant, thus falling in real terms. Tariffs on tinplate, together with transport costs from Asian and US markets of around 17 per cent, still allow a buffer for domestic tinplate prices to be above world levels.

Around 30 per cent of tinplate production is directly exported, while indirect exports (as part of packaged products) have doubled over the last ten years, much of which received export rebates from BHP.

In the food market (which, including pet food, makes up 70 per cent of tinplate sales) steel cans encounter competition from aluminium, glass, plastics and cardboard packaging. However, in many of these markets the potential for such competition will be limited by technical and/or marketing requirements. Steel has a very small share of beverages packaging in Australia, having been unable to compete with aluminium on price, weight and perceived environmental 'friendliness'. The major capacity expansion currently underway provides BHP with the potential to compete in the beverages market.

Because of the greater prospect of imports, there is somewhat more constraint on BHP's market power as a material input producer, than exists for ACI in much of the glass market. Although tinplate imports are only around 3 per cent of the market, the potential of large converters to viably import places an upper bound on BHP's domestic prices.

The existence of three major producers plus other smaller competitors should provide sufficient competitive pressure in the conversion market. National Can (sub. 67) commented that for unsophisticated plain product, small operators provide competition. Imports provide some competition in the smaller volume

niche and decorative markets (for example, biscuit tins). National Can indicated that imports of empty containers such as pails and cans were increasing.

A number of participants considered that Australian steel packaging prices were significantly above international levels and that this was largely due to higher tinplate prices. BHP (sub. 191) has argued that tinplate is only one element in determining can prices and hence higher can prices are not necessarily attributable to higher tinplate prices. This point needs to be kept in mind when considering the comments below on steel can prices. However, as on average tinplate makes up close to 50 per cent of the cost of an empty can, the competitiveness of tinplate prices will have a significant bearing on can prices.

The Australian Institute of Petroleum (sub. 68) indicated that its member companies' overseas affiliates were able to obtain steel drums comparable to those purchased in Australia at prices 30 per cent (Europe) to 40 per cent (Asia) lower. BHP (sub. 191) pointed out that as tinplate is only one of the costs of manufacturing drums, these price differences could not solely reflect tinplate prices but must include other factors such as higher domestic conversion costs and quality differences.

Pax Australia, a contract manufacturer of aerosols, liquids, tubes and lotions, provided confidential data showing Australian steel can prices markedly higher than those in the US for the same product. It was particularly concerned with the domestic price of tinplate compared to export prices:

BHP tinplate selling prices in the region vary between 16 per cent and 30 per cent lower than domestic pricing for Australian can manufacturers.

One Australian contract manufacturer is importing tinplate cans made in Singapore using BHP steel. (sub. 112, p. 4)

Pax suggested that these disadvantages may result in locally produced aerosols of globally branded products being replaced with imports from the US. However, Amcor (sub. 171) indicated that it was working with BHP and aerosol can customers to structure arrangements to lower can costs in conjunction with significant increases in embodied exports. Pax indicated that while its concerns on some products had been met, there remained others where local can costs remained significantly above those available in overseas markets. It suggested that closer co-operation in all sectors of the aerosols market was required in order to achieve the international competitiveness needed to ensure that major fillers serviced both domestic and Asian markets from Australia.

A report of the Can Users Group (1993) found that the biggest gap in international competitiveness is in the cost of cans and, in particular, tinsplate.⁹ For example, they found that average Australian prices of selected steel cans were 18 per cent higher than international best practice. They argued (based on data from New Zealand and the US) that the major cause of these disparities was the price of tinsplate which was at least 15 per cent higher than international best practice. The GMA (sub. 66) also stated that the relative prices of steel cans were among the greatest packaging concerns for its members.

Responses to the Agri-Food Council survey (Price Waterhouse 1995) indicated that metal packaging (predominantly steel) prices were considered to be above those on world markets but, on average, not by as much as rigid plastics and glass. Half of the respondents estimated that metal packaging prices were well above (9 to 25 per cent more expensive) world best practice levels.

Southcorp Packaging (sub. 97), as a major can producer, observed that tinsplate prices were generally higher than those paid by our international competitors. This view was supported by two other large steel can manufacturers, Amcor (sub. 69) and National Can (sub. 67). National Can, which also has a plant in New Zealand, said that BHP's pricing policies discriminated against domestic users in favour of offshore customers. In particular, it observed that BHP sells at a lower price into New Zealand than in Australia (transcript, p. 746).

Amcor (sub. 69) provided data showing that over the last five years the tinsplate price per 1000 cans in Australia was around 25 per cent higher than for major US producers, and at times price differences made landed imports cheaper than BHP tinsplate. While some of this difference will reflect the thinner gauge of tinsplate available in the US, the gap observed by Amcor is too large to simply reflect this factor.

Amcor also stated that price comparisons suggested that its aluminium aerosol can costs are world competitive, but that steel aerosol can costs are uncompetitive with the main cause being a 15 per cent difference in steel costs. It provided confidential data suggesting that domestic tinsplate prices were generally a little below import parity but remained a good deal above export prices available on world markets.

BHP (sub. 191) has argued that partnerships with fillers and converters are addressing such anomalies in the export and import competing sectors and are

⁹ The Can Users Group stated that tinsplate typically represented 60 per cent to 85 per cent of the total cost of the empty can while BHP submitted that on average this figure was less than 50 per cent. Accepting the lower figure still leaves tinsplate as the major single contributor to the price of cans.

making domestic production competitive with imports. Two of the major complainants, Amcor and PAX, have conceded that some improvements have recently occurred in the secondary export and import replacement markets. However, they remain critical of continuing high tinplate prices for the domestic market, which they believe may deter companies with international brands from choosing Australia as the production and filling base for the Asian market.

BHP (sub. 86) presented confidential price index comparisons with a portion of the US market (using list prices and discounts) which indicated that Australian tinplate prices were comparable to or cheaper than that market. BHP argued that Asian markets were not appropriate for such price comparisons as they were very volatile in pricing with the majority being spot business on quarterly pricing. It presented further confidential information (sub. 191) based on imports of tinplate which indicated that its ex-works prices were marginally higher than those available in Japan and the US, but were well below its estimate of import parity.

In commenting on their export pricing, BHP stated that:

Internationally, BHP sells tinplate into 19 countries at prices dictated by prevailing specific local market factors. Prices obtained within these markets can vary depending on quality standards and whether or not the sale is ongoing business or spot business. The Japanese tinplate producers are generally the price leaders in most of BHP's export markets. (sub. 86, p. 6)

BHP indicated that secondary export rebates were provided to all exporting fillers capable of substantiating their export sales. National Can (transcript p. 748) stated that rebates had been 3 per cent of the can value. BHP (sub. 191) has indicated that in recognition of the limited growth available in the domestic market, these rebates have now been significantly increased and simplified in order to stimulate tinplate sales through secondary exports.

Quality issues in packaging may sometimes be related to raw material supply. Southcorp (sub. 97) complained that efficient food can production had been hampered by the inability of BHP to offer world class specification tinplate, such as coil coated plate, tin free steel and large coils. On the other hand, Amcor was happy with the quality of raw material but was concerned with the lead times for obtaining tinplate. BHP stated (sub. 191) that concerns such as those expressed by Amcor had been addressed co-operatively in recent years and that lead times had been halved for much of the market. It also indicated that as new capacity came into service, delivery performance would further improve and new products would become available. Amcor agreed that BHP had improved lead times in recent years but it also claimed that performance had

been poor in the last year due to supply shortages created by inaccurate forward production scheduling.

BHP (sub. 86) indicated that following significant investment over the last ten years, its steel making facilities were world class and that a \$300 million investment program (to be completed by 1998) would bring its tinplate rolling and finishing processes up to world standard in terms of quality, cost competitiveness, product range and delivery performance. It stated (sub. 191) that the need for its customers to be internationally competitive in all their inputs if they were to take advantage of growth opportunities was an important focus in these expansion plans. The major capacity expansion provided by this investment suggests that BHP will need to price competitively in the future in order to achieve the necessary domestic, export and secondary export growth required for attaining high capacity utilisation.

2.4 Paper and board packaging

Corrugated board and carton packaging are highly concentrated and vertically integrated in the material inputs sector. Some fillers have also integrated backwards into converting. Customer appraisal of recent performance has been positive although such assessments appear to vary somewhat with location within Australia and the international paper price cycle.

The main categories of products in this sector are corrugated containers, folding cartons, cartons for liquid packaging and paper packaging (multi-wall sacks, paper bags and wrapping and covering paper). The market structures of production for each of these products are somewhat different.

The corrugated containers sector is dominated by two firms (Amcor and Visy Board) — each with a market share in excess of 45 per cent. There are also several very small converters. In addition, there has been a recent new entrant in River House Packaging, which is now wholly owned by Stone Containers, a major international box manufacturer. In recent years, several major users, such as Arnotts and Carlton and United Breweries, who had manufactured their own boxes, have ceased this activity. There has been a further increase in market concentration as a result of Amcor's recent acquisition of Australian Corrugated Box.

Corrugated boxes often face competition from other packaging mediums such as moulded styrene, plastics, folding cartons and wooden cases and crates. For example, corrugated boxes and styrene containers are competing strongly in the

fruit and vegetable market and new forms of folding cartons may provide competition for corrugated boxes in some applications.

There is a relatively large number of producers of folding cartons, with two large firms in Amcor (Containers Ltd) and Riverwood cartons holding a combined market share of around 55 per cent.

There are two large producers of packaging for liquids, Southcorp and Tetra Pak. All of the board used in these products is imported, although Tetra Pak (sub. 117) has indicated that it believes local supply, if available, would be cheaper. There is significant competition between cartons and other packaging materials in the liquids packaging market, for example, plastic milk bottles and plastic, metal and glass containers in other beverages.

A single domestic supplier (St Regis Bates, an Amcor company) holds over 80 per cent of the multi-wall sack market.

In the material inputs sector Amcor (Australian Paper) is the sole domestic supplier of virgin paper and board and also produces combined virgin/recycled material and wholly recycled materials for the packaging market. Visy Board manufactures corrugated board from wholly recycled material, some of which is imported.

Imports of general cartonboard are substantial (around 45 per cent of the market) and have increased in recent years. In addition, board for liquid packaging is all imported. Corrugated box material is not internationally traded in significant quantities due to high transport costs and the risk of board contamination.

Hannapak, a manufacturer of various cartonboard products, commented cautiously on Amcor's vertical integration in the material inputs sector.

... nothing Amcor has done to date would allow Hannapak the view that Amcor's cartonboard or other interests have unfairly subsidised the activities of its stable of folding carton manufacturers to the detriment of the 'independents' in the industry.
(sub. 6, p. 4)

However, Hannapak indicated that it remained wary and uncomfortable with the situation.

Kebet Packaging Services (sub. 169) also expressed concern at Amcor being the sole domestic supplier of virgin paper products. This was particularly important for some export markets where food packaging standards exclude recycled paperboard material. In particular, based on Amcor company prices for corrugating medium and finished boxes, Kebet argued that there had been occasions when prices of corrugating medium were lower to group companies.

With regard to its vertically integrated operations, Amcor (sub. 69) indicated that product was required to flow from one stage to the next at a fair market price for long-term supply, with outside sourcing being an option if group companies were not competitive.

Participants' comments regarding prices of corrugated board and cartonboard packaging were generally more positive than for glass and steel cans. This may partly reflect the lag in Australian paper and board material input prices in responding to the significant rises in overseas prices over the last three years. For example, Amcor provided confidential data showing Australia's relative corrugated sheet costs have improved significantly since 1993 because of sharp increases in overseas prices.

Kellogg (Australia) commented positively on the competitiveness of cases and cartons:

... we believe we are very competitive on case prices in Europe, and not far off the mark with the US. Carton prices are also competitive, although we have not made any direct comparison for a couple of years. (sub. 90 p. 1)

It also felt that the quality range and innovation offered by its carton suppliers were competitive, reflecting its size and a close working relationship with all suppliers.

A benchmarking study of the Australian dairy industry (Boston Consulting Group 1993) found that Australian corrugated box prices were close to international benchmarks, while the Australian Institute of Petroleum (sub. 68) provided positive views of the price and quality performance of cartonboard manufacturers.

The Agri-Food Council survey showed corrugated boxes as one of the most internationally competitive forms of packaging, with 43 per cent of respondents rating prices as at or marginally above international best practice. Folding cartons (one of the least concentrated sectors of packaging) were assessed as around par with other packaging types in terms of international competitiveness. Around 90 per cent of respondents considered the quality of Australian corrugated boxes to be equivalent or better than overseas. For folding cartons, 70 per cent of respondents were of this view. These are significantly above the ratings for glass and steel packaging.

The annual BIS Shrapnel survey of paper and board packaging showed an improvement in the user assessments of the price competitiveness/value for money of corrugated containers over the last five years. The index ratings of the two major suppliers are currently 81 (100 represents excellent). A similar picture emerged in folding cartons, with the 1995 competitive price rating of 83,

up seven points from 1992. The time series of ratings for liquid packaging was far more volatile, possibly reflecting the much smaller sample of users. The 1995 competitive price index was 83 which was marginally above the 1990 equivalent.

Corrugated containers, folding cartons and liquid packaging each had indices of quality and reliable delivery above 80 and these had increased by four or more points from five years earlier. While it is difficult to put a precise interpretation on such indices, and they do not specifically relate to international competitiveness, these apparently high ratings would seem to reflect general satisfaction with prices and quality.

However, for cartonboard, the diversity of users views was illustrated by the Printing and Allied Trades Employers Federation of Australia (PATEFA, sub. 59) which indicated that carton producers ranked the quality of domestically produced board as their main impediment to efficient operations. Australian produced board is made almost entirely from recycled fibre, and PATEFA stated that this led to conversion problems, particularly in relation to coated cartonboard.

Amcor (sub. 171) conceded that there had been some quality problems associated with recent upgrading of cartonboard production facilities at its Petrie plant. It claimed that these problems had now been overcome and that its recycled board was equal in quality to equivalent overseas products.

In addition, the WFA (sub. 45) expressed concern about carton prices, while Queensland Fruit and Vegetable Growers (sub. 135) commented that overseas growers appear to face lower packaging costs than Australian producers. The South Australian Fresh Fruit Growers Association (sub. 95) complained of boxes failing to achieve their claimed quality standard and attributed poor product performance to the duopoly that had existed in the box market.

These concerns from regional markets suggest that relative packaging prices may be higher and service poorer in these areas due to high transport costs, shorter run lengths in smaller production facilities and possibly less vigorous competition.

The Australian United Fresh Fruit Association provided an alternative view concerning the duopoly in the production of fibreboard cartons. It commented that:

... in general it observes that the industry is as well served by these converters as it was when there were many smaller converters competing for orders. In many instances their better converting technology has ensured a higher quality package than previously used. (sub. 104, p. 2)

Amcor (sub. 69) has provided confidential information which indicates that its corrugated box conversion costs (excluding the cost of paper) are significantly above those of the largest and lowest cost integrated US manufacturers. It attributes much of this difference to the 15 times greater average run length of the overseas plants. It indicated that conversion costs per unit were extremely sensitive to run length because a significant portion of available production time is spent setting up machines between jobs.

Amcor indicated that all of its papers are high performance products. It stated that its average fibre weight per square metre of board was among the lowest in the world, giving it superior technical performance for users.

Visy Board (sub. 64) argued that it was an innovative producer with a history of introducing new products into the Australian market. It stated that large recent and planned investments in excess of \$200 million would ensure continued innovative and cost effective packaging. Amcor indicated similar levels of investment to introduce the most technologically advanced box making equipment available.

2.5 Plastics packaging

Plastics is the most diverse and fastest growing sector of packaging and boasts a rapid rate of technical development. The material input sector has a number of producers but only one or two in each polymer type. Domestic prices are relatively high by world standards. Australia is a net importer of most major resins (other than polypropylene, which is not one of the major packaging resins). At an aggregate level, plastics has the least concentrated converting sector but some converted products (for example, the manufacture of PET bottles) are dominated by a few producers.

The plastics packaging market covers a wide variety of packaging products and raw materials. It is the fastest growing sector of packaging, with growth often achieved by displacing existing forms of packaging such as glass.

The Plastics and Chemicals Industries Association (PACIA, sub. 39) identified six major polymer types¹⁰ which accounted for 98 per cent of the polymer material processed in Australian packaging. In 1993, 70 per cent of these were polyethylenes. Local production of each type of resin is undertaken by one to three firms while PET resins are entirely imported. The effects of the last

¹⁰ These were, in order of market share, low density polyethylene (LDPE), high density polyethylene (HDPE), polypropylene, polyethylene terephthalate (PET), polystyrene and vinyl.

recession and of the ongoing program of tariff reductions has seen concentration increase in recent years.

PACIA (sub. 83) indicated that ongoing developments in polymers means that the range of materials available for any specific packaging application is very wide. The choice between these then depends on price, performance, domestic availability of materials and available processing technology in the converting sector. For example, in recent years PET has made significant inroads on HDPE and vinyl in the cordial and fruit juice bottle market. Current and potential inter-polymer competition lessens the potential effects of the industry concentration in production of any single polymer in the products concerned.

There is some end use competition between plastics and other packaging types which will place indirect pressure on domestic polymer producers. There is competition between HDPE and carton board in milk packaging, while corrugated board competes with polystyrene in the fruit and vegetable boxes market.

There are also significant imports of plastic polymers, particularly in times of excess capacity on the world market such as the early 1990s. Only in polypropylene are imports insignificant. The significant decline in tariffs in recent years has increased the discipline imposed by imports and has thereby encouraged improved industry performance and rationalisation.

A wide range of plastics packaging is produced from these polymers, including many types of bottles, jars, closures, bags and sacks, films, boxes, pallets and a variety of food wraps. Reflecting this diversity of products, the plastics converting sector as a whole is far less concentrated than other packaging markets. The four largest firms hold only 40 per cent of the market, with many small to medium size producers in niche markets. However, there are products such as PET bottles in which a small number of firms dominate the market.

There was limited comment by users on the cost or quality of plastics packaging. This may reflect the competitive structure of the converting sector. Users may recognise that some international price disadvantages in material input and conversion costs would reflect the relatively small and diverse nature of the Australian plastics packaging market.

As observed by ICI:

In Europe and America plastics packaging manufacturers normally only produce a few products with a production line making only one product. The machinery used by these manufacturers can therefore be optimised to suit the product and thus the properties of the resin are less critical.

In Australia, because the domestic market is small, the plastics packaging manufacturers make a wide range of products, often with many products being produced on the one machine. The machines cannot be optimised to one product and subsequently the resin needs to be tailored to produce the quality of product that is required. (sub. 106 p. 3)

A major issue for the price of plastics packaging is the cost of material inputs. Southcorp (sub. 97) argued that historically plastics raw materials had been 15–30 per cent more expensive than overseas. It anticipated that the decline in tariffs to 5 per cent would still leave prices around 15 per cent above world parity (based on an additional margin of 10 per cent for freight and local service premium). However, it also observed that no Australian resin plant remotely approached world scale capacity.

Material input suppliers and converters recognised that Australian plastic input prices were import parity based. Kemcor (sub. 80), a major producer of polyethylene, argued that the domestic price tended to be set by duty free imports from developing countries.

Kemcor indicated that it benchmarked itself against South East Asian producers and aimed to be competitive with the 25th percentile. It was close to achieving this objective after 30 per cent cost reductions over the last three years.

Although the petrochemical industry is characterised by significant price fluctuations, the very low international prices for plastics resins experienced in the early 1990s were not a good guide to Australia's long-term price competitiveness. Equally, the current relatively favourable price comparisons, created by lags in domestic polymer prices in responding to the rapid increase in world prices since 1993, may underestimate material input price disadvantages that will face plastics converters in the long-term.

Pax (sub. 112) claimed that domestic HDPE prices had been significantly above world prices until recently and complained that local producers sell into Asia at prices lower than in domestic markets. However, HDPE exports have been only 5 per cent of local production in recent years and Australia is a net importer of HDPE.

Cadbury Schweppes (sub. 24) commented unfavourably on the domestic prices of flexible packaging for a new product line which is 15 per cent lower from the United Kingdom, even after paying sea freight and import duty (10 per cent). However, it observed that it was not well placed to determine the cause of such disparities.

The Australian Institute of Petroleum (sub. 68) stated that the quality of Australian plastic bottles was satisfactory and suppliers were innovative in

meeting changing requirements. However, it observed that prices were higher than overseas, due partly to higher prices of HDPE.

Over 60 per cent of respondents to the Agri-Food Council survey (Price Waterhouse 1995) felt that plastics packaging prices were more than 9 per cent above international levels — a majority of these being in the over 26 per cent range. The bulk of responses put plastic packaging quality on par with international standards. Similar results on price comparisons were reported in Hartigan (1994) with plastics packaging reported as 10 to 20 per cent more expensive than in selected overseas countries.

BIS Shrapnel (1995b) showed a decline in the competitive price rating (100 equals excellent) given to rigid plastics packaging suppliers from 80 in 1993 to 77 in 1995 (equivalent to 1990). For flexible packaging the rating was steady at 80. For polymer producers the decline in rating was more dramatic, dropping from 84 in 1993 to 74 in 1995, possibly reflecting the recent rapid increases in world polymer prices. The international price competitiveness of Australian plastics producers is likely to have improved since 1993. Quality of product ratings remained almost constant at 86 for polymer producers and 84 for flexible converters, and fell a little to 81 for rigid converters.

2.6 Labelling

Little comment was received regarding the price or quality of labels. However, label and tag manufacturers' peak bodies do concede that overseas labels can be cheaper than those produced in Australia in some circumstances. They also argue that the local industry generally produces a high quality product despite facing cost disadvantages. This lack of adverse customer comment may in some part reflect the small unit cost of labels and the highly competitive structure of the industry.

Any shortcomings in the performance of the label manufacturing sector are likely to represent factors external to it — the price of material inputs and scarcity of skilled labour — as the sector comprises many competing firms. There was some patchy evidence of quality problems in labels manufacture and possible explanations relating to training problems are discussed briefly in Chapter 1. Transport costs do not provide as great a level of natural protection for label producers as they do for packagers. However, the need for quick turn-around time and close liaison between label manufacturers and their customers usually provides local firms with a significant advantage in flexibility.

The limited comment received was somewhat mixed in tone. The Label and Tag Manufacturers Association of Australia (LATMA, sub. 58) accepted that overseas labels were often cheaper but argued that part of the higher domestic price reflected the high quality demanded by users. Ferrero (sub. 10) stated that it had problems finding a local label supplier that combined reasonable price with reliable quality.

The Packaging Council of Australia (sub. 57), PATEFA (sub. 59), the Australian Institute of Petroleum (sub. 68) and Bulmer (sub. 50) all viewed the labelling industry as generally efficient and competitive.

The New South Wales chapter of LATMA (sub. 40) argued that by becoming experts at particular processes, Australian manufacturers were able to produce some label products cheaper than anywhere else in the world. It saw labelling as more technologically advanced and diverse than packaging.

3 INTERNATIONAL TRADE ISSUES

The conditions under which packaging materials are traded internationally, and the international competitiveness of Australia's packaging suppliers influences the prospects for growth of a number of Australian industries.

Australian trade associated with packaging and labelling comprises:

- material inputs to packaging, such as tinplate, aluminium canstock, packaging and industrial paper, and plastics polymers;
- packaging products, such as foils, printed film, moulded crates and closures;
- embodied exports, such as processed food and beverages; and
- labels.

Because packaging is a mature market in Australia, the major growth prospects for the industry arise through growth in Australia's trade with the rest of the world. This chapter examines the impediments to Australia's trade (imports and exports) in packaging and labelling products as well as material inputs to packaging. As the extent of competition in packaging markets also influences the growth prospects for the industry, the chapter looks at ways in which government policies affect the potential for greater competition from imports, particularly in markets for material inputs to packaging (see Section 3.2).

Pricing of packaging and its inputs in Australia is affected by the transport costs involved in exporting or importing to Australia and any other expenses, such as duties faced by traders. This chapter uses parity pricing concepts when dealing with these issues.

- Import parity pricing occurs when local producers price up to the price of imports, including the transport costs and duties faced by imports (but not by the local producers).
- Export parity pricing occurs when local producers sell locally at the same ex-works price as they receive for their exports.

Export parity prices are below import parity prices by an amount equal to duty and transport costs to and from Australia.

3.1 International trade in packaging

International trade in most material inputs to packaging conversion is small relative to domestic production — most inputs are sourced domestically. However, there are some material inputs that are sourced solely from overseas, for example, material inputs used in liquidpaperboard packaging and PET carbonated beverage containers. Furthermore, Australia is a net importer in most material inputs to the plastics and (in some years) paperboard packaging sectors. In contrast, Australia is a net exporter of tinplate, corrugating medium grade paper, aluminium canstock and polypropylene resin (see App. C, Table C.2).

Table 3.1: Exports of material inputs and converted packaging products, 1994–95

<i>Product</i>	<i>Exports</i>	
	(\$m)	(% of total production)
<i>Converted packaging products</i>	217	1–2
<i>Material inputs</i>		
Plastics polymers:		
-LDPE	–	9
-LLDPE	–	25
-HDPE	9	6
-PVC	6	1
-Polypropylene	94	30
-Polystyrene	39	28
Tinplate	78	30
Aluminium canstock ^a	254	50
Paper & paperboard		
-corrugating medium grade paper	51	50
-other paper & board	51	na
Total - material inputs	582	na

– Nil.

na Not available.

a Includes all exports of aluminium sheet of which canstock is a significant component.

Sources: BIS Schrapnel 1995 a & b; BHP, sub. 86, p. 2; Comalco, sub. 84, p. 3; Packaging Council of Australia, sub. 57, p. 37; Alcoa (personal communication)

In 1994–95 approximately \$580 million worth of material inputs to packaging were exported, an increase of 67 per cent since 1990–91 (see App. C, Table C.2). The value of exports ranged from around \$6 million for PVC to \$255 million for aluminium canstock in 1994–95 (see Table 3.1). In the plastics polymer sector, exports as a percentage of domestic production were as low as 1 per cent for PVC and as high as 30 per cent for polypropylene. Exports of

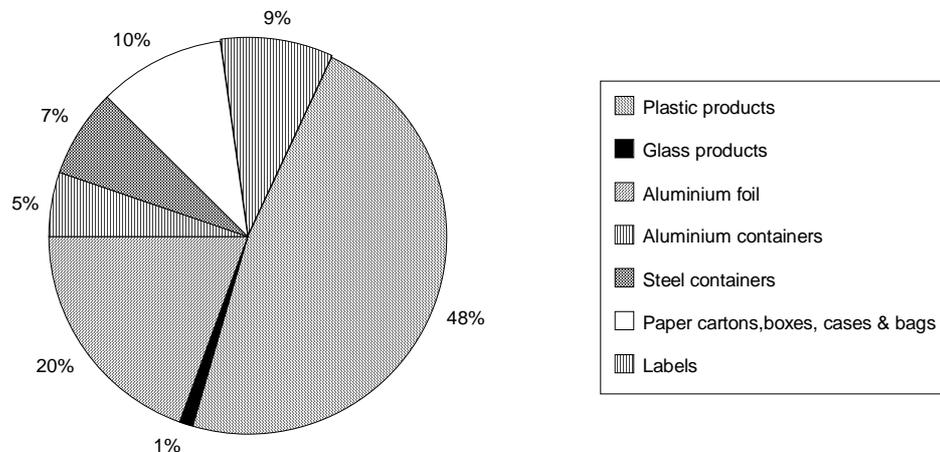
aluminium canstock and corrugating medium grade paper accounted for half of domestic production.

Imports of material inputs to packaging totalled approximately \$460 million in 1994–95, an increase of 40 per cent since 1990–91. Plastics polymer imports accounted for over half these imports in 1994–95 (see App. C, Table C.2).

There is little direct international trade in most converted packaging products. The export of many packaging products is restricted by the ‘fresh air’ content of empty containers, and the geographic location of Australia. For domestic packaging companies wishing to expand, these constraints often result in the establishment or acquisition of production facilities offshore.

In 1994–95 an estimated \$217 million worth of packaging products was directly exported. This represented only about 1–2 per cent of the total production of Australia’s packaging and labelling industries (see Table 3.1). Exports of plastics packaging accounted for nearly half of all converted packaging exports (see Figure 3.1).

Figure 3.1: Exports of converted packaging products by packaging type, 1994–95



Source: ABS, International Trade, Australia: Magnetic Tape Service, Cat. No 5464.0, various years

The export of labels is also constrained by geographic isolation. However, there is a market for the export of standard sized products, such as A4 sheets of labels or computer labels that can be transported in large quantities. In 1994–95 the value of exports of labels (printed and non-printed) was \$20 million — exceeding imports by approximately \$3 million (see App. C, Table C.3).

In the five years to 1994–95, Australia was a net importer of the majority of converted packaging products, with the exception of aluminium and steel containers.

Although direct trade in converted packaging products is small, packaging products are indirectly traded as a part of other goods, that is, they are embodied. As discussed in Section 1.6, the food and beverage industries are major users of cartons, bottles, cans, tins, plastic containers and other converted packaging materials. In 1989–90¹ the total value of food and beverage production was around \$32 billion, with exports of processed food and beverages accounting for nearly \$2 billion, or 6 per cent of total production.

Assuming that converted packaging products on average account for 8 per cent of the food and beverage industries' value of production (see App. C, Table C.4), the value of embodied exports would have been approximately \$160 million in 1989–90.

The potential for growth in embodied exports is discussed in Section 3.3.

3.2 Tariffs on imports

Import competition can be an important stimulus for efficient pricing and production, particularly in highly concentrated industries. While the high natural protection available to many converted packaging products significantly limits direct import competition, there is considerable opportunity for imports of material inputs into packaging and labelling. These opportunities are restricted by tariffs, albeit relatively low ones, on many packaging inputs and outputs, and access to anti-dumping actions against imports (see Section 3.4).

3.2.1 The tariff structure

Until relatively recently, Australian packaging products and inputs to packaging were subject to quite disparate and in cases such as plastics, high levels of assistance through tariffs. Some materials that tend not to be internationally traded, such as glass containers, have not been dutiable. As of 1 July 1996, a general rate of 5 per cent will be established for all packaging materials (some lower rates for developing countries will remain) other than glass containers which will remain at zero (see Appendix D).

¹ This is the most recent year for which data are available.

Australia's international competitiveness in the production of packaging materials is likely to vary substantially between products. Australia is a net exporter of some materials such as tinplate, aluminium canstock, polypropylene resin and corrugating medium grade paper. In other sectors, such as aluminium foil and PVC, Australia is a net importer. Some materials, such as PET and liquidpaperboard, are not produced locally. Because market circumstances vary, the impact of tariffs on local producers and users of packaging will vary. Where substitution possibilities arise or producers are world competitive, the tariff may not be fully reflected in prices; in other circumstances, prices will be at import parity.

Reducing tariffs on material inputs can improve the price performance of packaging industries in Australia. The often low value added and lower barriers to entry in conversion suggest that a good deal of the albeit relatively small gains would be passed through to users.

An across the board approach to tariff reduction has the attraction of being even-handed and of reducing the distortions which can arise from disparities in assistance between activities. The recent across the board reductions have increased exposure to international competition and appear to have improved performance where import competition is possible. For example, BHP commented that:

The price of tinplate is strongly influenced by prices in the various markets for substitute packaging products, imported final manufacturing products, and direct imports. BHP tinplate prices have not increased since February 1991 due to the strong competitive constraints imposed by these influences. (sub. 86, pp. 4-5)

PACIA (sub. 83) made similar observations with regard to the impact of tariff reductions on the international competitiveness of Australian polymer prices.

When packaging tariff reductions are passed on to users, they will improve downstream industry competitiveness. Because packaging is an input to production, the tariff will distort production as well as consumption choices. The tariff impairs the competitive position of domestic user industries by increasing their costs to produce and sell against foreign competitors in both domestic and export markets.

Because import competition can be an important constraint to local monopoly power, and sometimes the only direct constraint, tariff reduction is also a potentially useful tool in competition policy. While the Commission does not consider that the case for further tariff reductions is stronger for packaging products in general than for other tariff-assisted products, the Commission has identified two sectors, tinplate and aluminium canstock, where a tariff reduction appears to be appropriate.

Australian tinsplate and aluminium cansstock appear to be internationally competitive (as shown by significant exports). Both tinsplate and cansstock are produced by domestic monopolies with scope to raise domestic prices up to import parity. For these products to be available at export parity price within Australia would improve efficiency in the Australian economy. Tariff reductions would at least ensure that the import parity price is reduced, enhancing the competitiveness of user industries.

Metal packaging is a particularly significant input into the beverage and fruit and vegetable products sectors, accounting for 9 per cent of the value of inputs respectively in 1989–90 (see Appendix C, Table C.4) Tinsplate is also an important input into the pet food industry.

The Commission understands that currently BHP's price for domestic users, other than exporters, is somewhat above export parity, although it is below import parity. Its prices to exporters are currently at export parity. This situation could change with changes in world market conditions. Removing the tariff on tinsplate would enhance the performance of user industries without significant adverse effects as BHP's tinsplate production is sufficiently efficient to continue to be profitable at duty free import parity prices.

In response to the Draft Report recommendation to remove the tinsplate tariff from July 1997, BHP argued that the tariff reduction should not proceed as the completion of the general reductions program on 1 July 1996 was to provide policy stability:

Any further reduction in Australia's tinsplate import tariff in the short-term would represent a change in the ground rules after the commitment by BHP to the \$300 million Tin Mill 2000 investment. (sub. 191, p. 6)

The length of a phasing period for a tariff reduction is a matter for judgement. The Commission's judgement is that the approximate one year period is appropriate given the limited effects which the change is likely to have on the commercial incentives facing tinsplate production in Australia.

Similar benefits would flow from removal of the tariff on aluminium cansstock. The situation with aluminium cansstock has changed markedly since the Draft Report was issued. At the time of the draft report there were two producers of aluminium cansstock. The price of aluminium cansstock is based on the world market price for aluminium plus a premium for conversion and transport. Competition between the two producers has kept pressure on the premium to ensure that Australian users had access at internationally competitive prices.

However, as a result of the KAAL/Comalco merger (see Section 2.3.1), there is now only one producer of aluminium cansstock, raising the possibility that prices

could rise to import parity in the future. To prevent this, the ACCC (1995) required KAAL to seek a tariff concession order for bodystock as a condition of authorisation of the merger. If granted, this would effectively remove the tariff on bodystock. However, since that time, both the Government and the Opposition have committed themselves to abolish the Commercial Tariff Concession System. This generates considerable uncertainty about the outcome of the ACCC's and KAAL's actions. Furthermore, while a tariff concession might provide import competition for bodystock, the ACCC and KAAL do not intend to seek tariff concessions for endstock or tabstock, as Comalco did not produce these before the merger and therefore they were not subject to merger conditions. It is the Commission's view, therefore, that it would be preferable to remove the tariff on all aluminium can making materials.

The Commission's practice has been to recommend tariff changes after providing participants with the opportunity to comment on similar recommendations in a draft report. However, the significance of the change in market circumstances since the Draft Report, KAAL's involvement with the ACCC's action on tariff concessions, and the absence of significant adverse effects on the (now) sole producer leads the Commission to the view that the tariff on aluminium body, end and tabstock should be removed.

Recommendation 1

The Commonwealth Government should remove the tariff on tinplate and aluminium canstock from 1 July 1997.

3.2.2 PET tariffs

Polyethylene terephthalate (PET) is a plastic polymer primarily used for packaging and consumer products.

The key properties of PET include transparency, toughness, freedom from stress cracking, and resistance to gas permeation (hence its use for carbonated beverages). PET is also versatile — it can be rigid for use in bottles or more flexible, for manufacture into products such as biscuit trays. A relatively new product — Hot Fill PET, capable of being filled to 70°C without losing its shape — is now replacing glass for long-life/pasteurised products.

Glass has also lost market share to PET carbonated beverage bottles in recent years. In 1995 glass accounted for only 6 per cent of this market (down from 11 per cent in 1991), with aluminium cans and PET accounting for approximately 30 and 60 per cent respectively (BIS Shrapnel 1995b).

PET is widely used in the production of bottles, trays and other containers for consumer products, particularly for food and beverages. Table 3.2 lists polymer consumption in product areas where PET has a non-negligible market share.

Table 3.2: Competition between PET and other polymers — polymer consumption for a selection of products (tonnes), 1995

<i>Bottles for</i>	<i>PET^a</i>	<i>HDPE^b</i>	<i>PVC^c</i>	<i>PP^d</i>	<i>LDPE^e</i>
Food products	2 300	2 840	–	200	–
Carbonated beverages	42 500	na	na	na	na
Cordials	900	300	3 300	–	–
Fruit juice & non-carbonated drinks ^f	2 800	2 800	500	900	–
Household chemicals	500	18 700	1 500	–	–
Personal care products	150	4 500	800	1 500	300

na Not available.

– Nil.

a Polyethylene terephthalate.

b High density polyethylene.

c Polyvinyl chloride.

d Polypropylene.

e Low density polyethylene.

f Excludes dairy products.

Source: BIS Shrapnel 1995b

Over time PET has been gaining market share in the packaging of consumer products at the expense of other polymers, particularly PVC (BIS Shrapnel 1995b).

PET is also used in the production of goods other than packaging, such as synthetic textiles, x-ray and photographic tape, and magnetic tape.

PET, together with other packaging materials (with the exception of glass), is subject to a 5 per cent tariff (as of 1 July 1996). However, since 1992 an end use By-law has been in place for PET resin used in the manufacture of carbonated beverage containers, a market where PET has no effective plastic substitutes (other polymers are more permeable to gas and accordingly do not hold pressure satisfactorily). In 1993–94 nearly 90 per cent of PET entered Australia under the end use By-law, and imports of PET have more than doubled since its introduction.

There is no domestic production of PET resin.

The Australasian Soft Drink Association (ASDA) argued that the tariff on PET resin should be removed:

... and any cross [price]² elasticity of demand for this resin vis-a-vis other plastic resin is negligible when one takes account of their relative prices and properties. ...The removal of the tariff would marginally assist the industry's export competitiveness. (sub. 37, p. 4)

Amcor also argued for the complete removal of the tariff on PET:

The tariff is designed to protect PVC manufacturers (there are no PET manufacturers in Australia). However, PET is now so clearly a superior form of material due to physical properties and its comparatively small impact on the environment that the tariff does little except retard development and innovation of products made of PET. (sub. 69, p. 77)

In assessing whether the tariff on PET should be removed, key considerations are the potential for substitution to occur between PET and other polymers and whether these potential substitutes are protected at the same rate as PET. More specifically, if substitutes are subject to the same tariff level, reducing the rate on one product would give it a relative cost/price advantage over other products. This can reduce efficiency by distorting producers' input decisions.

Whilst the ASDA argued that there is little cross price elasticity of demand between PET and other polymers, other participants — domestic producers of polymers, ICI and Huntsman — contended that substitutability between PET and other polymers exists in some packaging applications and that:

There is a strong expectation that PET will eventually make significant inroads into other markets over time with a corresponding increase in competition with other plastics ... (Huntsman, sub. 159, p. 5)

PET also competes with glass (zero tariff) and aluminium (5 per cent tariff as of 1 July 1996) in the carbonated beverages market.

Participants claimed that PET is expected to become even more competitive in the future. PET prices are likely to decline internationally with the introduction of substantially less costly production processes. Not only is PET's share of existing markets expected to increase but it is anticipated that PET will become competitive against a broader range of polymers in other market segments. For example, Huntsman considers that PET is a potential competitor against polystyrene (in particular Biaxially Oriented Polystyrene — BOPS) in the market for biscuit and cake trays, and sandwich packs. This market extends to fast food disposable packaging and packaging for fresh fruit and vegetables.

Because of the potential for substitution, there appears to be no reason why the tariff on PET should be varied from the level (5 per cent) which will soon apply

² A measure of the degree of responsiveness of the demand for one good to a given change in the price of some other good.

to nearly all other relevant goods. Indeed, given the prospects for increased substitutability in the future, a change in relative prices brought about by removal of the PET tariff could have a distortionary impact (albeit a small one) on resource allocation between PET and the products with which it competes. Furthermore, since PET is also used outside of packaging, any changes to tariff arrangements for PET would therefore need to take consideration of the potential impact on a wider range of industries.

As mentioned in Section 3.2.1, the Government and Opposition have committed themselves to abolish the Tariff Concession System. If this abolition includes the removal of end use By-laws, PET for use in the manufacture of carbonated beverage containers will face a 5 per cent tariff. This would impose an additional cost on manufacturers and consumers of PET carbonated beverage containers.

3.2.3 Tariffs on certain recording industry packaging

Rodda Castle and Hind (RCH), representing sections of the Australian recording manufacture industry³, as well as that industry's predominant domestic supplier of plastics packaging products (Plastech Industries), requested the removal of the tariff on much of the plastics packaging used by the industry. RCH argued for the tariff's replacement by a subsidy to Plastech based on its value added or a subsidy to Australian resin producers to enable them to sell at world prices (subs. 81 & 170).

The packaging products concerned are compact disc boxes, C-zero cassettes and audio cassette boxes. RCH suggested that the cost of its preferred bounty option would be around \$150 000 at the tariff rates applying after June 1996 (transcript, p. 769). Plastech argued for similar treatment for its other packaging outputs, some of which are sold to industries which receive no tariff protection (sub. 93).⁴

The recording industry has not received any tariff protection since 1991 when Australia adopted the UNESCO 'Florence Agreement' eliminating tariffs on educational, scientific and cultural materials (the Florence Agreement).⁵ As

³ Sony Music Entertainment (Aust) Ltd, Digital Audio Technologies Australia and Disctronics Technologies. RCH has indicated that these firms represent the majority of the Australian recorded manufacturing industry.

⁴ The items concerned are security system cases for use in retail outlets, control communicator cases for the electronic security industry, video cassette cases and cases for goods intended for therapeutic use.

⁵ UNESCO was the United Nations Educational, Scientific and Cultural Organisation.

there are tariffs on their inputs, these industries are currently facing negative effective protection. RCH (sub. 170) indicated that manufacturing of recorded music was a highly competitive industry in which profit margins were small and the PSA (1990) confirmed this view.

RCH (sub. 81) estimated that compact disc (CD) manufacture received effective protection of minus 2 per cent (when input tariffs were around 9 per cent) while audio cassette production received minus 17 per cent. These rates will fall to around minus 1.2 per cent and minus 8.5 per cent respectively from July 1996⁶ when effective protection for the relevant packaging products will be around 5 per cent. Plastech is the only domestic supplier and holds a little under half the total market for these goods.

The recording industry exports some of its output (mainly CDs) and this is expected to increase. It has access to duty drawback on imported material used in these goods.⁷ Plastech indicated that on exported goods it currently received rebates from resin producers to bring input prices to world prices (transcript, p. 779). Direct exports currently total 8 per cent of its production (sub. 93).

The Commission recognises that the domestic CD manufacturing industry is marginally disadvantaged, and the cassette manufacturing sector more so, by current protection levels. However, anomalies of this nature occur wherever tariff assistance is granted. Relatively modest negative effective protection is a feature of the environment for a number of Australian mining, agricultural and manufacturing products.

In general, the Commission does not favour the use of bounties or subsidies to rectify these situations as they add another layer to the protection framework and require the raising of additional tax revenues, thereby creating distortions elsewhere in the economy. The approach favoured for dealing with assistance anomalies is a general lowering of protection.

Only if an anomaly has particularly deleterious effects, or if correcting it would offer unusually large benefits, would remedial action be considered worthwhile. This does not appear to be the case for the recording industry. RCH (sub. 170) has reiterated that it sees the prospective levels of negative assistance as a major competitive disadvantage for the Australian recording industry. The Commission finds it difficult to reconcile these concerns with the strong

⁶ A number of the inputs used by the manufacturing sector of the recording industry are already subject to duty free entry under tariff concession orders (production machinery and special papers and paperboard) or Item 57 by-law (polycarbonate resin, a major material input for compact disc manufacture).

⁷ RCH indicated that Sony is currently exporting 20 to 25 per cent of its production but this is expected to rise to around 50 per cent (transcript, pp. 778&780).

investment and output performance of the CD manufacturing sector of the industry in recent years in the face of negative protection considerably higher than presently exists. This negative assistance, although not desirable, does not appear to have significantly hindered growth in domestic CD manufacture.

CDs have never received tariff protection. The local manufacturing industry has grown from a situation where the bulk of CDs were imported to one where it meets a very high proportion of domestic demand and has significant exports. This expansion has occurred without tariff protection on outputs and with tariffs on inputs which were considerably higher than will exist post 1996.

In addition, the value of any resource allocation improvements that would accrue from such a small bounty do not appear to justify the full costs that would be entailed in establishing, administering, monitoring and periodically reviewing the scheme.

Nevertheless, the anomaly which RCH and Plastech have drawn to the Commission's attention serves to highlight the gains still available from reducing tariffs on business inputs below the level of 5 per cent currently envisaged.

3.2.4 CER rules of origin

A number of concerns over preferential rules of origin, under the Closer Economic Relations (CER) trade agreement between Australia and New Zealand, were raised by the Printing and Allied Trades Employers' Federation (PATEFA). To determine country of origin of a substantially transformed good, Australia uses the value added method for international purposes. In the context of the CER agreement this requires that a minimum of 50 per cent of the value of the good must be added within the preferential area, and that the last process of manufacture must take place in the country for which origin is claimed (Department of Industry, Science and Technology 1995c).

PATEFA was concerned that in cases where companies were operating at or close to the specified local content requirement, small fluctuations in exchange rates and improved productivity could effectively move the local content below 50 per cent. For example, if local content was 51 per cent, a 2 per cent exchange rate change or a 2 per cent cost reduction through process improvement would bring the rate below 50 per cent. Consequently, the company would not comply with the 50 per cent rule and the exported goods would incur a duty upon entering Australia or New Zealand. The value of Australian exports to New Zealand under reference in this inquiry that are

affected by the preferential rules of origin have been estimated by PATEFA to be around A\$45 million per annum.⁸

The issues raised by PATEFA are not new. They confirm that the use of the value added method to determine country of origin can act as a disincentive to lower domestic costs, other things being equal, because domestic cost reductions contribute to lower local content. To address these concerns Australia and New Zealand have established a Joint Working Group to consider and evaluate the operation of preferential rules of origin. In particular, this working group will consider the feasibility of adopting other methods to determine country of origin such as a change in tariff heading for preferential purposes. This is consistent with the approach taken by the World Customs Organisation (WCO), in association with the World Trade Organisation (WTO), which is also considering a change of tariff heading for non preferential rules of origin. The WCO review may include labelling (see Section 7.3.3.1).

The Department of Industry, Science and Technology and the Australian Customs Service are currently liaising with Australian industry to determine the likely effects of these proposed changes.

3.3 Prospects for export growth

Although there are natural barriers to trade in packaging products, trade is growing in some packaging materials (see Section 3.1). Trade in packaging products is considered by Amcor to be a significant potential growth area.

Amcor exports paper and various packaging products to Asia and is:

... developing innovative ways to supply high value-added packaging in a form that does not incur excessive transport costs. An example is producing high-quality graphics on steel can walls that can be exported stacked flat and rolled into a can wall in the destination country. (sub. 69, p. 72)

However, opportunities for growth in packaging are more likely to come via packaging embodied in exports of food and beverage products, particularly to the Asian region. Whether Australian producers are able to take full advantage of these opportunities will depend on a number of factors including price and quality competitiveness, cultural adaptability and trade barriers.

Amcor commented that:

The potential for growth through embodied exports is extremely large, limited only by the ability of Australian industries to become more competitive in export markets.

⁸ Only includes labels, paperboard packaging and general advertising material.

Opportunities in some produce areas, especially in dairy and meat, are significant. (sub. 69, p. 73)

This section examines the nature and extent of embodied exports of packaging and the pricing of secondary exports as an impediment to trade. Another impediment, the impact of tariff and non-tariff barriers in other countries, and the prospects for reducing those barriers, is discussed in Section 3.5.

3.3.1 Embodied exports of packaging

On average, converted packaging products accounted for approximately 8 per cent of the total value of food and beverage production in 1989–90 (see App. C, Table C.4). However, the proportion varied substantially between industry sectors from about 1 per cent for meat products to about 19 per cent for beverages and malt.

Given that the food and beverage industry is the major user of converted packaging products, the growth in exports of processed food and beverages — by approximately 80 per cent between 1989–90 and 1994–95 — is likely to have indirectly promoted growth in the production of converted packaging products (see App. C, Table C.1).

Indeed, all food and beverage sectors have recorded an increase in the value of exports over the five years, some more significant than others (see App. C, Table C.1). For example, from a selection of food and beverage products, non-bulk fruit juices, canned and dried dog and cat food, and wine account for a significant proportion of export growth in this sector. The value of these exports increased by over 200 per cent between 1989–90 and 1994–95. The most rapidly growing sector, although from a very small base, was frozen processed vegetables, which experienced a 13 fold increase in exports over the period. Export growth was, however, more modest for canned fruit and jams (see Table 3.3 & App. C, Table C.5).

Table 3.3: Exports of selected food and beverage products, 1989–90 to 1994–95

	<i>1989-90</i>	<i>1994-95</i>	Change
	(\$m)	(\$m)	(%)
Bottled beer	14	11	-21
Canned beer	40	47	18
Canned fruit	65	85	31
Wine	119	385	224
Dried dog or cat food	34	116	241
Canned dog and cat food	32	110	244

Fruit juices - non-bulk	20	89	345
Frozen processed vegetables	1	14	1 300

Source: ABS, International Trade, Australia: Magnetic Tape Service, Cat. No. 5464.0, various years

According to the Department of Industry, Science and Technology, Asia constitutes the greatest share of expanding exports for processed food and beverages. Ten of the 14 largest export markets are in Asia, with Japan constituting the largest market, and China and Hong Kong experiencing the most rapid growth (1995b, p. 8).

Exports of processed food and beverages are forecast to increase to around \$8 billion by 2010 (CEDA 1995). Consequently, the value of converted packaging products relating to these exports is likely to increase significantly.

3.3.2 Pricing of embodied exports

Australian producers of packaged products typically find themselves in extremely competitive conditions in many markets, particularly export markets. In these circumstances a small price change will typically produce a large demand response. Import parity pricing of material inputs to packaging is a particular problem for firms in this situation.

Price discrimination (discounts to specific customers) can alleviate these problems, particularly where there are unsatisfied economies of scale in material input production.

Because exporters' demand for inputs is sensitive to price, 'export rebates' on their secondary exports are offered by many suppliers of packaging products. For instance, BHP commented that it:

... offers significant industry price incentives based upon such criteria as volume and export competition. These incentives include secondary export support and assistance with the implementation of a rationalisation program. Secondary export support is provided to Australian can fillers to enhance their ability to establish a foothold or increase market share in overseas markets. (sub. 86, p. 5)

To the extent that it occurs, price discrimination in favour of exporters will improve economic outcomes compared with circumstances in which export rebates were not offered. In principle, selective price discounting or price discrimination can wholly eliminate the efficiency cost of market power. If the supplying firm has sufficient information about the price sensitivity of each customer's demand, it can contract with each buyer to individually tailor prices to different levels of demand. Monopoly prices would be charged to some customers, while others would get concessional prices. This would facilitate an

expansion of sales beyond the point which would occur at monopoly prices without price discrimination.

It is clear that while price discrimination in favour of exporting customers occurs, it falls well short of the ideal. For instance, with regard to BHP's export rebates National Can Industries offered comments which were reflected by several other participants:

Whilst BHP does offer price incentives to pursue ... export opportunities, ... these reduced prices are still higher than the international price. (sub. 67, p. 18)

It should be noted that BHP has made good progress in this area since the inquiry began. In the context of installing a major new increment of tinplate capacity at Port Kembla, BHP has targeted secondary exports for growth. It has informed the Commission that it is currently pricing secondary exports of tinplate at export parity.

It is easy to appreciate the commercial reasons why price discrimination often stops short of the ideal. First, Australia's resource endowment provides certain industries (particularly some food industries) with strong comparative advantages. Where a seller of packaging material has market power, it can capture some of this comparative advantage as profit for itself.

Second, packaging producers are aware that their product represents only a proportion (sometimes a fairly small one) of the final cost of the finished product. For example, one packaging supplier told the Commission that their export rebates were largely a token gesture because they felt that their product was a sufficiently small part of their customers' total costs that an export rebate would not generate any significant effect.

The level of export rebates offered by other firms, particularly to small customers, suggests they may have a similar view. If the firms co-operated (with each other directly or through the buyer), their collective export rebates might make a difference — but individually they can see little capacity to increase secondary export demand as a result of their own export rebates.

Third, if the seller seeks to increase secondary export demand by expanding export rebates, it will be lowering profitability per unit in exchange for higher output. This trade-off is likely to be unattractive for the seller unless it is made in a 'two part' form. Thus, each user would face progressively more generous export rebates (ideally down to export parity price at the margin) for increases in demand in excess of the firm's demand at the monopoly price.

If ideal price discrimination were practised, sellers' volume discounts would not depend on the absolute amount their customers bought relative to other firms. Rather, volume discounts would depend on the amount to which customers were

judged to be able to expand their particular demand beyond some amount estimated to be their demand at monopoly prices.

To do something close to this, selling firms would need knowledge of each customer's production costs, output pricing behaviour and the price sensitivity of the international markets their customers are supplying. In most cases, this information is not available and price discrimination would need to be based on necessarily 'uncertain' estimates. Further, it may be costly to verify the level of each user's demand at the monopoly price. However, some gains will be realisable through the pursuit of price discounts to exporting customers.

Finding

There is scope for gains — both to individual firms and to the economy — if sellers of packaging and packaging materials could pass greater price reductions to users who are exporters.

3.4 Anti-dumping

Australia's anti-dumping system allows action to be taken against goods imported to Australia at a price below their 'normal' value in their country of origin. However, this action may only be taken if the Australian industry producing 'like goods' has suffered, or is threatened with, material injury. The simplest form of anti-dumping action is the imposition of a duty on imports of the dumped good. Once imposed, anti-dumping duties can remain in force for up to five years.

The Australian Customs Service and the Anti-Dumping Authority (ADA) are responsible for dumping investigations. Their investigations must follow the methods prescribed in the *Customs Tariff (Anti-Dumping) Act 1975*. For example, when determining normal values they must first look for domestic sales carried out in the ordinary course of trade in the exporting country. However, if no such sales are found the investigators must attempt to construct the normal value from costs of production. Sales to third countries are the third method and if that is not possible the determination proceeds using whatever relevant information is available.

For each consignment, the duty is the amount required to bring the export price of that consignment up to a predetermined 'floor' price. However, the initial or interim duty is based upon the results of the investigation. Where necessary the

interim duty is refunded, but the outlay is carried for some months. Under both the GATT and Australian law, the floor price is the lesser of:

- the normal value of the goods in the country of export; and
- the export price which would remove the injury to the Australian industry.

Thus the duty can be no higher than the dumping margin (the difference between the export price and the normal value) determined in the investigation.

As an alternative to duties, exporters may make 'price undertakings' to the ADA. If the price at which they undertake to sell matches or exceeds the non-injurious floor price then duties are not applied. In this case there are no duty revenues as the exporters, in effect, levy anti-dumping duties on themselves by raising their prices.

As the Commission understands it, the rationale for Australia's anti-dumping regime is to protect Australian producers in circumstances where they might be damaged by the entry of imports of like goods which are priced below what would be a normal value in their home country.

An acceptance of the desire to advantage Australian producers against unfair import competition from like goods highlights some important ways in which Australia's current anti-dumping system actually does the reverse. Because industries such as packaging produce inputs for other industries, anti-dumping action on such products will generally disadvantage downstream industries.

Because this report is on packaging and labelling, this section focuses on the impacts of anti-dumping arrangements on these and related industries. The Commission has commented more generally on the anti-dumping system in its *Annual Report* (IC 1995a).

3.4.1 Anti-dumping action in the packaging industry

The major packaging related sector subject to anti-dumping action is polymer resins, used to produce plastics including packaging plastics. Some imported packaged foods, particularly canned fruits, have also been investigated. Australian producers and converters of other packaging material inputs such as glass, tinsplate, aluminium and paperboard have rarely applied for, or secured, anti-dumping duties.

Table 3.4: Packaging related polymer resins, plastics and additives subject to anti-dumping investigations (as at 30 June 1995)

<i>Product and uses</i>	<i>Dumping margins^a</i>	<i>Tariff rate as at 1/7/95</i>
	(%)	(%)
Polypropylene: bottles, cups, garden furniture	17–41	3–8
Polyvinyl chloride (PVC): pipes, bottles	0–64	3–8
High density polyethylene (HDPE): extensive packaging uses	0–47	3–8
Expandable polystyrene beads: fruit and vegetable boxes, cold storage packs	0.5–50	3–8
Diethyl phthalate (DOP): plasticiser to soften PVC and other polymers	0–41	2–7
Phthalic anhydride: manufacture of resins and plasticisers	0–53	2–7
Di-butyl phthalate and di-isobutyl phthalate: plasticisers to soften PVC and other polymers	4–55	2–7
Low density polyethylene (LDPE): packaging film, coatings for wire, paper and cardboard	Dumping action unsuccessful	3–8
Woven polyolefin bags: for stockfeed, fertilisers, salt, chemicals, rice and seeds	Dumping action unsuccessful	20
Propylene oxide based polyether polyols (polyols): used in the manufacture of polyurethane foams which have wide applications in furniture, automotive and other industries.	Dumping action unsuccessful	12

a Dumping margins and dumping duties are generally based on free-on-board (fob) values and imposed in addition to tariff duties.

Source: Various Anti-Dumping Authority reports

The chemical industry is a traditionally heavy user of anti-dumping action. Since its inception on 1 September 1988, the ADA has reported on final investigations into ten packaging related polymer resins and plastic additives. The ten products gave rise to 76 individual cases.⁹ Anti-dumping action resulted for seven of these products. Details of these appear below in Table 3.4. Dumping margins are often significantly higher than prevailing tariff rates. However, actual duties are commonly lower than these margins.

⁹ A case is defined as one commodity, one country. An investigation will commonly concern a commodity imported from several countries thus several cases are concurrently investigated.

3.4.2 Effects on packaging industries

Because polymers are an input for the plastics packaging industry — which in turn competes to supply fillers — anti-dumping action on polymer resins disadvantages downstream packaging industries. Australian resin prices are usually higher than overseas markets, including New Zealand (BIS 1995b; Amcor sub 69). The incidence of anti-dumping action contributes to this.

The price increases for the products in Table 3.4 are conceivably large as duties can be as high as the dumping margin (unlike tariffs, anti-dumping duties are confidential). These price increases have two effects;¹⁰ an improvement in the short to medium term profitability of Australian polymer producers, and a loss of profitability for firms producing and using plastics packaging. There can be no presumption that the benefits generated by the first effect will outweigh the costs associated with the second. Indeed, where fillers compete with foreign firms that have access to dumped inputs, the presumption would run strongly in the other direction.

In addition to the direct costs of anti-dumping action, the anti-dumping system generates substantial indirect costs which are well hidden from public view and which may be greater than the direct costs.

First, the anti-dumping system encourages — indeed it deliberately seeks to encourage — restraint from exporters to Australia via the price undertakings discussed earlier.

Second, the dumping inquiry process promotes a climate of uncertainty and threat which discourages importers from competing too vigorously for fear of incurring anti-dumping action. Anti-dumping duties can be imposed in a ‘provisional’ manner by the Australian Customs Service pending an ADA inquiry. The inquiry may then conclude that the goods in question were not injuriously dumped and thus should not be subject to duties at all (such as the last three products listed in Table 3.4) or that duties only apply to some of the exporters. Only 30 of the 76 individual cases resulted in duties. While provisional duties are refunded, they must be borne for the duration of the investigation. They increase the cost and risk borne by foreign exporters and so Australian users.

Discussions with the importers of the packaging related materials listed in Table 3.4, confirm that the trade restraint effects of anti-dumping action are broader than the level of duties collected might indicate. The major issues raised by

¹⁰ Anti-dumping action will also injure the importing party, which may be an Australian company. However, in the following discussion the Commission has focused on the interests of firms producing in Australia.

these importers were, first, that foreign exporters are wary of supplying Australia due to the risk of suffering anti-dumping action and government assessment of their conduct. Second, the threat of anti-dumping action frustrates the establishment of long-term contracts and client relationships between importers and their foreign suppliers. Ironically, this can exacerbate problems with dumping as foreign producers come to regard Australia as a short-term market into which they may try to off-load excess stocks at short notice. Third, to avoid the imposition of provisional anti-dumping duties, importers often respond to initiation of anti-dumping action by calling suppliers to cease trade at least until the case is finished. The threat of provisional duties is exacerbated by the difficulty of predicting the outcome of an investigation. Finally, importers are keen not to 'rock the boat' by competing too vigorously with Australian producers.

While the importers suggested that they commonly ceased trade upon initiation of an anti-dumping investigation, one firm did comment that they had been quoted prices around one-third higher than the prevailing world price as a result of anti-dumping duties.

3.4.3 Further effects

Australian plastics packaging producers must compete with packaging made from other materials. Polymer price rises place plastics packaging at a disadvantage relative to other packaging. Higher costs for plastics packaging producers can result in loss of market share as fillers respond by switching to other types of packaging such as PET, which is not produced locally.

Some participants raised the phenomenon of secondary dumping, where Australian producers must compete against products that utilise dumped inputs. Although direct 'dumping' into the Australian market will be discouraged or stopped by anti-dumping action, secondary dumping (competition from foreign firms which have access to dumped inputs) is impossible to stop in export markets and is often difficult to stop in the domestic market.

For example, Amcor claimed that:

One of the major concerns within the [plastics] films industry is the issue of 'secondary dumping' from the Asian region, which impacts upon converted resin product pricing in Australia. Unfortunately there appears to be no practicable way of preventing this practice. (sub. 69, p. 77; see also the Plastics and Chemicals Industries Association, sub. 83, p. 25)

Huntsman raised the issue of secondary dumping from New Zealand:

The capacity of New Zealand manufacturers to access dumped polymers from Asia and to use these polymers in intermediate and finished goods supplied to the Australian market undermines the capacity of our customers to compete on an equal footing within the domestic market. (sub. 62, p. 5; transcript, p. 462)

In July 1990 competition laws replaced anti-dumping laws for trans-Tasman trade (Duffy and Beddall 1990) under the Closer Economic Relations (CER) agreement. This means that complaints of unfair trade between New Zealand and Australia are assessed under each nation's trade practices legislation.

The current anti-dumping system does not provide any formal mechanism through which the competing interests of producers and users can be weighed and a judgement made in favour of the public interest. On the contrary, the current legislation is heavily weighted in favour of Australian producers of industrial commodities and so against those firms that add value to these commodities and consumers. Once the facts of dumping and injury to an industry have been established, the minister can impose anti-dumping action.

The Commission has been informally advised that the inclusion of public interest considerations *may* be possible under current legislation, although as there is no obligation for these interests to be considered, it is likely the matter would be subject to appeal in the courts.

The issue of the inclusion of broader interests (public interest provisions) into the anti-dumping system is a more general issue and could be addressed in a specific review of Australia's anti-dumping regime.

Finding

Anti-dumping action in the plastics market reduces the competitiveness of plastics packaging producers and users. The capacity of the anti-dumping system to work to Australia's advantage is limited to the extent that it fails to consider the costs which anti-dumping imposes on users.

3.4.4 Dumping and inputs to export

As noted earlier, where it is available on imports which are inputs to production, the availability of anti-dumping action has two offsetting effects; increasing domestic profitability, price and output of Australian producers who compete against dumped inputs and reducing the profitability and output of Australian producers who use dumped imports. While there can be no general presumption that the former effect dominates the latter one, where anti-dumping action is imposed on products which are inputs to export, it is very likely that anti-dumping action will lead to greater losses in export activity than it will stimulate

in import replacement against dumped imports. This is because of the very competitive conditions in export markets discussed in Section 3.3.2. Manufacturing firms facing vigorous import competition can experience a similar problem.

Finding

Where packaging users compete either in the domestic or export markets against firms with access to dumped inputs, the costs of anti-dumping action (to users of material inputs to packaging) are likely to exceed the gains to intended beneficiaries (suppliers of goods competing with dumped imports).

It is for this reason that mechanisms providing exporters with duty free access to imports are likely to be beneficial, providing that administration and compliance costs are not too high. Currently there are two schemes which provide exporters with access to duty free imports; duty drawback provisions (Customs Regulations 129, 131 and 132) and tariff export concessions (TEXCO). However, neither of these schemes allows exporters access to imports free of anti-dumping duties.

The case for allowing exporters access to such mechanisms in the case of anti-dumping duties is accordingly strong. Many successful anti-dumping actions in Australia are initiated by firms which are the sole producer of their particular product in Australia and which accordingly are likely to exercise some market power. Thus, the duty costs are often borne by packaging users, including exporters facing very competitive export markets.

The extent to which packaged goods exporters can utilise these mechanisms depends upon the administrative costs of claiming drawback relative to the duties saved. Because packaging users are usually two production stages removed from raw materials for packaging, such as the resins subject to dumping duties in Table 3.4, it may not be easy to prove to what degree their exported packaging incorporates dumped inputs. Drawback provisions require the claimant to hold documents to confirm that the inputs were duty paid, not used in Australia and were exported. Similarly, raw material importers claiming drawback require documentation to demonstrate that their incorporated imports were eventually exported. Table C.4 shows that the value of packaging in packaged goods is generally low. Therefore, while they may provide some benefits to exporters, those benefits would be relatively modest.

Finding

Providing administrative and compliance costs are sufficiently low, the interests of efficient exporters of packaged products could be promoted by allowing them access to duty drawback mechanisms in the case of anti-dumping duties.

Inputs to export and voluntary export restraint

Where anti-dumping action induces voluntary export restraint there is no anti-dumping duty to gain exemption from as the importer simply charges a higher price. The anti-dumping system could be reformed to provide buyers of inputs to export with a right to purchase such inputs at whatever price they are able to negotiate on the world market. Such a shield against anti-dumping action would remove incentives for voluntary export restraint with regard to inputs to export. This could be done by altering the anti-dumping regime to assure importers that, where they could verify that specific imports are to be used as inputs for export, they would not be liable for anti-dumping action in regard to those imports. They could then negotiate lower prices for these imports from their foreign suppliers. The administrative requirements for this system may be capable of being met by the administrative mechanisms used for duty drawback and/or for tariff export concessions.¹¹

¹¹ It is possible that such arrangements could be used to subvert the intention of the anti-dumping system with regard to other imports which are not inputs to export. This could be done where a firm purchased imports as inputs to production where its output was destined for both domestic and export markets. Here the importer could use the shield proposed above with regard to inputs to export to pass lower 'dumped' prices onto Australian producers not only with respect to inputs to export but also with respect to inputs to production for the domestic market. If the dumping margin were – say – 20 per cent, and 50 per cent of the user's output was destined for the domestic market, the importer could charge the 'undumped' price for the first half of a delivery – destined for input into domestically sold production – and a 40 per cent discounted price for inputs to export. In such circumstances the Australian firm has in effect paid the dumped price for all imports and so subverted the anti-dumping system with regard to inputs to output destined for the domestic market.

Whilst this would not lead to an economically undesirable result – it would progressively improve firms' access to imports as their export intensity rose – it might be seen to breach the spirit of such arrangements. If this were regarded as unacceptable, the practice could be prevented. The arrangements could specify that to be assured of exemption from anti-dumping action, imported inputs to export not be priced less than – say – 5 per cent below the prevailing world price.

Where dumping is occurring, it is generally occurring because of excess capacity and the world price is accordingly frequently assessed by anti-dumping authorities to be a

3.5 Trade liberalisation in foreign markets

As discussed in Section 3.2 and 3.3, the growth prospects of the packaging and labelling industries are partly dependent upon Australia's tariff and protection policies. But opportunities for expansion of trade are also dependent upon the tariff and protection policies of other nations, particularly in Asia.

Although there are export opportunities for packaging and labelling products in rapidly growing Asian markets, several participants to this inquiry have indicated that tariff and non-tariff barriers are significant impediments to trade. Non-tariff barriers include import licensing, packaging and labelling regulations, and regulatory and environmental requirements.

Huntsman, a supplier of material inputs to packaging, stated that:

The tariff and non tariff barriers of certain Asian countries (with which we also compete in the Australian market) restrict our capacity to improve sales volume through exports and thereby deny us the opportunity to achieve optimum efficiency. (sub. 62, p. 4)

3.5.1 Tariffs in other countries

Tariffs are imposed by a number of Asian countries on various material inputs used in the manufacture of packaging products. China, Indonesia, Malaysia and Thailand impose the highest import duties on material inputs.

Although duties imposed on material inputs ranged from 0 to 45 per cent, duties imposed on packaged food products such as confectionary and canned foodstuffs can often be substantially higher.¹² A recent survey undertaken by the Committee for Economic Development of Australia (CEDA) found that regional barriers were a major obstacle to exports of processed foods and dairy products, a sector specifically targeted by Australia as having substantial growth potential. For example, CEDA found that Thailand and Indonesia impose duties of up to 60 per cent and 90 per cent respectively on confectionary products (CEDA 1995).

The Grocery Manufacturers of Australia also referred to this issue:

... many of the markets for grocery products in Asia are protected by very high tariffs, often ranging between 30 and 100 per cent. Asian markets, however, use other barriers

'dumped' price – that is, a price which over time would not allow a normal return on investment.

¹² Asian tariff and non-tariff barriers typically escalate with the degree of processing, creating a bias toward importing in unprocessed resource commodities (Glance, Murtough, Johnston and Winton 1991).

to access, from quotas and import prohibitions to more subtle labelling, food regulation or inspection, documentation and other administrative practices. (sub. 66, pp. 4–5)

Australia affords preferential tariff entry to some Asian countries under the developing countries preferential program. However, as the general tariff rate falls to 5 per cent only those preferential tariff rates under 5 per cent remain.

3.5.2 Non-tariff barriers

In addition to tariffs, import licensing is commonly used in Asian countries. Under this system, specified products cannot be imported without a licence, the granting of which is subject to constraints. For example, ICI Australia noted that:

... Malaysia's import licensing regulations require all imports of polyethylene resin be accompanied by an approved permit authorised by the local polyethylene manufacturer. (sub. 106, p. 5)

Inconsistent product standards between Australia and Asia are another impediment to trade. The Australian Paint Manufacturer's Federation (APMF) claimed that the different labelling regimes make it difficult for Australian paint manufacturers to penetrate Asian markets (see Sections 7.4, 7.5 & App. G). The APMF identified three areas where inconsistencies occur, namely:

- poisons labelling;
- dangerous goods labelling; and
- trade measurements and related markings.

A further example of a typical non-tariff barrier is a requirement to register food products with relevant authorities prior to landing goods in that country. As the Confectionary Manufacturers of Australia claimed:

Essentially, this approach can serve to frustrate companies in terms of time frames, and also with respect to packaging and labelling, if certain ingredients and/or the type of packaging fail to meet that particular country's requirements. (sub. 89, p. 4)

The Packaging Council of Australia identified the emergence of environmental requirements as another impediment to trade:

... of growing importance for the Asia-Pacific region, is the global trading significance of the environmental issues facing the industry. Exporters of manufactured goods to developed countries are increasingly required to ensure that their packaging meets stringent environmental requirements. There is concern that these requirements effectively amount to a non-tariff barrier, discriminating particularly against the exports of developing countries. (sub. 57, p. 53)

Although tariff and non-tariff barriers present problems for increased exports to this region, opportunities exist to reduce these barriers. Multilateral, bilateral

and regional trade initiatives can help to enhance and lock-in the gains from unilateral decisions on tariff and non-tariff barriers. The recently concluded GATT/Uruguay Round trade negotiations will provide longer-term benefits on a range of market access and other related factors. In general, bound tariff levels will be cut by 35–60 per cent. On products of relevance to packaging and labelling, the following are the key outcomes.

- There is an increase in the coverage of bindings on tariff lines. These bindings take the form of maximum or ceiling rates for the tariffs applied to the products under reference, although actual tariffs can be, and often are, lower. Where bindings sufficiently reduce the scope for future increases in protection in offshore markets, they will increase the certainty with which Australian exporters can plan and invest for export.
- The Australian processed foods industry will obtain modest benefits from the Uruguay Round. Tariffs will be reduced on an average basis by 36 per cent (24 per cent in developing countries). Cuts of at least 15 per cent (10 per cent in developing countries) will be made on individual products over the implementation period to 2000 (or 2005 for developing countries).
- Tariffs on Australian exports of paper and paper products will be reduced by an average of 40 per cent with a final average of 7 per cent. Nearly 60 per cent of Australia's exports of paper will enter markets duty free — a rise from only 30 per cent before the Uruguay Round. High tariffs will remain in some markets, especially Thailand, Indonesia, the Philippines and India. However, only 25 per cent of Australia's exports will face tariffs of 15 per cent or higher (previously it was about 32 per cent).
- Tariffs on Australian exports of aluminium will be reduced globally by around 32 per cent. Over 70 per cent of Australia's exports will enter markets duty free. With the exception of India, Indonesia and China, all countries will make reductions in the rates of tariffs applied to products in this sector.
- Tariffs on steel including tinplate will be eliminated over ten years in major markets including the US, the EU, Japan, Canada, Korea and the Nordic countries. However, significant barriers remain in some markets including India, Indonesia, Malaysia, Thailand and China. Nearly 60 per cent (compared with only 2 per cent before the Uruguay Round) of Australia's steel and tinplate exports will now enter markets duty free (DFAT 1994).

In the area of non-tariff barriers, new trading rules affecting industrial products have been adopted. They include rules on technical barriers to trade, trade related aspects of investment measures (TRIMs), anti-dumping, customs valuation, pre-shipment inspection, rules of origin, import licensing procedures,

subsidies and countervailing measures, and trade-related aspects of intellectual property (TRIPs) (DFAT 1994).

The Asia Pacific Economic Cooperation forum (APEC), provides another avenue within which tariff and non-tariff barriers can be addressed.¹³ In November 1994, APEC leaders issued the Bogor declaration committing APEC member countries to “free and open trade and investment in [the] Asia Pacific” (APEC 1994, p. 4). The time frame for this was affirmed at Osaka (APEC 1995) as 2010 for developed economies and 2020 for developing countries. This should further enhance the Australian packaging and labelling industries’ involvement in the Asia Pacific region.

3.5.3 Concessional trade arrangements

Concessional trade arrangements allow the import of products at concessional (often duty free) rates notwithstanding the continued existence of tariff and other barriers. Some are used in developed countries, but they have featured more prominently in developing countries.

There are a number of different types of concessional trade arrangements.

- Duty drawback mechanisms allow producers to effectively gain duty free imports where they are inputs to exports.
- Extended duty drawback or import-export links provide exporters with concessional imports in proportion to their export earnings. Duty drawback is ‘extended’ beyond items which are physically incorporated into exports. For example, under Australia’s Automotive Facilitation Scheme (an ‘extended duty drawback’ arrangement), General Motors- Holden’s Automotive Ltd can export engines to Korea and use the ‘credits’ thus earned to import small cars from Spain duty free. Many Asian countries have used similar mechanisms.
- Tariff concessions are often granted for imports in the absence of locally produced goods ‘serving similar functions’.
- Export processing zones constitute geographic zones or groups of eligible firms producing predominantly, or exclusively, for export and which are exempted from trade restrictions (often in addition to other incentives).

Along with tariff cuts and reform to quantitative restrictions, these schemes have already played an important part in the unilateral trade liberalisation

¹³ The members are; Australia, Brunei, Canada, Chile, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Philippines, Singapore, Taiwan, Thailand and the United States of America.

programs of many countries in the region (Balassa 1989, Gruen 1994). Along with continuing tariff reduction and reform of quantitative restrictions they may have the potential to further facilitate trade expansion and liberalisation in the countries in which they operate.

Because they may offer important trade expansion opportunities for their host countries and for trading partners such as Australia, it is appropriate for Australian companies and Australian trade negotiators to be aware of the existence and economic significance of these arrangements and to explore their relevance to market access objectives.

Benefits may be available to host countries and to their trading partners from further extending such instruments and/or liberalising them so as to reduce the level of bureaucratic supervision.

For example, Malaysian duty drawback can only be claimed to 90 per cent of the value of the product imported. Extending the scheme to allow claims of 100 per cent of imported content could offer some improvements in market access for foreign exporters to Malaysia — including Australian firms. And it would do so in a way which attracted little domestic opposition. Likewise, where such mechanisms require bureaucratic supervision — and evidence from participants suggested they frequently do — host countries might be persuaded to liberalise that supervision.

To date, there has been little attention given to the nature and extent of concessional arrangements in foreign markets and their potential for improving foreign market access to countries in the region — including Australia's access to those countries. For this reason, the Commission contacted those Australian companies who had substantial exports of packaging products to countries in the region. The findings from the exercise can be summarised as follows:

- a substantial proportion of the companies contacted could not comment on concessional trade arrangements of host countries as their exports were handled by importing agents;
- a number of companies were aware of concessional schemes but bureaucratic permission was required and not always easy to obtain; and
- a minority of companies had specifically considered concessional arrangements in foreign markets in their export strategy.

The evidence suggested that where they deal through agents in the export market, Australian firms have little information about foreign concessional arrangements. (Indeed, because knowledge of the local import regime was one of the services which import agents were selling, those agents were sometimes wary of conveying this knowledge to their clients.) These arrangements may

well be appropriate for the commercial circumstances of individual Australian exporters, but they mean that Australia is robbed of important intelligence as to the economic significance and market access potential of foreign import concessions.

Greater attention to assessing what (if any) potential is provided by concessional trade instruments in foreign markets to further liberalise trade could provide a useful complement to existing trade negotiation strategies for Australia's firms and government. However, as BHP stressed, any initiatives in this area should not run counter to other trade negotiation and market access initiatives.

The draft report requested participants views on whether it would be worthwhile for the Industry Commission or some other body to extend the study undertaken here to sectors other than packaging. The Victorian Government commented in response that it would strongly support a study of industry perceptions of market access.

4 ENHANCING COMPETITION

While the greater openness of the Australian economy has been a spur to efficiency and performance of Australian packaging producers, a number of the markets for packaging products remain highly concentrated and relatively insulated from international competition. Concentration appears to be increasing in the face of rapid technological change, economies of scale and scope, and sophistication in the marketplace. Both industry and government have roles in ensuring that Australia reaps the benefits of efficient and dynamic packaging industries without the costs of high prices and sluggish performance that may occur in less competitive sectors.

4.1 Industry measures

In most markets, competition among producers and pressure from buyers stimulates efficient supply of goods and services. While these pressures may be diminished in some highly concentrated sectors of the Australian packaging market, there is still much that user industries can do to contain costs and prices and encourage innovation and technological change. The threat of potential competition from substitution of other materials and entry of new firms is a potent discipline on packaging converters. Where substitutes exist, large customers, both for material inputs and converted packaging, can exercise considerable countervailing power. It is also possible to change the culture of the marketplace to focus on customer service, continuous improvement and co-operative problem solving.

4.1.1 Threat of potential competition

Chapter 1 showed that there has been significant competition among different packaging materials over time. For instance, the introduction of products like aluminium cans and PET have, over time, significantly increased competitive pressure in the market for glass beer and soft drink bottles. Plastics, both flexible and rigid, have moved into many paper and fibre based packaging applications. While inter-material substitution may be limited in the short-term, there is scope in the medium to long-term to switch packaging types and suppliers. New technology has often increased the scope for inter-material substitution as new products are developed. For example, plastic casings now

offer an alternative to steel for dog food and PET now dominates single use glass containers in carbonated beverages.

Previous IAC (1987) work on glass containers indicated that demand for glass and aluminium containers by brewing companies was highly sensitive to relative prices. A 10 per cent increase in the price of glass bottles relative to cans was estimated to lead to a 20 per cent fall in the breweries' demand for bottles.

However, as indicated in Chapter 2, potential for substitution varies between markets. Substitution possibilities are currently high in many beverages, moderate in many food and grocery items and low in premium wines and foods that need to be packaged while hot. Hence, while potential inter-material substitution can be a potent force in restricting market power, it is not uniform across markets and is not a panacea for all competition problems.

The threat of entry of new firms is also important in constraining prices and other abuses of market power. In the past, several food processing companies have moved into packaging production. Smorgon and Visy Board became major competitors to established packaging producers while others, such as Golden Circle and CUB, established converting plants for their own production. While vertical integration of fillers and converters is becoming less common as packaging production becomes more sophisticated and costs are more sensitive to scale, the potential for large users to enter cannot be disregarded. For example, it has been suggested that the minimum efficient scale in glass bottle manufacture is not so great that the major breweries could not enter the market if bottle prices were excessive. Reductions in freight costs to transport converted packaging materials from region to region increase the likelihood of such entry.

Nevertheless, there are some packaging materials, such as glass wine bottles, where inter material substitution is not commercially sensible, and where the scale economies and other barriers to entry are such that entry is unlikely to occur or be sustained. In such markets, other measures may be necessary to promote efficient outcomes.

4.1.2 Countervailing market power

Large customers are in a good position to bargain, even with concentrated packaging suppliers, for low prices and other advantageous conditions. These buyers, because they may have a significant impact on the profitability of their suppliers, possess some countervailing power against them. This will be related to the size of the buyer, the negotiating skills of its management and the credibility of its threats not to buy from its suppliers. This will tend to depend

on the availability of substitute materials. As outlined in Chapter 2, effective countervailing power to that of highly concentrated suppliers can be expected in a number of concentrated packaging markets such as beer bottles and cans, and soft drink containers while it is much less relevant in the markets for tinplate and glass wine bottles.

The existence of countervailing power in packaging markets does not, of course, guarantee efficient prices of converted packaging. If a large buyer also has market power in its own product market, its use of countervailing power could simply result in a sharing of monopoly rents between the supplier of the inputs and the converter or filler. Final consumers would still pay higher prices. In the beer market the Prices Surveillance Authority (PSA 1994) has argued that the two major brewers have significant market power. Hence they may be easily able to pass cost increases into prices and this may, in turn, diminish the pressure placed on the concentrated converting and material input sectors of glass and can making.

There is generally greater competition and lower barriers to entry in converting and filling than there is in the supply of material inputs (see Chapter 2). Thus, it seems likely that effective use of countervailing power by purchasers of converted packaging or material inputs would result in some benefits being passed on to final users.

There is a danger that the effective use of countervailing power by large firms may still leave small enterprises facing relatively high prices and disadvantageous conditions of supply. The material presented in Chapter 2 suggests that this may occur in some packaging products, particularly supply of glass bottles to smaller food and beverage producers. In its submission to the PSA inquiry into the glass container declaration, Tarac (a large contract bottler) expressed concern that further price gains by large buyers may exaggerate the price differential with smaller users. The PSA (1995) was unable to reach a conclusion on this issue as information on the cost basis for ACI's price/volume scale was not provided.

Smaller producers can help themselves to achieve greater market power by forming buying co-operatives to combat the market power of particular packaging producers. For example, in addition to cost reduction through standardisation a buyers group might help wine-bottlers or food producers improve buyers' bargaining strength against ACI.

Such groups have to obtain authorisation under the *Trade Practices Act 1974*. Section 45A prohibits price agreements outright because price fixing arrangements are rarely considered efficiency-enhancing. However, buyer co-operatives comprising greater than 50 members were exempted from section

45A as they could produce a range of benefits that may outweigh the detriment of any reduction in competition:

Joint buying arrangements can permit small businesses to take advantage of economies of scale or scope in purchasing and advertising, while continuing to compete at the retail level. (Independent Committee of Inquiry 1994, p. 41)

The *Competition Policy Reform Act 1995*, which implements some of the recommendations of the Independent Committee of Inquiry on a National Competition Policy, has repealed the 50 party requirement. Consequently, pricing agreements (involving any number of parties) will have to seek authorisation from the Australian Competition and Consumer Commission (ACCC) if they substantially lessen competition, or are likely to have that effect. In this event, the ACCC will have to be satisfied that the benefit to the public outweighs any anti-competitive effect before authorisation will be given (TPC 1995).

4.1.3 Changing the culture

The development of new business and management systems, such as Total Quality Management, that focus on continuous improvement and customer service, provides a framework for packaging suppliers and users to work together to enhance performance. While such culture change is unlikely to be sufficient for ensuring efficient and dynamic performance, it can help to combat the sluggishness that can develop in highly concentrated industries and which has been apparent in sectors of the Australian packaging industry over the years. Chapter 2 cited examples in glass and tinsplate, although there are signs of improvement in both markets.

Industry associations can be important catalysts for change. The information they can impart on new developments in packaging can help packaging users and suppliers to improve their products. Similarly, recognition for excellence in performance can be a stimulus to improvement. Schemes such as the Australian Packaging Awards can play a significant role in lifting expectations and results.

Suppliers and users can also work together to solve packaging problems. Chapter 1 discussed the trends toward increasing co-operation between material input producers, converters and fillers in the packaging supply chain through vertical alliances. Collaboration in research and development through such mechanisms as Co-operative Research Centres can also help to stimulate innovation in packaging.

4.2 Controlling concentration

The Australian packaging industry has become considerably more concentrated in the last two decades. Consolidation has taken the form of closer vertical ties (through integration or alliances) with material input suppliers and end-users and a higher level of concentration within the converting sector (through the merger of large converters with smaller ones).

Increased consolidation has raised concerns over competition in the sector as end-users now find they must bargain with large vertically integrated firms in highly concentrated industries. There are fears that converters may abuse their market position and increase prices to end-users.

Consolidation produces sizeable public benefits by reducing costs. However, any reduced competition may mean that firms in a dominant market position do not pass these gains on to their customers. Competition law (the Trade Practices Act (TPA)) can provide some protection against this by prohibiting or limiting increases in concentration and anti-competitive conduct through:

- mergers regulation under section 50 of Part IV of the TPA; and
- the regulation of conduct under the remaining provisions of Part IV.

4.2.1 Vertical integration

The structure of the international packaging industry has been changing dramatically over the last 20 years. In a report for Amcor, BT Corporate Finance observed that:

A world-wide consolidation has been underway for the past two decades, resulting in the formation of an industry consisting of a number of very large multinational producers and thousands of small suppliers. (sub. 69, p. 7)

Competitive pressure from these large multinationals has forced the Australian packaging industry to improve performance by forming closer links with material input suppliers and packaging users. These relationships have taken two forms: vertical integration and vertical alliances, the latter having been discussed in Chapters 1 and 2.

There is some degree of integration between converters and material input suppliers. Instances of integration occur in plastics¹, paper and paperboard²,

¹ ICI Australia Ltd produces polypropylene polymers used as input into film extrusion produced by its wholly-owned subsidiary Propafilm Australia Pty Ltd. Similarly, Shell Chemical Australia Pty Ltd produces polypropylene resins as well as being the largest individual film extrusion producers under the name Shorko Australia Pty Ltd.

and glass. There is also some backward integration by fillers making their own packaging (for example, Golden Circle has until recently manufactured most of its own cans, cartons and plastic packaging, and Ferrero produces some of its own plastics packaging).

Converters use integration as a method of securing the price and/or supplies of material inputs:

Internationally, paper is a highly cyclical industry and experiences rapid movements in price and availability. Vertical integration provides fibre-based packaging operations with security of supply in times of extreme shortage such as is currently being experienced in many regions of the world while simultaneously providing security of use that enables long lead time investments (up to 35 years) to be undertaken. (Amcor, sub. 69, p. 11)

Conversely, material input suppliers may integrate with converters to secure a market for their output. In both instances, integration serves to reduce the uncertainty of the environment within which firms operate.

Vertical integration can also minimise the costs associated with contracting for material input supplies. It removes the need to search for a suitable contract partner and harmonises financial interests between parties. It also lessens the need to renegotiate contracts should unforeseen contingencies occur, such as a shortage of supply.

Furthermore, integration facilitates a more co-ordinated approach to packaging problems by developing a knowledge-base across the integrated firms:

Vertical integration also facilitates skill and knowledge transfer from one part of the vertically integrated chain to another, thus improving the overall efficiency of the industry. Increased understanding by each part of the other part's activity results in fine-tuning of products and the creation of more efficient practices for both parts. (Amcor, sub. 69, p. 10)

Vertical integration can be of concern if there is a concentrated industrial structure at one of the stages of production or distribution which is being integrated. In this situation vertical integration could lead to a lessening of competition in downstream industries because of the integrated firm's privileged access to inputs. There has been little suggestion to this inquiry indicating that vertically integrated converters are abusing their market power provided by integration. Hannapak (sub. 6) and Kebet Packaging (sub. 169) both expressed concern about the potential for unfair vertical cross-subsidisation within the Amcor group. Should it be a problem, the TPA also

² Amcor produces paper and paperboard packaging and the pulp and paper input under the name Amcor Paper Group.

provides some protection against anti-competitive practices by already integrated firms.

4.2.2 Horizontal industry concentration

Mergers have been a major vehicle for the consolidation that has occurred in the packaging sector over the last 20 years. Recent examples include ACI's acquisition of Glass Containers, and Amcor's and Visy Board's takeovers of Smorgon (see Box 4.1) and various other box producers.

Consolidation of the packaging industry has helped reduce costs by increasing scales of production. As Amcor noted, large scale enables:

... companies to develop and fully utilise technical product and process innovation to produce more effective packaging more efficiently than companies producing small volumes. Australia's aggregation of volumes in recent years has enabled packaging suppliers to gain sufficient volume to economically justify more efficient means of manufacture. As a result, the Australian packaging industry has become more internationally competitive. (sub. 69, p. 24)

Mergers can also produce economies of scale by reducing the expenditure required on marketing (especially where product lines are amalgamated), pooling the risks associated with research and development and lowering the cost of finance. Consolidation of product lines within one firm can also produce economies of scope.

Mergers have led to a high degree of concentration in the production of particular packaging types. The Packaging Council of Australia observed that:

In the late 1970s, there were in Australia 26 companies producing corrugated boxes, about twelve companies producing metal cans and two glass manufacturers. Today there are two 'major' corrugated box companies, six commercial metal can producers (plus two 'own' manufacturers) and one glass manufacturer. (sub. 57, p. 26)

High degrees of concentration in a market can increase a merged firm's market power by lessening competition. This provides scope for the merged firm to raise prices above what they would be in a competitive market and/or lower quality of service and product. National Can Industries commented that:

A high level of concentration ... could also result in the loss of versatile product innovation and decline in quality and service especially to smaller fillers due to lack of competitive pressures. (sub. 67, p. 7)

Box 4.1: The corrugated box price war and Smorgon's exit from the market, 1989

In the late 1980s, Visy Board, a major producer of corrugated boxes, announced its intention to integrate backward into fibre box raw material supply. This ignited an aggressive price war between Visy Board and its major competitor Amcor (which had dominance in the supply of corrugated box materials) as each attempted to protect its market share.

As a result of the price war, Smorgon lost ground to Visy Board and Amcor (both of which increased market share) with its market share falling from 24 per cent to 4 per cent.

The price war effectively ended with Smorgon's decision to exit the corrugated box industry in 1989. It sold its Brisbane and Melbourne plants to Amcor and its New South Wales and South Australian plants to Visy Board. Within two years, price levels in the industry had recovered to be around 8–10 per cent below those that existed before the price war.

According to Amcor (sub. 67), consolidation in corrugated box supply allowed Amcor and Visy Board to progressively restructure their plants to the point where almost all are now world scale and utilise leading-edge technology. Restructuring would not have been possible had volumes remained disaggregated.

Under the dominance test that prevailed at the time, the TPC could only prevent these mergers if they led to one of the parties becoming dominant in the relevant market. The TPC found that:

... with both Amcor and Visy in the market, neither would be dominant as each would act as a constraint on the other. As a result of the acquisition, the share previously held by Smorgon would be shared by Amcor and Visy. (TPC Annual Report 1989–90, pp. 96–97)

The test applying since 1993 is whether an acquisition would result in a substantial lessening of competition in the market. The Smorgon mergers may not have been sanctioned under this new test.

Sources: Australian Research 1991, pp. 35-37; Amcor, sub. 67

The mergers provision (section 50) of the TPA prohibits future acquisitions that will have the effect, or likely effect, of substantially lessening competition. The ACCC can institute proceedings against an acquisition that will produce conditions such as those described above. Authorisation for a merger can still be granted where the ACCC (or, on review, the Trade Practices Tribunal) is

satisfied that the merger will deliver public benefits which outweigh any possible reduction in competition.

Despite the level of concentration in packaging, the TPC found that:

... competition in the Australian packaging markets is reasonable, given the relatively small size of the markets. While the markets are highly concentrated, the TPC considers that for the majority of packaging materials there exist sufficient alternative sources, either through imports or alternative products, to provide competition. (sub. 85, p. 5)

Since 1993 the TPA has enabled the prohibition of mergers which have the effect of substantially lessening competition (previously mergers could be prohibited only if they resulted in dominance in the market). Authorisation for a merger will be granted only where the ACCC is satisfied that the merger delivers net public benefits. In determining the acceptability of a merger, the ACCC emphasises the level of concentration in the market, the actual and potential level of import competition and the height of barriers to entry into the market.

Section 2.1 discussed (sector by sector) factors, such as the existence of close substitutes, which can limit a converter's market power.

4.3 Prices oversight

Prices surveillance was developed to serve a variety of objectives relating to enhancing equity, consumer protection and competition policy objectives. In markets with particularly weak competitive pressures, the market power of sellers may lead to excessive prices and technical inefficiencies. In such cases, carefully structured prices oversight may improve outcomes by using regulatory pressure to impose performance disciplines which the market can only do imperfectly. However, prices oversight is itself an imperfect mechanism which is capable of imposing costs by distorting incentives — particularly investment incentives. Accordingly, the Commission has argued (IC 1994) that prices oversight should be used sparingly and cautiously.

In addition, for markets to operate effectively, buyers as well as sellers must have good information about market conditions, including prices and quantities traded. The more concentrated the market, the less information is generally available about it. Confidentiality requirements mean that the Australian Bureau of Statistics will not release statistics about highly concentrated industries like glass and tinplate. In such circumstances, prices oversight by government can improve information flows and enhance the efficiency of markets.

Following the recommendations of the Independent Committee of Inquiry on a National Competition Policy, the Trade Practices Commission (TPC) and Prices Surveillance Authority (PSA) have been amalgamated to form the ACCC. The ACCC has the power to examine the prices charged by corporations, by considering price increases notified by companies declared under the *Prices Surveillance Act 1983* or (with the approval of the Minister) by holding public inquiries into prices. The ACCC's objective in this regard is to discourage those firms that enjoy substantial market power from abusing it in price setting.

Recent amendments to the Act have also given the ACCC a formal prices monitoring role which enables it to secure the information it requires from a monitored organisation or industry. This is an important broadening of the powers formerly available to the PSA which had to rely on publicly available information when it informally monitored the prices of an organisation or industry.

Two Australian packaging products face relatively weak competitive disciplines: glass containers and steel tinsplate. They have been the subject of significant comment from users concerning quality and/or prices. The sole domestic producers of these products are both currently declared for the purposes of prices surveillance by the ACCC. Both areas of surveillance had been reviewed by the PSA, as part of the examination of all declarations under the Prices Surveillance Act which has now been completed. The PSA did not undertake formal surveillance of any other packaging products or material inputs.

To be effective and avoid counterproductive results — either overpricing or lack of investment in the target industry — prices surveillance requires regulators to determine producers' costs accurately. Where there are economies of scale, this is a very difficult task for any regulatory authority. For this reason the Commission is loath to recommend prices surveillance unless it is confident that substantial market power is available to producers. Hence surveillance should be limited to circumstances where a single firm:

- has a greater than two-thirds market share;
- has no major rival;
- faces sporadic or trivial imports (import penetration persistently below 10 per cent of the market); and
- is sheltered by substantial barriers to entry (including the expansion of rivals). (IC 1994)

These criteria are used below to examine the case for prices surveillance in the two sectors of packaging with firms currently under declarations.

4.3.1 Glass containers

Glass containers supplied by ACI have been declared under the Prices Surveillance Act since 1991 when ACI purchased the glass manufacturing interests of Smorgon and became the sole Australian producer. Since then ACI has notified the PSA of twenty proposed price increases, of which the PSA objected to two relating to contract customers. ACI's several price increases since 1991 have totalled approximately 6 per cent (PSA 1995).

ACI's glass container prices are also limited by undertakings to the Federal Court as part of an agreement with the TPC allowing ACI to purchase Smorgon's glass making assets.³

Submissions to the PSA and to the Industry Commission suggest that there remains a considerable level of dissatisfaction with ACI's pricing and service in some sectors of the glass containers market. The PSA review of the glass containers declaration recommended the continuation of formal prices surveillance due to the market power of ACI and the lack of transparency in its pricing.

ACI clearly meets the first three pre-conditions for prices surveillance set out in Section 4.3 above, at least in relation to products where containers made of other materials are not good substitutes, such as wine bottles and some glass food containers (Section 2.3 also discusses these issues).

ACI (sub. 181) stated that for wine bottles bulk exports represented a credible substitute while the existence and development of substitute packaging was a real threat in food containers. While around 30 per cent of exported wine is shipped in bulk for overseas bottling, the WFA (transcript pp. 562–65) indicated that regulations in some countries and the requirements of overseas distributors sometimes dictated overseas bottling. It argued that for reasons of quality assurance, most producers of higher quality wines wished to bottle at the site of production. Developments in plastics technology may provide a serious future threat to glass containers in the food packaging sector, but for the moment glass has strong technical and marketing advantages for many food products.

³ Until 1991, New South Wales was serviced by two wine bottle manufacturers, the other being a joint venture between Glass Containers Pty Ltd and SCI Operations Pty Ltd. In 1991, ACI acquired this joint venture which, at that point, had 20 per cent of the Australian glass container market. In its determination, the TPC found that the short-term benefits evolving from the takeover would sufficiently outweigh the potential detriments from reduced competition (sub. 85, attach. A, p. 46). It should be noted that the Smorgon plant required a significant injection of capital which could not be justified by the expected returns and that Smorgon intended to close the plant if ACI had not purchased it.

The remaining question is whether ACI is protected from the competition of new producers by significant barriers to entry. Significant barriers to entry comprise:

... costs which put new entrants at a distinct risk disadvantage relative to established firms. (IC 1994, p. 49)

The IAC considered barriers to entry in glass container production in its report on Glass and Glassware:

Entry into the Australian glass market could be difficult in some areas given the links which some producers maintain over technology, marketing and distribution. (IAC 1987, p. 25)

While Glass Containers Pty Ltd entered the glass container market in 1971, their sole plant in Penrith was later purchased by Smorgon and then sold in 1991 to ACI, which was the only prospective buyer at the time (TPC 1991). These developments add strength to the IAC's 1987 comments regarding entry barriers. With both significant sunk costs already undertaken and considerable experience in glass manufacture, Smorgon was in a stronger position than new entrants to challenge ACI's dominance. However, it indicated to the TPC that it would close down its operations if they were not sold to ACI, as the investment required to modernise production facilities could not be justified by prospective returns.

The demise of a well established producer such as Smorgon strongly suggests that scale economies and limited market growth leave scope for only one manufacturer of glass containers. The substantial excess capacity that would have to be created by a new entrant would not be readily saleable in the case of failure, hence the potential loss of sunk costs would be high. Whereas the Smorgon plant was of value to ACI in 1991 as an alternative to significant new investment required at its existing Sydney facility, it is unlikely to have a need for much of the substantial new investment that a new entrant would need to make. Hence the risk of substantial loss of funds invested is increased.

ACI has commented to the PSA on the level of sunk costs in glass container production.

Obviously, the capital cost of establishing a new glass works is substantial. ... The sunk costs likely to be incurred by any such entrant are likely to be quite significant in the absence of a buyer should the venture fail. However, the risks associated with entry are substantially reduced where the entrant has a guaranteed off-take for its product as would be the case with a user of glass containers integrating backwards into the production of these glass containers. (ACI 1995, p. 13)

Thus, according to ACI's argument, barriers to entry may be relatively low for large users of glass containers. But how large is a large user?

The TPC has suggested that relatively small scale glass container plants could operate in niche markets for speciality products such as wine bottles, although the unit costs for such a plant would be higher than for large operations. A good deal depends upon the extent of the cost disadvantage imposed on such a new entrant.

The PSA (1995) also concluded that vertical integration with a major user of glass containers would be a more attractive proposition by allowing a reduced range of containers to be produced with commensurately longer and lower cost production runs. There would also be much greater security of sales for the new entrant by adopting such a strategy. However, the beer market which is the most likely candidate for such entry is also the market in which margins have traditionally been lowest.

In addition, ACI's likely response would need to be taken into account, especially if entry were undertaken by an independent operator. In most of ACI's markets a new entrant would be likely to generate excess capacity on entry with the likely result being a price war. These circumstances offer unattractive prospects before the event.

Overall, the Commission does not judge the prospect of entry into glass container production as impossible. New entrants could emerge to contest niches within the market — particularly as a result of the backward integration of a large user. However, it appears that the barriers to a major rival to ACI emerging in glass container production in the short to medium term are substantial.

Perhaps the strongest evidence of entry difficulties is provided by the fact that there has been just one entrant into the glass container market since ACI commenced last century. This venture ultimately proved unsuccessful, even though it occurred in Sydney — the largest geographic market.

Given that the existing level of dissatisfaction remains after four years of formal PSA surveillance, some review of the regulatory instruments applied thus far might be warranted. In particular, changes to the method of price regulation may improve both efficiency and effectiveness (see PSA 1994 and IC 1994).

In the meantime, market responses to shortcomings in performance should also be pursued strongly. In this regard the co-operative efforts of the Winemakers' Federation and ACI to achieve international price benchmarking of standard wine bottle prices is an important initiative. ACI's performance against these benchmarks and in extending this approach to other products where appropriate, will be watched with interest.

In addition, the Commission can see merit in the buyers of glass packaging — particularly those purchasing products where substitutes are not available — to combine in purchasing from ACI with a view to exercising countervailing market power. ACI (sub. 181) indicated that it had no concerns with buyers' agreements on joint purchasing to obtain benefits from higher volumes and rationalising product ranges. The PSA (1995) observed that there was some evidence that smaller companies were considering establishing buying groups as a means of improving their bargaining position.

Those contemplating such moves would need to have them authorised by the ACCC. While each case would need to be considered on its merits, the strength of ACI's market position provides strong grounds to argue that authorisation would provide net benefits.

The case for prices surveillance of glass containers is weaker where buying markets are dominated by large users, such as beer brewers, who have access to substitute packaging. Such market structures suggest competitive pressures will significantly dilute ACI's market power and prices surveillance may not be warranted.

However, ACI was unprepared to supply the Commission with data which would support ACI's contention (sub. 114) that for other products cost differences justify prices well in excess of international levels. In these circumstances, the Commission has been unable to form a judgement on the role of prices surveillance of these products. The very limited competition with glass in some markets, significant customer concerns about ACI's performance and the analysis undertaken by the PSA (which had confidential access to additional information) must be heavily relied upon in making such assessments. All suggest that continued surveillance is appropriate.

Recommendation 2

Given the strength of ACI's bargaining position in the market, prices surveillance for wine bottles and medium to large glass food containers should continue.

4.3.2 Tinplate

The case for continued prices surveillance is considerably less strong for tinplate than it is for glass containers. Natural protection is much lower: tinplate enjoys natural protection of about 12 per cent whilst transport costs of some imported glass containers are up to 50 per cent of value. Thus, the possibility of imports provide a stronger discipline on domestic tinplate prices. BHP has

production capacity well in excess of domestic requirements which have been stagnant in recent years. This provides it with some incentives to expand domestic demand for tinplate below import parity price, because the marginal costs of increased production are probably lower than average costs, but it is also likely to operate as a barrier to new entrants.

In contrast to glass containers, the price of tinplate did not change from early 1991 to September 1995 when a 4 per cent increase occurred. BHP (sub. 86) claimed that this price restraint was due to competitive pressures from imports and other forms of packaging.

Steel cans also face competitive pressure from other packaging mediums, although in many of the applications in which steel cans remain competitive (for example hot fill) other materials are currently poor substitutes. However, steel has been losing market share to lighter materials for a long time and technological developments (for example, improved hot fill capabilities of PET) are likely to maintain these competitive pressures.

In instances where the case for continued surveillance is not clear cut or where residual public concern remains about the market power of firms currently under surveillance, the Commission has indicated a preference for the less intrusive option of prices monitoring (IC 1995b). In these instances, the benefits of the more expensive and potentially distorting formal surveillance mechanism are not clearly greater than the possible costs involved. As tinplate satisfies both of the above conditions it appears an appropriate candidate for monitoring rather than surveillance.

4.3.3 Secondary export pricing and prices oversight

Section 3.3.3 examined producer price rebates for exports of embodied packaging. In the light of submissions received from converters and fillers involved in exporting and competing with imports, the Commission has been particularly concerned about the international competitiveness of prices paid by these groups. In common with many producers of intermediate products, BHP and (to a lesser extent) ACI provide price rebates for customers who subsequently use cans or glass containers for export. These rebates are aimed at stimulating sales in the particularly competitive and so price sensitive export markets sector.

BHP (sub. 191) indicated that secondary export support has increased in recent years and this has been complemented by targeted rebates for import replacement. These initiatives make tinplate prices for these groups much more competitive with world prices. The significant expansion in BHP's tinplate

capacity and product range following the completion of its current investment program will require a stronger focus on export markets to achieve sales growth.

ACI provided no information to the Commission nor public information to the PSA regarding the size or extent of its export rebates. The PSA (1995) reported that ACI offered export rebates to some customers in the wine industry, but these were only on a producer's incremental increase in exports and were not available to all exporters. Two wine producers had a different system of rebates reflecting their access to offshore bottling.

Where prices oversight is already occurring, it can provide information on the monitored firm's performance in pricing for secondary exports and on the prices obtained for direct exports compared to those charged in domestic markets. This would provide some redress to the imbalance in market power which led to prices oversight being introduced and may encourage packaging producers to focus on opportunities for secondary export growth.

Recommendation 3

If the Commonwealth Government decides that the ACCC should continue oversight of glass or tinfoil, the ACCC should report on prices to the domestic, secondary export and export markets, acknowledging that users who export face highly competitive markets.

5 PACKAGING AND WASTE

Chapters five and six explore the environmental issues associated with the use and disposal of packaging.

Packaging related environmental issues, such as litter, over-packaging and recycling, are an important concern to many people in Australia. However, in contrast to many other environmental problems, those relating to packaging appear comparatively manageable.

The focus of policy and community awareness is on the problem of used packaging — that is, packaging waste and its disposal.

Chapter five describes the dimensions of packaging waste in the context of the total waste stream. While used packaging is visible, it represents only a small proportion of total waste. The environmental benefits and costs of packaging are then discussed, before the means by which these can be incorporated into the waste management production chain are analysed. The key point in this discussion is the role of full social cost pricing as a means by which all costs and benefits of packaging use can be taken into account to the greatest extent practicable by the appropriate decision makers.

Chapter six then discusses the costs and benefits of the additional regulatory mechanisms that are used to deal with packaging waste, in particular the use of targets for waste reduction and increasing recycling levels. To date, governments have responded to concerns about packaging waste problems by developing target based strategies for waste reduction and increasing recycling. These targets have been developed in the absence of comprehensive data, and have themselves become a major influence on policy.

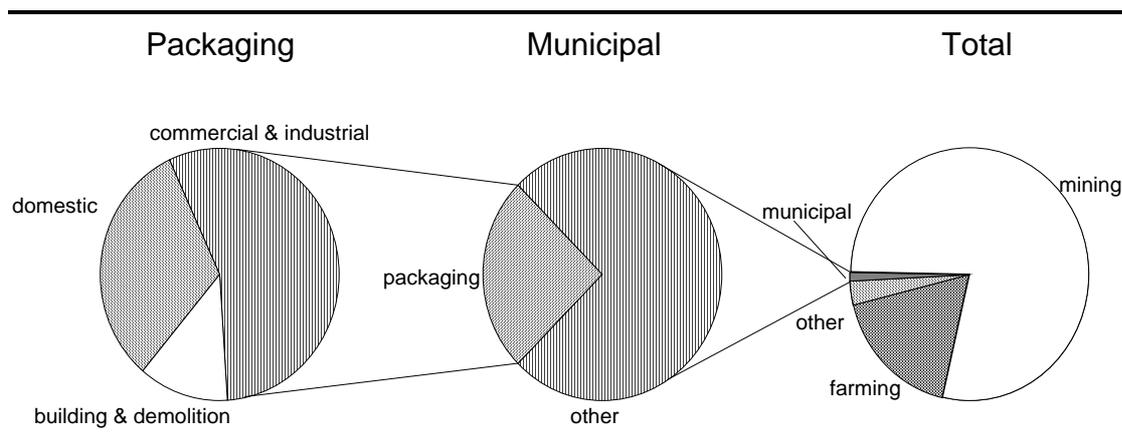
5.1 Packaging in the waste stream

Australia produces an estimated 4.6 billion tonnes of total waste¹ annually (Connor et al 1995), comprising solid, liquid and gaseous wastes generated across all sectors of the economy. Total solid waste accounts for just under half of total waste — the largest contributor being the mining industry.

¹ Total waste was constructed from the following sectors: mining, farming, forestry, energy, metals, chemicals, manufacturing, transport, construction & demolition, commercial and domestic.

Municipal waste² is largely generated by households and businesses, much of it ending up in landfill. This forms just over 1 per cent of total solid waste. Used packaging forms approximately one-quarter of municipal waste, making it around one-quarter of 1 per cent of total solid waste (see Figure 5.1). The production of packaging also involves waste generation. The mining, forestry and chemical industries are major producers of raw materials for packaging (as well as many other products) and thus part of their production waste can be attributed to packaging.

Figure 5.1: Packaging in waste streams



Source: Moore and Shin-Yu 1995 (CRC); Connor et al 1995

Estimating the amount of packaging waste is difficult. Currently, there are no relevant national statistics and few local governments keep records on waste disposal. Some surveys have been completed by local governments but given the significant geographic and economic differences between regions within Australia, it is difficult to infer nation-wide estimates. Furthermore, waste data collected are often not extensive, for example, packaging material is not separately identified.

Despite these difficulties some organisations have developed estimates of the amount of used packaging in municipal waste. One study, by the Co-operative Research Centre (CRC) for Waste Management and Pollution Control, estimated that used packaging comprises 25 per cent by weight (plus or minus 5 per cent) of municipal waste (see Table 5.1).

² The term 'municipal waste' is used here to mean solid waste generated by domestic, commercial & industrial and building & demolition sources.

Table 5.1: Packaging in municipal waste, by source (per cent)

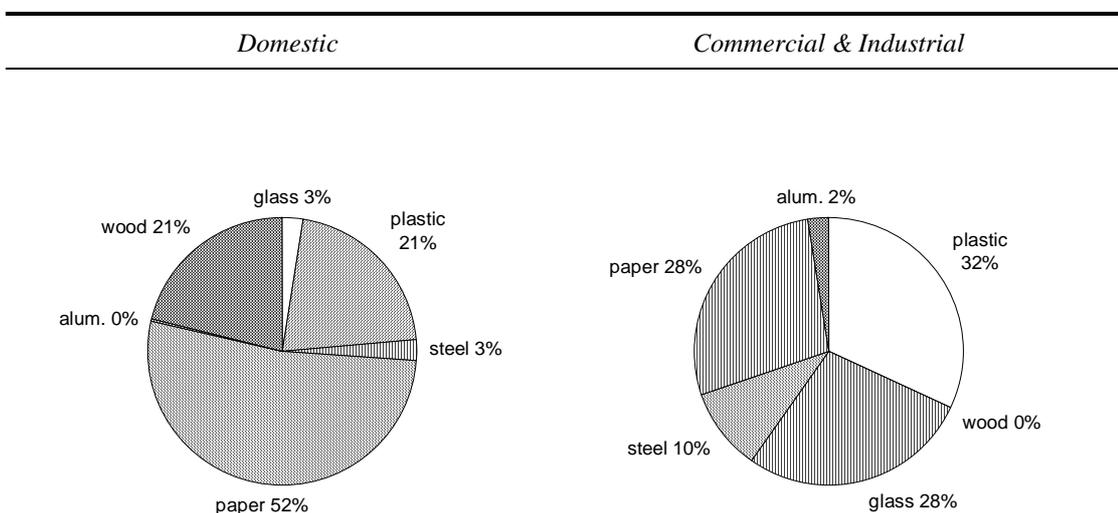
	<i>Domestic</i>	<i>Commercial & industrial</i>	<i>Building & demolition</i>	<i>Total</i>
Total	8	14	3	25

Source: Moore and Shin-Yu 1995 (CRC)

Further, the CRC estimated that about 8 per cent came from household sources — less than two-thirds of the commercial and industrial sector. Separate studies, by the Commonwealth Environment Protection Agency (CEPA) and the Packaging Council of Australia (PCA) estimated household packaging waste to represent about 10 per cent of municipal waste. The estimates differ because the CRC study focussed on waste for disposal only, waste destined for recycling was excluded.

Another study, by the Australian and New Zealand Environment Council (ANZEC 1991) estimated that household packaging accounted for one-third by weight (and considerably more by volume) of the household waste stream. The Commission received similar estimates from the ACT Government (sub. 14) and Manly Council (sub. 49).

Figure 5.2: Composition (by weight) of packaging in the domestic and commercial & industrial waste streams



Source: Moore and Shin-Yu 1995 (CRC)

In terms of the composition of household packaging waste, the CRC study estimated that plastics packaging is the largest component (by weight), followed closely by glass and paper packaging. At the commercial and industrial level, paper packaging is the largest component of used packaging contributing to the waste stream (see Figure 5.2).

Despite the limited information, it is clear that used packaging forms a small part of Australia's total waste stream. Nevertheless, the perceived impact of this waste is quite high. The reasons for this are likely to be related to the 'visibility' of packaging waste to households as generation and disposal largely occurs in urban areas and possibly to a popular perception that packaging is 'excessive' and a waste of resources.

These concerns have led to calls to reduce the amount of packaging. Naturally, policy in this area should have regard to the economic and environmental benefits of packaging as well as its costs.

5.2 The environmental benefits of packaging

Packaging serves many purposes as outlined in Section 1.2. It plays an important role in the preservation and protection of food and other goods during transport and prior to use. These benefits can be expressed in terms of reduced or avoided environmental costs as a result of reduced waste (through less product spoilage and damage), reduced environmental contamination, lower energy costs and labour savings. However, these benefits tend not to be highly visible to consumers, particularly when they are disposing of used packaging.

Packaging protects both the product from the environment and the environment (and people) from the product. This is especially the case with the protection of food products from farm to consumer and the safe containment of dangerous goods during storage, handling and transport.

Spills and associated contamination of natural or populated areas can occur as a result of accidents or natural disasters. While these are not frequent events, the costs associated with a single contamination can be large and thus the investment in secure packaging worthwhile.

The ability to package food can also reduce waste by centralising food processing. Offcuts and other unwanted portions remain at the place of processing in volumes which often can be economically recovered and used to manufacture valuable by-products. The Association of Liquidpaperboard Carton Manufacturers (ALCM) discussed the example of orange juice:

... a carton of orange juice which weighs 30 grams, leaves behind at the [processing] plant 1.2 kilos of peels, pips and rind or 40 times its weight in waste that is further processed into other products, orange oil, feed, fertiliser and so on. (transcript, p. 119)

Berrivale makes extensive use of such offcuts in its plant at Berri in South Australia.

Where private composting is not an option — as, for instance, in much medium and high density housing — foods may generate less waste to landfill in packaged form than they would prepared fresh. A study by Alter (1989) across 27 countries found that an extra kilogram of plastics packaging in waste was associated with 1.1 kilograms less food waste.

Aside from energy savings associated with less product wastage, the use (and choice) of packaging may conserve energy in other ways. For instance, packaging provides a means of reducing volumes and standardising products, and this aids better use of transport volume.

Some packaging innovations have reduced overall energy consumption. For example, the PCA (sub. 57) commented that new packaging systems, such as microwaveable tubs and trays, enable some packaged food to be stored at ambient temperatures, and hence do not require refrigerated transport, storage, distribution or display.

Packaging may also lower refrigeration costs, where it allows products to be sized and arranged to allow airflow. For example, meat is more rapidly frozen in smaller portions

Most of these benefits occur prior to consumption, so that they are not apparent to individual householders who are, however, exposed to the costs of disposal of used packaging. Measures to reduce packaging could also reduce the benefits of packaging and be subsequently reflected in other ways such as higher prices and/or greater energy consumption and/or cost and inconvenience for consumers. The case for implementing measures depends on the trade-off of lost benefits against reductions in the costs packaging imposes on society.

5.3 The environmental costs of packaging

Many of the costs generated by those involved in the production, use and disposal of packaging are met by firms and individuals in the production chain and reflected in the prices firms charge. However, there may be costs of firms' and individuals' activities for which they are not held responsible. The following sections discuss areas in which such costs may arise. The discussion broadly follows the stages of the packaging production chain:

- the production of packaging and raw materials for packaging; and
- the disposal of used packaging.

5.3.1 The production of packaging and raw materials for packaging

Like other industrial activities, the production and distribution of packaging produces a range of solid, liquid and gaseous wastes.

5.3.1.1 Solid wastes

The production of packaging often involves the generation of significant quantities of solid wastes. For example, paper and paperboard production generates two types of sludges: primary (containing fibres, clay fillers, and other chemical additives) and secondary (which are biological in nature). Amcor (sub. 171) indicated that their use of recovered fibre results in a maximum of 250 kg of solid waste per tonne of finished paper. Similarly, the mining of bauxite and its conversion to alumina results in the by-product 'red mud'. This consists of a range of metal impurities and is high in alkaline salts. This material is landfilled, following lagooning near the production site to allow residues to settle.

Some materials, such as offcuts and start-up/shut-down scraps, can be well utilised within the production process: the wastes are easily collected in large amounts, are generally not contaminated and there are no transport costs. For these reasons, converters recover and reuse their own materials. For example, glass container defects and breakages at Australian Consolidated Industries Packaging (ACI) are returned to the smelter for reprocessing. Similarly, aluminium offcuts and scrap are often collected and re-melted.

Other offcuts and scrap cannot easily be reused because they undergo physical and structural changes during the production process. For example, the chemical structure of some plastic resins can change significantly. Plastic resin

is also easily contaminated. It is often easier for producers to dispose of some offcuts and spoilage rather than reuse the material.

5.3.1.2 *Liquid and gaseous wastes*

Some wastes from packaging production are less easily handled. For example, the production and conversion of glass into bottles can result in the release of various soda-lime contaminants (such as sulphur dioxide and nitrous oxides). These require control and treatment prior to their release into the environment (Kirk-Othmer 1978).

Emissions from production (other than greenhouse gases which are covered below) are a significant area of waste generation in many manufacturing activities. They are associated with potentially serious environmental problems, such as air and water pollution.

The South Australian Government (sub. 203) commented that the environmental costs of packaging production can form a significant part of the total costs of packaging production and disposal. However, there was little comment from participants to suggest that by-product emissions associated with the production of packaging are relatively larger than for other production activities.

Generally, some form of regulation is used to keep emissions at a level considered appropriate. To date, regulation of maximum threshold levels of emissions has helped reduce these environmental costs.

However, threshold regulation does not work perfectly. It is designed to reduce emissions to an acceptable level overall, rather than force producers to face the full social costs of their actions. The implications of full social cost pricing are discussed in Section 5.4.

5.3.1.3 *Greenhouse gases*

Climate change caused by global warming has arisen as an issue in recent years, although scientific opinion concerning the magnitude of change differs. The Commission reported on this in its report *Costs and Benefits of Reducing Greenhouse Gas Emissions* (IC 1991b).

Most energy production involves the release of carbon dioxide, a major contributor to global warming. Virtually all packaging materials use substantial amounts of energy in their production with some, such as aluminium, being especially energy intensive. To the extent that the price of energy generated by fossil fuels does not reflect the environmental cost of the greenhouse effect, there will be too much consumption of such energy which encourages overproduction of energy intensive materials.

However, to impose additional costs on aluminium packaging alone would be neither economically efficient, nor necessarily environmentally effective. The greenhouse impact of aluminium used for other purposes would not be addressed. Furthermore, aluminium packaging can be easily recycled, with substantial energy savings over primary aluminium manufacture.

As the Commission found in its 1991 report, if action on greenhouse emissions were contemplated, the most economically efficient and environmentally effective policy would be to ensure that energy producers, along with other greenhouse gas emitters, faced the full costs (including any environmental costs) and benefits of their activities.

Not only should external environmental costs be internalised, so too should external environmental benefits. In the case of paper production for example, tree plantations absorb carbon dioxide (see Box 5.1). Thus, to the extent that carbon dioxide emissions represent an environmental danger, plantation timber growth makes a contribution to reducing that effect by increasing the stock of fixed carbon.

In this regard, those who fund plantations appear to be contributing a (possibly quite substantial) environmental benefit without general recognition.

Government is pursuing greenhouse gas emissions agreements with firms. Both with regard to current arrangements and if further action were contemplated, it appears appropriate for the carbon dioxide sequestered by plantations to be brought into this equation, along with other associated carbon dioxide using or emitting activities. This may alter the position of paper based packaging against other packaging materials. Likewise, in the light of this, it seems appropriate for governments to investigate the net effect on greenhouse gas emissions of their policies of preference for recycled paper over paper from virgin fibre.

The Commission has not investigated the issue in depth. There are many other environmental issues to be dealt with when considering paper fibre resources. There are also implications for production activities outside packaging.

5.3.1.4 Conclusion

The production of packaging and labelling is similar to many other manufacturing activities. The composition and extent of production wastes will vary from plant to plant, but the nature of the problem and the means for addressing it is much the same for all manufacturing activity. As a result, measures aimed at environmental costs should not be specific to packaging production as the effects of other production will be missed.

Nonetheless, the environmental costs associated with packaging production should be taken into account in the consideration of measures to deal with packaging waste.

Box 5.1: Carbon dioxide emissions in paper production from plantations

While paper production involves the emission of significant amounts of carbon dioxide — emissions being nominally higher for virgin paper than for recycled paper — the net impact of paper production is less clear. The growth of tree plantations and the energy costs associated with collecting both paper for recycling and virgin fibre may substantially alter the carbon equation for paper manufacture.

The major Australian producer of paper from plantation timber, Amcor, has estimated that about 2.8 tonnes of carbon dioxide is emitted per tonne of virgin fibre paper produced at the Maryvale mill. This compares with Amcor's Botany mill where about 0.9 tonnes of carbon dioxide are emitted per tonne of recycled fibre paper.

However, Amcor also owns a significant plantation estate which increases the stock of fixed carbon. Its contribution by holding this stock of carbon should be offset against the emissions from paper production. In response to requests from the Commission, Amcor provided its best estimates which illustrate the significance of the issue. Amcor has calculated that its plantations sequestered 914 000 tonnes of carbon dioxide in 1994.

Overall, the plantation timber grown for the Maryvale mill absorbs over 80 per cent of the carbon dioxide generated in manufacture. When this is added, the production of recycled paper generates approximately 85 per cent more carbon dioxide than production from predominantly plantation grown timber. Amcor has not included the plantation effect in its reporting to government on its own greenhouse gas emissions, nor in its agreement to greenhouse gas reduction targets, because of the lack of an accepted methodology for doing so.

As noted by the Australian Conservation Foundation (sub. 176), comparisons across an entire system entail substantial technical analysis. For example, transport and collection emissions, variation between mills, variation between processes (mechanical and chemical pulp), use of non-plantation fibre, variation between plantation sources, etc need to be incorporated into each analysis. This illustrates the complexity of the issue and the need to arrive at conclusions carefully.

5.3.2 Disposal of used packaging

Used packaging is generally non-toxic but it can have considerable impact as litter and as a contributor to landfill costs.

5.3.2.1 Litter

The Australasian Soft Drink Association (ASDA) defines litter as “misplaced solid waste discarded outside the established collection and disposal system” (ASDA 1995, p. 4). Whether litter is caused deliberately, through carelessness or by accident, it imposes costs that are not fully borne by the person who does the littering.

Packaging waste is a major part of litter, as found by Keep Australia Beautiful National Association (KAB, sub. 152) and as suggested by Manly Council’s estimate that over 90 per cent of the content of its public bins is used packaging (sub. 49).

Many other participants noted the significance of used packaging in litter (eg Waste Busters, sub. 65; Amcor, sub. 69; Fidene Corporation, sub. 113), but also noted the inevitability of at least some packaging finding its way into the litter stream (ASDA, sub. 37). KAB also commented that 50 per cent of items in the litter stream are cigarette butts rather than packaging (transcript, p. 992).

There are four main costs imposed by litter.

Litter is ugly. The value of attractive scenery, both natural and artificial, is reduced by the presence of litter. These costs are borne by all who enjoy or value such scenery. Estimating the actual cost is difficult, as the link between monetary compensation and aesthetic experience can appear tenuous. However, people implicitly make such valuations regularly when deciding how to apply resources to the various needs of the community. Issues of environmental valuation are discussed in Section 5.4.2.

Analygon (1994) estimated that every dollar spent on the litter reduction programs of the Keep Australia Beautiful Council (WA) produced over five dollars of community benefit.³ This includes estimates of improved scenery values.

Litter is a danger to wildlife. It may interfere with and harm wildlife through direct tangling or by blocking pathways. As noted by the Wildlife Preservation Society of Queensland (sub. 7), of particular concern are those materials with

³ Analygon’s work was commissioned by the Keep Australia Beautiful Council (WA).

holes, such as plastic six-pack rings or plastic bags, in which entanglement can readily occur.

Litter can be a danger to human health. This can occur through direct injuries such as glass cuts, or through litter harbouring disease or disease carriers.

Litter is costly to collect. Its dispersal via wind and water means that litter is found across a wide area and in places with difficult access, even though it may be largely sourced from relatively concentrated geographic areas such as cities and highways. As estimated by KAB:

... litter pick up is worth on average \$80 000 to each individual local government. That makes it a \$70 million problem to start.

Add to that the cost of community clean-ups conducted by KAB, Clean Up Australia and other groups and it can be measured in the hundreds of millions of dollars. (sub. 152, p. 2)

Litter policy is discussed in Section 5.5.6.

5.3.2.2 *Landfill costs*

From figures presented earlier, packaging may account for about one-quarter of municipal waste by weight and more by volume. As most urban waste ends up in landfill, packaging is likely to make a significant contribution to landfill costs through its use of landfill space.

Section 5.3.1 suggested that many environmental costs generated by packaging production are important and should be taken into account in waste management policies. Nonetheless, the environmental costs associated with the disposal of used packaging are the issues of greatest concern to participants and the main waste management issue for this inquiry. As noted by the Nature Conservation Council:

Recently in New South Wales ... community opposition to disposal, both landfill and incineration has increased dramatically. I think that reflects world concerns at a global level by residents towards disposal facilities being located near them and also a growing concern about waste generation generally. (transcript, p. 102)

A number of participants provided evidence of environmental costs associated with the disposal of used packaging in landfill. For example, a representative of the Sutherland Shire Council said:

There are environmental externalities [from landfills] for the local community. Our local community get a large number of trucks coming past their doors at all hours of the night and day. (transcript, p. 266)

Similarly, Friends of the Earth commented:

With a refillable container, the costs of re-use are factored into the price of the product. This is not the case for single-use containers. The unaccounted [environmental costs] place the single-use container in an unfair advantage over the refillable. (sub. 22, pp. 9–10)

Although landfill prices have been rising, in most places they do not meet the full costs of locating, running, closing and insuring landfills against environmental contingencies. Landfill issues are discussed in more detail in Section 5.5.3.

5.4 Full social cost pricing

The terms of reference for this inquiry require the Commission to consider the role of full social cost pricing in the packaging industry. Full social cost pricing seeks to ensure that prices reflect all relevant costs, including environmental costs. Where this is done, the packaging user pays for the environmental costs associated with the packaging at purchase. Thus these costs are not passed on to the community.

The following three sections discuss the role of full social cost pricing in resource allocation, the difficulties faced in dealing with environmental costs. They present a framework for analysis of full social cost pricing initiatives.

5.4.1 Market failure and externalities

Markets are commonly relied upon to allocate resources to their most efficient uses. Market prices reflect the costs borne by the producers of products and the benefits consumers believe they will gain from the products. These are private costs and benefits. Purchasers can compare unlike products on the basis of prices, allowing the selection of an efficient mix of products across the economy. However, when there are costs and benefits which are not captured in the market price process (ie social and private costs and benefits differ), the resultant mix of products is inefficient and market failure will occur.

When a price fails to capture certain costs associated with the product an externality exists. An externality is an external cost or benefit, something not borne by the producer or user of a resource. A commonly observed externality is pollution, where a producer will price a product to reflect the cost of inputs such as materials, energy and labour but does not take account of the cost of pollution generated in the production process.

This has two effects:

- because pollution appears costless to the polluting firm, that firm has no incentive to reduce it; and
- because the product is priced too low, too much is produced.

Environmental externalities, such as litter and landfill discussed above, are issues for packaging.

Generally, the appropriate policy response to an externality is to seek to internalise the external cost. Internalising externalities will improve efficiency through ensuring that market prices reflect full social costs. In the pollution example, some mechanism must be sought to have the producer pay for the cost pollution imposes on society, thereby encouraging it to find less polluting production techniques and raising the price of the product, which will lower its production through lower demand.

However, internalising an externality may not be simple. Externalities may be difficult to identify, measure and cost. Several policy responses are likely to be available, each with uncertain probabilities of success and each with costs of implementation. Some externalities will be relatively small and so costly to correct that the best response is to take no action. Some externalities in the disposal of packaging may be in that position. For example, kerbside recycling sometimes generates externalities in the form of litter as used packaging escapes from kerbside recycling containers. No-one has suggested specific government action concerning this problem beyond existing litter and waste management policies.

There are numerous mechanisms available to the policy maker to internalise externalities and the selection of the appropriate one (or ones) will depend upon the circumstances at hand. The mechanisms are commonly grouped into three types; marketable rights, taxes and regulation. Each type modifies the mix of products in the market, although, from former to latter, they progressively step away from a market based approach. The use of regulation, such as a ban or setting a standard, is often termed a non-market approach, although such regulatory mechanisms still elicit market responses.⁴

5.4.2 Environmental valuation

For many environmental issues problems of intergenerational risk, irreversibility and compensation pose difficult, often intractable problems of valuation for

⁴ Environmental policy measures were also addressed in the Commission's report on *Environmental Waste Management Equipment, Systems and Services* (IC 1993a).

policy-makers. The upshot is that market solutions along the lines described in Section 5.4.1 become impractical, inefficient and/or manifestly unfair. However, these issues are not as prominent in packaging.

Valuation issues arise when we try to assess the magnitude of environmental problems. It is difficult to place dollar values on environmental services for which no observable market exists. For instance, the monetary value of scenery cannot be directly observed from consumer behaviour in the way that the value of a car in the car market can be measured.

Intergenerational risk issues arise when we do not know with any confidence the likely consequences of environmental problems. As a result, we are uncertain about the size and nature of the environmental costs we are imposing on future generations. The problem of intergenerational risks becomes acute when we believe there is some (albeit small) chance of catastrophic loss. For example, we are not sure what climate change will result from greenhouse gas emissions, or what impact any climate change will have. But we believe there is a non-negligible possibility of a massive impact.

The irreversibility of some environmental problems involves similar difficulties. For example, how do we value the possibility of species extinction as a result of changes in land-use, or damage to children's health caused by air pollution?

Compensation issues arise when we want to be fair to individuals who suffer particular losses as a result of environmental problems caused by others. But there are at least two important problems with compensation.

First, the damage done may be incommensurate with monetary compensation. As the Southern Highlands Community Action and Waste Crisis Network asked:

Who would dare to assess the damage to children's intellectual development through lead pollution in terms of dollars and cents? (sub. 173, p. 3)

Second, even if we can accurately value overall losses as a result of environmental problems, how do we then identify and compensate individuals who bear most of the losses associated with those problems?

In all of these cases, it will be impossible to precisely weigh costs and risks against benefits and for this reason a cautious approach is warranted. The 'Precautionary Principle' embraced in the *National Strategy for Ecologically Sustainable Development* (Commonwealth of Australia 1992) is based upon this premise.

Significant intergenerational risk, valuation and compensation issues mean that decisions on tradeoffs between competing environmental interests and other

community interests are difficult. However, regardless of the difficulties, these kinds of tradeoffs are made, at least implicitly, every day. We continue to tolerate *some* level of environmental harm because the cost of its elimination is greater than most people are prepared to face.

Further, comparing the relative significance of different environmental external costs and benefits is difficult when their relative impact may vary on a regional basis or depending on consumption patterns. Policy approaches to one form of external cost will sometimes exacerbate another. It is not possible to get agreement, for example, that a particular form of air pollution is clearly worse than a particular form of solid waste pollution or vice versa. As noted by Kemcor:

... you have got the added complexities ... with respect to how do you rate energy utilisation and greenhouse emissions with water pollution or chemical usage and so on. (transcript, p. 699)

For example, kerbside recycling collections and reusable glass containers may help address some of the external costs associated with packaging waste. However, increased recycling may also increase road transport, while transport and washing bottles for reuse can consume more energy than is used producing single-use plastic containers.

The environmental problems of packaging appear to be tractable. This is because traditional forms of the disposal of used packaging — landfill and incineration — involve the kind of valuation problems with which markets routinely deal. These include land alienation for commercial purposes, high traffic density and odour.

This is not to suggest that these matters may not raise important issues, but only that they are currently being dealt with on their merits by public policy. There is nothing particular about packaging in landfill or incineration which warrants dealing with packaging on its own rather than with the environmental effects that landfill and/or incineration produce themselves.

5.4.3 Framework for full social cost pricing

It is beyond the means of this inquiry to conduct a comprehensive analysis of all packaging waste issues in Australia. The outcomes of such analysis will vary according to packaging type, location and transport distances between manufacturer, market and disposal site.

The Commission recognises that full social cost pricing is not simple. However, any approach to be taken in developing policy responses to externalities needs to follow a coherent framework and the goal of full social cost pricing provides

the basis for such a framework. The following framework, laid out in five stages, is not one designed to lead to the use of specific market mechanisms. Rather, it encourages the use of the most appropriate and efficient mechanism.

1. Identify the externality. The aim of the policy response is to internalise the externality and thus the nature and extent of the externality must be understood first. This ensures that environmental objectives are substantive rather than symbolic. The role of research activity becomes vital at this early point.
2. Attempt to value the externality. Some notion of cost is necessary to enable comparison with the cost of internalisation. As noted in Section 5.4.2, environmental valuation is not an easy task but the issues to be dealt with in packaging waste do not appear to raise intractable difficulties.
3. Consider the probable effectiveness of all the response mechanisms available. This involves outlining the options, such as taxes, direct regulation, etc, assessing their likely impact on the externality, and assessing the cost of implementing them. Life Cycle Analysis, Environmental Impact Assessment and Regulatory Impact Assessment (see Box 5.2) have a role in this stage.
4. Select and implement the mechanism (or mechanisms) that are expected to achieve internalisation at least cost. While a number of the options available may achieve desirable outcomes they can be ranked according to expected benefit–cost ratios. The option of doing nothing should be included in this ranking. A means of monitoring outcomes should generally accompany the implementation of mechanisms.
5. Monitor, learn and improve. The previous stages are based on expected costs and benefits. After implementation, policy makers must observe the actual costs and benefits, including any unexpected side-effects, to assess actual effectiveness. A preparedness to learn from experience and even to change to other options (including reverting to doing nothing) is required.

Clearly the ease with which the above framework can be applied depends upon the ease with which it can be followed. Given the difficulties inherent in environmental valuation, it will not be possible to obtain exact information for all parts of the exercise. However, the framework still applies to qualitative judgements. Even, when decisions are based upon incomplete information, decision makers still require fair and factual information to allow these judgements to be made and their deliberations will be improved by taking place within a coherent framework.

Box 5.2: Effects analysis

Different analytical techniques have been recommended to this inquiry to help inform policy makers. These include regulatory impact assessment (RIA), environmental impact assessment (EIA) and life cycle analysis (LCA).

RIA is used to identify the aims, costs and benefits of regulatory options. It may include environmental effects (via an EIA) but will also incorporate broader social and financial costs and benefits.

EIA is a tool used to inform decision makers of the environmental effects of proposed policies or projects. An EIA may incorporate, but is generally broader than, an LCA.

LCA involves a cradle-to-grave inventory of inputs (energy and raw materials), outputs and waste generated in the production, consumption and waste management of a product or production process. LCA has a number of limitations that relate primarily to delineating the 'boundaries' of the system under analysis and the lack of an internationally accepted methodology for doing so. The Standards Association of Australia (sub. 182) noted that progress is being made toward an internationally agreed methodology.

The Commission's position regarding these tools is in line with its stated position on the role of EIA in decision making processes. They are tools to deliver factual information to decision makers operating within a sensible framework of policy formation but they are not decision making frameworks themselves (IC 1995b).

5.5 Policy mechanisms

By and large, people making decisions about the production and consumption of packaging do not face the full costs of disposal. Some of the costs and benefits outlined in Sections 5.2 and 5.3 are not captured in the price of the product. This means that there is too much packaging being disposed of and the costs of this are unfairly and inefficiently imposed on others.

However, there is evidence that current waste policies using direct regulation, such as those which increase recycling and reduce the amount of waste going to landfill, involve hidden economic costs. Moreover, the evidence of their environmental outcomes is often ambiguous. Even where environmental benefits are delivered, there are options which could achieve the same environmental benefits at lower cost.

Perverse or unclear policy outcomes can be traced to the use of a decision making framework which partially predetermines the outcome by substituting symbolic environmental objectives (eg more recycling) for substantive environmental objectives (eg lower carbon dioxide emissions). Three examples are presented below.

First, the *National Waste Minimisation and Recycling Strategy* (CEPA 1992) presents a waste hierarchy of avoidance, reduction, reuse, recycling, treatment and disposal. Constraining decision making within this hierarchy means that implicit judgements are made prior to any policy analysis and ranking becomes redundant. For example, lightweighting achieves reduction but there are offsetting losses in the ability to reuse and recycle lightweighted containers. Whether the best outcome corresponds to the hierarchy is a matter for analysis as trade-offs are involved (see Box 5.3).

Box 5.3: Reduce and recycling

A number of submissions noted the incompatibility between the goals of source reduction and recycling of packaging materials. For example, the ALCM noted that recycling of paper and cartonboard can be incompatible with source reduction:

... many excellent packaging solutions such as lightweight foils and laminates are less adapted to recycling, but because of the lighter weight they have a much lower overall impact on waste. (sub. 39, p. 3)

Pacific Waste Management told the Commission's Competitive Tendering and Contracting Inquiry that the light weighting of the glass stubby has increased the costs of recycling, as the bottles break more easily. As such, it becomes more costly to sort the coloured glass, and it also increases the amount of recyclable material going to landfill (CTC Inquiry, sub. 52).

Similarly, Maroochy Council indicated that the continued weight reduction of glass bottles and the substitution of PET for glass has reduced the viability of their recycling scheme (Waste Management and Recycling Seminar, 26–27 June 1995, Sydney).

Second, the recent New South Wales Waste Reforms (NSWEPA 1995b) set a waste reduction target of 60 per cent by the year 2000. The basis of the choice of this target is not clear but along with the waste hierarchy it underlies these reforms. The strategies contained within the reforms aim to reach this target rather than deal with environmental externalities. For example, the retention of reusable milk bottles was incorporated directly into the Waste Minimisation and

Management Bill without evaluation of the environmental and economic benefits and costs.

Third, the German Packaging Ordinance, outlined in Appendix E, prescribes certain uses, destinations and targets in order to promote recycling to deal with perceived problems with packaging waste. However, it does not appear to pursue substantiated environmental objectives and is not least cost.

Box 5.4: Who pays?

Who bears the costs of achieving mandated environmental objectives — such as reducing waste to landfill and increasing recycling? Full social cost pricing seeks to ensure that where a cost is generated, the party generating it pays for it in the first instance. This encourages that party to reduce the cost in the best way available to them. Thus where the costs of pollution are imposed on a producer it has an incentive to invest in less polluting technologies.

An alternative to the ‘user pays’ principle is ‘extended producer liability’ where, for example, packaging producers are required to pay levies that meet the costs of disposing of their packaging after its use.

In a reasonably competitive market, most or all of the costs of production are eventually passed down the production chain towards consumers. In this way, producer levies to fund waste disposal can ultimately be funded by consumers. Extended producer liability then becomes extended consumer liability! Although there will be costs with such an approach, there can also be benefits in current circumstances where much of the cost of additional waste is met externally to the production chain — by ratepayers rather than consumers. In such circumstances extended producer liability would help internalise costs being imposed on ratepayers.

However, it is quite practical to internalise these costs more directly by requiring those who actually generate kerbside waste to fund it on a user pays basis. They then face direct incentives to reduce their waste in a way which would not be possible if producers were funding their waste costs.

Such policies are often implemented alongside government ‘education’ programs that promote preconceived ideas in this area which are not always justified. For example, the National Kerbside Recycling Strategy stated:

There is a need to continually reinforce the message that recycling makes good sense in both ecological and economic terms ... [advertising should be supported by other

material to] ... increase community awareness of the need for, and benefits of, recycling programs and the role of kerbside collection. (ANZECC⁵ 1992, p. 32)

The use of the full social cost pricing framework in Section 5.4.3 facilitates the design of policies that efficiently pursue substantive environmental objectives rather than symbolic ones. Externalities will be internalised where they arise throughout the chain of extraction of raw materials, processing, conversion, manufacture, retailing, consumption and disposal of waste. The distribution of the burden of these costs can then be determined through the market process (see Box 5.4).

Six packaging waste policy mechanisms are discussed below in the context of the full social cost pricing framework:

- raw materials pricing;
- packaging taxes;
- landfill policy;
- kerbside waste collection costs;
- incineration of non-toxic waste; and
- litter policy.

5.5.1 Raw materials pricing

Inappropriate pricing of raw materials has some indirect implications for packaging waste management issues. Raw material pricing has been subject to an earlier inquiry by the Commission (IC 1992a). For packaging production, reuse, recycling and disposal to be efficient, virgin and used resources should be fully costed. There are many components of cost (including raw materials, energy, labour and capital) and any underpriced inputs will generally be overused. CEPA argued that:

... the best way of dealing with waste minimisation ... is to look at the virgin price of materials. (transcript, p. 801)

There is one area where the full social costs of resource use have previously been identified as not being reflected in market prices — the harvesting of timber resources. In previous inquiries the Commission has noted:

... a number of studies have found that, in most states, the prices of wood from public forests and plantations have in the past been below those that a competitive market would achieve. (IC 1993b, p. 132) ... this appears to be exacerbated by policies of

⁵ The Australian and New Zealand Environment Council (ANZEC) became the Australian and New Zealand Environment and Conservation Council (ANZECC) in 1991.

governments which have encouraged the supplies of timber and the underpricing of pulpwood. (IC 1990, p. 79)

There is increasing recognition of the need to price raw materials at their full social cost. For example, some state forest agencies have recently adopted pricing methods which better reflect resource values (ABARE 1993).

In the case of packaging paper and board, any underpricing of pulpwood from native forests will encourage some overuse. However, it should be noted that much of the fibre for these products comes from private plantations and recycled paper. Full social cost pricing of timber resources is a legitimate way to encourage efficient use of timber resources and will improve the efficiency of raw material choices made within the packaging industry.

5.5.2 Packaging taxes

Where the price of packaging does not take account of all external costs it is appropriate to consider whether efficiency could be enhanced by calculating these costs for each type of packaging and imposing a *pro rata* levy on packaging converters.

Ideally, a tax on packaging production to address the external costs of disposal would discriminate between different types of packaging. Packaging which had low costs of disposal (as is the case with aluminium cans, because of their value as recycle) would incur a lower tax than materials which impose higher costs.

The main advantage of this form of taxation would be that it ensures that the costs of packaging disposal are taken into account in production and consumption decisions. When taxes are passed on to consumers, they respond by switching some purchases from goods with relatively costly packaging to less expensive packaged goods. Producers then adjust output to reflect a shift in consumption from packaging with a high cost of disposal to other packaging.

Another advantage is that addressing packaging waste through taxes would not increase incentives for illegal dumping.

Despite its theoretical attractiveness, such an approach appears to have severe practical limitations.

First, under the federal system, such a tax would have to be levied by the Commonwealth, whereas the costs of packaging waste are borne at the State and local level. Taxation is usually an inefficient instrument for collecting revenue when rates of tax are very low.

Second, the main goal of economic instruments is to influence behaviour. In other words, taxes need to be levied at a rate high enough to cause polluters to reduce their impact: otherwise the only economic effect of the tax is to raise revenue — something which can probably be done much more efficiently using existing taxation measures.

Third, it is difficult to attribute particular external costs to particular packaging materials. Packaging sales would also have to be allocated to different regions to take account of varying disposal costs.

Fourth, any externalities in landfill pricing and other disposal options would continue. A production tax would not directly address the problem of how to encourage efficient disposal of packaging waste. In particular, a tax on packaging would provide no additional incentives to householders to sort waste and utilise recycling schemes, beyond whatever incentives were provided by user charges (if any) for waste.

In the case of packaging, it is likely that a per unit tax (related to environmental impact) would be so low that it would have no impact on consumption behaviour, and would be relatively costly in terms of the amount raised.

One Australian estimate of the price effect of a tax approximating unit disposal costs found that it would vary depending on the packaging material, but the highest (for a one way glass bottle) was still less than one cent per container (0.9 cents in 1989–90 prices) (Hatch and Mules 1993)⁶ (see Table 5.2).

Table 5.2: Estimated price effect of a container tax, 1989 prices (1993–94 prices)

<i>container type</i>	<i>tax in cents</i>
2 litre HDPE bottle	0.15 (0.16)
375 ml aluminium can	0.02 (0.02)
600 ml refillable glass	0.11 (0.12)
1 litre one way glass	0.96 (1.03)
1 litre carton	0.11 (0.12)
2 litre PET bottle	0.26 (0.28)

Source: Hatch and Mules (1993)

The New South Wales Tax Task Force found that stamp duty on cheques which was levied at a similarly low rate meant that this tax cost more in compliance costs than it raised in revenue (IC 1994a).

The limited experience with packaging taxes suggests that behaviour is unresponsive to small variations in charges. In Italy a charge set at 200 per cent

A tax of this magnitude would have a negligible effect on incentives and be massively inefficient as a means of raising revenue. For every dollar of revenue raised a substantial sum would have to be devoted to public administration and private compliance costs.

⁶ The study derives the unit taxes applying to a container tax proposal contained in Pearce and Turner (1992a).

of the market price of plastic shopping bags reduced measured consumption by 20 to 30 per cent. However, revenue was 85 per cent lower than expected because of widespread evasion by small producers (OECD 1994).

5.5.3 Landfill policy

Failure to price landfill disposal at full social costs can lead to three important consequences:

- the overuse of landfill imposing avoidable costs on the community as a whole, including the reduced viability of alternative disposal options which may yield environmental benefits in some circumstances (such as recycling or incineration);
- the inequitable distribution of costs between generations over time because environmental costs may not accrue until some time in the future; and
- the inequitable distribution of costs between different sectors of the community, because current localised environmental costs may be borne by particular communities as a result of leachate contamination of ground water, and loss of environmental amenity because of road congestion, noise pollution, litter, and odours.

Policies directly targeting these problems are likely to lead to a more efficient use of landfill space.

Many participants have suggested options such as reuse and recycling as solutions to landfill externalities. However, asserting the need for these options does not address any landfill externality. Furthermore, these options can generate their own externalities. For instance, they tend to require more road transport and energy consumption than landfill. The relative merits of each option will depend upon local factors such as infrastructure, the materials being collected and trippage rates (see Section 6.5 on reuse and Section 6.2 on recycling).

Other participants expressed reservations about the use of landfill as a means of disposal. For some in the community, the very existence of landfill sites represents an unsustainable use of resources that should not be permitted to continue. For example, the Local Government Recycling Co-operative stated:

... if an item of packaging is not able to be economically recycled and as a result ends up in landfill, it is not an acceptable item of packaging. (transcript, p. 165)

Similarly, Friends of the Earth argued that while the use of life cycle analysis was supported as a means of establishing environmental impact, landfill was inherently an unacceptable alternative:

[Friends] supports the use of life-cycle-analysis as a means of assessing the overall environmental impact of various packaging options. However, such analysis will only be of benefit to policy forming if a wide range of options are considered. ... it would be expected that better options than landfilling would always be found. (sub. 139, p. 2)

Contamination and leachates, which have been major landfill problems, are generally associated with putrescible and industrial wastes. The Australian Consumers Association (sub. 190) identified printing inks as a potential source of heavy metals although alternative inks are commercially available. The move toward safer inks was discussed in the Commission's *Interim Report on Paper Recycling* (IC 1990). Avcare, the Association for Crop Protection and Animal Health, (sub. 185) commented that it has included a levy on its own members as part of its waste management plan for used chemical containers. This program is a form of self-regulation on the part of that industry group to deal with some potentially formidable problems with chemical residues in containers.

Landfill prices have been rising recently but most are probably still too low. Studies have found that landfill charges do not currently reflect the full social costs of this form of waste disposal (for example, BIE 1993). This point was also noted by participants (for example, PCA sub. 57; Sutherland Shire Council transcript, p. 268).

Current underpricing of landfill encourages the overuse of landfill as a disposal option. Not only will existing landfill space be depleted too quickly but other disposal options such as recycling become less attractive.

5.5.3.1 *Landfill supply*

One of the reasons for the desire of some to reduce or eliminate packaging going to landfill appears to be the concern that Australia is running out of space for landfill. However, there is considerable evidence to the contrary.

In major Australian cities other than Sydney, there is little concern about a shortage of landfill space. For example, in Brisbane, it is estimated that there is around 20 years capacity (BCC 1995) accommodated in an area of around 80 hectares, most of which is a buffer zone around the active landfill site. In Melbourne, where there is competition between private landfill sites, capacity is not considered to be a problem in the foreseeable future (WMC 1995).

It has been claimed that Sydney is literally running out of landfill. Capacity estimates range between three and nine years.⁷ The problem relates primarily to

⁷ See discussion of this issue in, for example, Senate Standing Committee on Environment, Recreation and the Arts (1994), p. 95; *Pacific Waste Management P/L v Penrith CC*, (Unreported) Land and Environment Court of New South Wales, 10189/1994; Government Pricing Tribunal of New South Wales (1995), p. 23.

sites for putrescible waste. A more recent survey of facilities by Waste Service New South Wales (1995a) estimates capacity at nine years at existing filling rates. Some existing sites face increased pressure, and in some cases, are taking waste from an area wider than the local community originally expected.⁸

But the real issue is not a lack of potential capacity, but factors which constrain the development of new capacity. For instance, it is New South Wales policy that private landfills cannot take putrescible waste. This policy creates a shortage of landfill for this type of waste. For example, Pioneer Australia Waste Management (1995) informed the Government Pricing Tribunal of New South Wales that a soon to be freed quarry at Eastern Creek will provide over 12 million cubic metres of landfill which could conceivably double the lifespan of Sydney's landfill capacity if putrescible waste were allowed.

Despite large waste to landfill reduction targets (such as 60 per cent in New South Wales) substantial landfill capacity will continue to be needed, and there is no shortage of land available providing local community consent can be obtained.

Given that landfills are often created by quarrying, the needs of landfill design can be incorporated into the quarry design. For example, Pioneer Australia Waste Management (1995) noted that Pioneer Concrete operates the Eastern Creek quarry. This places it in a good position to influence quarry design to give it longer-term value as a landfill. Of course, ownership by the same firm is not a prerequisite for this link between quarry and landfill design to occur. A market for landfill space, which would arise if private operation were allowed, would mean that well designed landfill capacity would be valuable. This would provide incentives for firms operating sites such as quarries to consider operating the sites so as to maximise their resale value as potential landfill sites.

A number of participants commented that private firms should not operate landfills on the grounds that waste disposal is a public service, requires public accountability and should not be a profit making exercise (Southern Highlands Community Action and Waste Crisis Network, sub. 173; Sutherland Shire Environment Centre, sub. 186; Australian Consumers Association, sub. 190).

The Commission agrees that ensuring the provision of waste disposal services is an appropriate matter for public policy, but it does not follow that the actual provision of waste disposal services cannot be made by private firms. Indeed,

⁸ For example, Sutherland Shire Council (transcript, p. 269) reported that the Lucas Heights landfill site was originally designed to take waste from 7 shires, and it now takes waste from 23 shires.

public control was a feature of landfills in the past which are associated with environmental problems.

Past problems often reflected poor planning, design and operation of landfills. Poorly designed access roads and buffers result in litter, odour and noise problems. Dumping of inappropriate material results in contamination. To the extent possible these problems should be overcome by better planning and design, regardless of ownership, as they are common to all landfill operations.

Providing it is subject to rigorous environmental safeguards, landfill can be operated by private firms which will have a competitive incentive to obtain local community consent to site new or expanded landfill. If it were necessary to compensate host communities for their consent in siting new landfill, this would be appropriate.

Recommendation 4

State Governments should allow for the private development of new landfill facilities (subject to the same rigorous environmental standards as public landfills).

New facilities should not proceed without the consent of host communities expressed through their locally elected governments. Where appropriate, operators should be allowed to compensate communities for any loss of amenity in hosting such facilities.

5.5.3.2 Full social cost pricing of landfill

While better management practices can alleviate some of the problems of landfill, the fact that landfill is still underpriced leads to its overuse. Therefore, disposal to landfill remains artificially more attractive than other options for waste management.

The role of full social cost pricing for landfill is assessed in three parts:

- landfill costs and current charging practices;
- landfill price responses; and
- the potential to encourage illegal dumping.

Landfill costs and current charging practices

The total cost of disposal in landfill depends on the landfill costs and the amount and type of material. The full costs of landfill include all development, construction and operating costs (including the opportunity cost of land), and

any costs associated with environmental degradation, contingency and loss of amenity.

Those costs of landfill (such as leachate barriers, drainage systems and environmental contingency measures) resulting from the need to deal with putrescible materials (that is, waste that degrades) should be recovered fully from correct pricing for putrescible wastes.

Measurement of the environmental contingency costs is more problematic, particularly given the scientific uncertainty associated with the nature and extent of any pollution, and the long timeframes involved. This leads to another problem — that of how long any financial responsibility should be required. In this example, compliance with standards of the day may not prevent legal liability in the future. In such situations, policy options include: insurance, pooled funds, deposit/refund schemes, strict liability, and financial assurance (Shirrefs 1994).

Liability for contamination and clean up has led to problems in liability insurance markets in the US. In addition, the costs of site remediation may be avoided in a number of ways, such as insolvency.

Financial assurances aim to make firms internalise potential externalities. There is provision for financial assurances in the Victorian *Environment Protection Act 1970*, and six means of assurance are specified.⁹ Financial assurance may also provide an incentive for environmentally sound management of a site, avoiding the ‘adverse selection’ problems of insurance.

Similarly, there are no commonly accepted means of measuring environmental amenity costs. This is of particular significance given community concerns regarding landfill siting. However, host communities can give or withhold their consent through their elected local government representatives and where they are offered compensation to host landfill facilities this provides those communities with the means of valuing the cost of the local landfill. Given the ability to compensate, the Commission considers it both fair and efficient that landfills not be located without the consent of host communities as expressed through their elected local government.

Current charges and charging practices are described in Appendix E. Australian landfill charges are generally below full social cost. Landfill charges vary within and between States in Australia, and overseas. In Australia, they also vary to some extent depending on the type of material. For example, the New

⁹ Section 67 describes: a bank letter of credit; certificate of title; personal and bank guarantees; bonds; insurance; a form considered appropriate by the Environment Protection Authority.

South Wales Waste Service introduced discriminatory pricing in the 1980s as a means of conserving landfill capacity. An element of this pricing policy has been that materials which are difficult to dispose of (such as tyres) must pay a higher landfill disposal price, as do materials which have a large volume relative to weight. For example, the charge for foamed plastics at landfill is \$713 per tonne, while garden waste is \$38 per tonne (Government Pricing Tribunal of New South Wales 1995).

Landfill price responses

Pricing materials going to landfill according to full costs implies a range of prices (between regions and materials) depending on land value and likely impact on local amenity. Evidence to date suggests small landfill charges have a significant impact on behaviour in relation to at least some substantial municipal waste streams.

Evidence from the ACT suggests that landfill charges can have a large impact on behaviour for types of waste where there are ready alternative uses or means of disposal. In 1994, the gate charge for commercial waste (excluding clean fill) was doubled from \$11 to \$22 per tonne, leading to a 20 per cent decline in the landfill of commercial waste within six months. Similar increases in charges led to a decline in the landfill of building waste of 37 per cent.

In the case of clean fill (non-putrescible material such as earth, clay) the impact has been more pronounced. In November 1993, a gate charge of \$11 per tonne was imposed. Within six months, clean fill deliveries were down 90 per cent; within 12 months, 98 per cent.

In New South Wales, higher commercial charges have resulted in commercial waste being diverted to private landfills, while the amount of separated waste brought to landfill has also increased (Government Pricing Tribunal of New South Wales 1995). However, for putrescible waste there was a different outcome. The imposition of charges prompted only a marginal initial decline (6 per cent) which was, in any case, reversed 12 months later. As the NSW EPA (1995a) notes, commercial disposal has been estimated to have twice the price response (elasticity) as domestic disposal.

In terms of packaging, higher landfill fees may mean that alternatives such as recycling become more economically viable. While the amount of packaging going to landfill will be reduced by increased landfill charges, packaging may, in the end, represent a larger proportion of a diminished waste stream as other materials such as organics and building waste respond more strongly to changed incentives.

Illegal dumping

Increasing the price of ‘legitimate’ waste disposal is likely to increase illegal dumping. That is, as the price of landfill increases, there is a greater incentive either to hold waste onsite or dump illegally.

Illegal dumping can involve either dumping waste offsite (similar to littering) or deliberately misclassifying waste to dispose of it at a cheaper rate. Issues relating to the former (litter) are addressed in Section 5.5.6. The latter form is encouraged by differential pricing and/or handling requirements of different waste materials. The extent to which it occurs depends upon the degree of any price differential, the extent to which waste can be disguised without detection and the penalties and likelihood of prosecution and conviction.

The social costs of illegal dumping include:

- loss of environmental amenity;
- pollution;
- clean up; and
- administrative costs in the form of enforcement and prosecution.

Waste charges have increased over time. Waste Service New South Wales (1995b) noted some anecdotal evidence of increased illegal dumping in response to tipping fees in rural areas in its submission to the Government Pricing Tribunal of New South Wales waste pricing inquiry. However, it also noted that as councils did not separate clean up costs for illegal dumping from other clean up costs it was difficult to quantify the problem. It would be useful for local authorities to separately monitor this problem.

As part of the Commission’s Recycling Inquiry, a survey of local government waste management practices was carried out. Part of the survey sought Councils’ opinions regarding the likelihood of increased illegal dumping in response to an unquantified increase in disposal charges. Overall, around 50 per cent expected there would be no significant increase (IC 1991d).

In its report *Environmental Waste Management Equipment, Systems and Services* (IC 1993a), the Commission considered that given the potential problems created by illegal dumping, it is appropriate to err on the side of caution. This suggests that full social cost pricing should be phased in with attention being given to public education during the process.

Recommendation 5

State and local governments responsible for landfill charges should ensure that landfill users face the full social costs of disposal, including, where appropriate, allowance for loss of environmental amenity for host communities and insurance against future environmental contingencies. In most cases this will result in continuing increases in charges.

5.5.4 Kerbside waste collection costs

Australian householders pay for the bulk of the costs of landfill disposal in Australia. They typically pay for landfill through their rates. This clearly poses a problem in terms of getting incentives to households to reduce their use of waste disposal services. Many — probably most — Australian governments accept the sense in imposing charges for the use of landfill. Nonetheless, in most if not all cases landfill charges still do not reflect the full social cost of landfill. Even more unfortunately from the perspective of encouraging households to reduce their waste disposal, very few kerbside waste disposal systems charge households user charges which depend on the actual level of use.

Appendix E details the range of annual charges applied to households for waste collections by local governments in each state. The range of charges vary widely. But while most local councils now identify these charges separately on rates notices, in general, they are not related to volume collected or the costs of disposal.

Full cost recovery on household collection services would encourage separation of materials that can be disposed of by other means. Thus, householders would be encouraged to separate suitable packaging materials and utilise recycling schemes. There may also be an impact on purchasing behaviour. Consumers would have a greater incentive than they do now to avoid products which use bulky packaging which was hard to reuse or recycle.

While it is difficult and costly to measure precisely the amounts households dispose of through waste disposal services and to charge accordingly, proxy options are easily available. The simplest of all is probably a user charge for the volume of the particular disposal bin used. For example, Canberra's waste service is considering providing ratepayers with a rebate where the capacity of their waste disposal bins is reduced. Some other councils reported similar intentions although a number intended to simply impose smaller capacity bins.

Recommendation 6

In so far as is practical, waste disposal charges should be fed down to individual decision makers in the waste chain. In particular, post consumer waste collected at the kerbside should move more fully towards user pays systems with users billed according to use.

5.5.5 Incineration of non-toxic waste

Incineration provides an alternative means of waste disposal. In some countries, it is also used as an energy source. (See Appendix E for greater detail).

Incineration, preferably with energy recovery, is favoured in several European countries as an alternative to landfill. Although technologies are available to reduce pollution from incineration below levels accepted for energy generation from non-waste products, many Australians and many participants in this inquiry view the incineration of waste as unacceptable. This may be partly because of an association with the incineration of toxic waste — a different issue to which quite different environmental and economic considerations may apply. People may also feel intimidated by the technologies used, and may associate the incineration of waste with the noxious fumes caused when plastic and other substances are burned in uncontrolled conditions.

At this stage, the debate may be largely academic as it may not be an economically viable option currently. However, should incineration become economically viable, it should be considered as an option subject to the same analysis as other waste options. Those who use it and gain from it should pay its full social and environmental costs. Disqualifying incineration from consideration before assessing its relative environmental and economic merits is not a sensible approach.

In Australia, local communities have not wanted to be near incinerators or waste to energy plants for reasons which are analogous to, but which may go beyond the reasons for opposition to the siting of new landfill (see Section 5.5.3).

(This must be distinguished from policies with regard to the incineration of toxic waste to which different considerations may well apply and which the Commission has not investigated.)

Recommendation 7

State Governments should treat arrangements for the incineration of packaging and other non-toxic materials and their conversion to energy on their economic and environmental merits. However, new facilities should not proceed without

the consent of host communities. Where appropriate, operators should be allowed to compensate communities for any loss of amenity in hosting such facilities.

(This recommendation does not refer to the incineration of toxic waste.)

5.5.6 Litter policy

The external costs created by litter were outlined in Section 5.3.2.1. Litter policy seeks to reduce these by physically bringing litter back into the waste management system.

As is the case with many community problems, litter reduction absorbs public resources and requires a multi-pronged response. Anti-litter campaigns generally focus on five means of encouraging reduction; anti-littering laws, public bins, education, litter clean-up operations and product design. Another litter policy option, container deposit legislation, which encourages the return of used containers, is discussed in Section 5.5.6.1.

Litter strategy is being developed in each state. The selection of the appropriate combination of these and any other policy responses requires rational analysis in a decision making process as outlined in Section 5.4.3. The recently released Victorian strategy (EPA 1995) identifies the extent of the litter problem, analyses its component parts, and outlines potential responses for each component of the problem.

While all five means of reduction are currently employed, their effectiveness at current levels is open to question. For example, Keep South Australia Beautiful (KESAB) suggested that the level of enforcement of anti-littering laws in Adelaide was not providing an effective deterrent. They estimated that the 26 councils in the Adelaide metropolitan area impose less than 100 littering infringement notices per annum (transcript, p. 870).

Similarly, the Victorian strategy suggests that around 3000 notices are issued each year by the Police and Environment Protection Authority (EPA) but that other public bodies with this power make less effort. The effectiveness of such laws depends not only on the level of penalties but on the likelihood of detection and the penalties being imposed.

KESAB also noted that its research indicated that young people did not display the same commitment to litter as other environmental issues. It emphasised the need to find out why this was the case (transcript, p. 865). This highlights the 'problem' as being one of attitude and behaviour, which invokes an education response.

Education not only informs people of the extent of the litter problem but also elicits changes in public attitudes and helps public participation, which will also make an important contribution to reducing litter.

The effect of litter on wildlife and as a health hazard continues to be a problem but product design can contribute, and has contributed, to addressing these effects. Ring tabs on beverage cans are now designed to stay with the can. The previous loose ring design posed a danger to small wildlife and bare feet. Another danger to wildlife, plastic six pack rings, are now made from photodegradable plastic.

The resources put to litter reduction are largely publicly funded although some producers, particularly those with readily identifiable packaging, voluntarily contribute to organisations, such as KAB, Clean-Up Australia and the Litter and Recycling Research Association (LRRRA), that mount anti-litter campaigns and conduct litter research.

Organisations such as these are in a position to mount effective anti-litter campaigns and contributing firms can generate goodwill in return for their funding. Public identification of specific products in the litter stream by these organisations could encourage the firms identified to take an interest in litter reduction. Firms producing packaged products are often in a good position to encourage litter reduction by considering this issue in their packaging design and marketing. KAB (transcript, p. 991) commented that it was considering moving this direction.

5.5.6.1 Container Deposit Legislation

Container Deposit Legislation (CDL) mandates the levying of a deposit on containers and the refund of that deposit upon the return of used containers to a collection point (such as a retail store or a depot). This encourages consumers to return their used containers rather than put them into the waste system or to litter. It can also encourage recycling and the use of reusable packaging.

In South Australia CDL is targeted at beverage container litter (South Australian Government, sub. 203). CDL is suited to beverage containers, but this misses most of the litter stream. A refund system on other major contributors to litter, such as wrappers or cigarette butts (in Section 5.3.2.1 it was noted that cigarette butts account for half of litter items), is not practical.

CDL generates a variety of costs, many of which are not obvious, but which need to be compared with its benefits.

Consumers can face higher prices if CDL requires or encourages the use of reusable containers (see Section 6.5 for discussion of reuse) over disposable or

recyclable alternatives where this is otherwise uneconomic. Consumers also face the costs and inconvenience of storing and transporting containers to collection points to claim the deposit.

The collection process, whether via retailers, drop-off centres or a combination of both, involves extra transport and labour costs as existing collection systems for waste and recyclates are either not used or require supplementation.

Furthermore, the viability of existing recycling systems can be reduced where CDL diverts high value used beverage containers, such as aluminium and glass containers, from other recycling systems. CDL encourages consumers to return these separately so collection systems such as kerbside recycling are left with less (and less valuable) material. A study by Warren (1995) observed this effect on kerbside recycling in South Australia. Section 6.4.1 discusses kerbside recycling and the relative importance of materials to revenue.

Where retailers are used as collection points, further costs and inconvenience can accrue to the extent that they must sort and store the used containers until collection. The many costs should be weighed against the benefits of CDL.

Recently, KESAB (1995) prepared a report for the South Australian Government on litter and the impact of CDL. This found that beverage containers comprise only 3 per cent of South Australia's litter, compared to a national average of 9 per cent. This implies that CDL in South Australia resulted in a 6 per cent litter reduction.

Thus the numerous, albeit relatively small, costs of CDL are offset by only relatively minor benefits from litter reduction. This means that it is difficult to judge whether CDL is a beneficial policy without further empirical analysis.

In its *Recycling* inquiry, the Commission (1991a) reviewed several studies on CDL, including those by the Business Regulation Review Unit (BRRU 1989), the Industries Assistance Commission (IAC 1987) and critiques of the BRRU study by Pearce (1990) and Hatch (1990). Each study concluded that CDL generates numerous costs, although they differed in interpretation of the extent of these costs. In the light of such studies, the Commission is doubtful that CDL can produce net benefits.

6 RECYCLING AND REUSE OF PACKAGING

Recycling and reuse have been gaining popularity in recent years as measures to help deal with the growth of post consumer packaging waste. Although reuse and recycling of some packaging materials such as glass and paper has been practiced for many years for economic reasons, environmental concerns are a major motivation for the recent growth in popular support.

One consequence of these environmental concerns has been government commitment to various targets relating to the amount of packaging waste going to landfill, the number of Australian households serviced by kerbside recycling, and in particular, the extent to which packaging materials are recycled.

This chapter considers these issues. The first section examines community attitudes to the environment and recycling. Section 6.2 deals with recycling. Section 6.3 describes the major policy responses to waste management issues — namely strategies setting waste reduction and recycling targets. Section 6.4 examines collection systems, while Section 6.5 deals with the level of reuse. These costs and benefits of targets are then examined in Section 6.6. Section 6.7 outlines other regulatory approaches.

6.1 Attitudes to the environment and recycling

The environment remains an important concern of many people. Recent surveys in Australia indicate that while unemployment and the economy remain primary concerns, the environment has consistently been the third most important issue of concern.

The Local Government Recycling Co-operative noted that:

... a large percentage of people ... especially children, have a strong commitment to the environment. (sub. 156, p. 3)

Within the subset of the environment, the major environmental concerns relate to air pollution and the ozone layer. Litter, over-packaging and recycling are concerns, although of a considerably lower level (AMR:Quantum 1994).

These environmental concerns have been an important driver of community interest in recycling issues. Involvement in recycling is seen as being one way individuals can contribute to improved environmental outcomes. A BIE (1994a) survey found that the primary reasons for councils to provide recycling schemes were related to community desire and environmental awareness.

The Australian Consumers Association commented that there was also value in recycling through raising awareness about other environmental issues:

... recycling also has a role in making people more aware of environmental degradation and this awareness is likely to flow into other aspects of their life. These sorts of indirect effects will not be included in a simple cost benefit analysis. (sub. 190, p. 11)

However, it was also noted that this interest may be in ignorance of the economic and environmental effects. The Australian Council of Recyclers argued that while there was strong community support for recycling:

... it would be fair to say that many sections of the community support recycling without reference to either the real economic and environmental costs and benefits or whether it is the most environmental investment available to local government (sub. 160, p. 2)

There is a paucity of information available about the economic and environmental benefits and costs of recycling. Frequently, policies have been developed with little information about the environmental or economic outcome.

This lack of community knowledge about the costs (and benefits) has been exacerbated at least in part by council charging practices.

At present it is not common for councils to clearly and separately identify the costs of waste management or of recycling to ratepayers. This has reduced community awareness of the economic costs of recycling. Although recycling is popular and many are prepared to collectively pay for higher levels of community recycling through their rates, the evidence available suggests that different people value recycling very differently. Some surveys indicate that a substantial proportion of the population do not value recycling, or place a low value on recycling.

A survey prepared for the Recycling and Resource Recovery Council (RRRC) (Keys Young 1994) examined awareness about financial aspects of kerbside recycling in Melbourne. It found that, while 28 per cent of those surveyed were not sure, 40 per cent thought that councils either make money or break even on recycling.

Several surveys have also been undertaken looking at the amounts people reported being prepared to pay for recycling services. The results indicate a wide range of responses.

The RRRC survey found that 65 per cent of ratepayers were prepared to pay up to \$80 per year for recycling. Thirty five per cent of ratepayers fell in the band \$61–\$80; while 19 per cent fell in the band \$31–\$60. In addition, 16 per cent said they were willing to pay over \$80 per year (Keys Young 1994).

A survey conducted by Wanaroo Council found that 50 per cent of ratepayers would not be willing to pay an extra fee for recycling, while 11 per cent were willing to pay over \$75 per annum, and 14 per cent from \$20 to \$50 a year.

A 1993 survey conducted by Shoalhaven Council found that the majority of residents were not willing to pay more than \$20 per year for recycling services.

A Tasmanian Department of the Environment and Land Management survey found that 68 per cent of ratepayers indicated a willingness to pay up to \$10 a year for a recycling program.

In conjunction with a study on the economics of plastics recycling, the BIE undertook a survey of residents seeking information on, among other things, attitudes to recycling. The survey found that 27 per cent were willing to accept a rate increase for councils to provide or continue kerbside collection. Of these, 88 per cent supported an increase of \$20 or less. In addition, 70 per cent of respondents supported the idea of recycling participants paying lower rates than non-participants (BIE 1994e).

The RRRC survey also explored the reasons why households recycle. The major reason was a desire to protect the environment. Another significant reason was the belief that recycling helps reduce litter. Thirteen per cent believed that recycling made economic sense (Keys Young 1994).

6.2 Recycling

The term recycling usually refers to the recovery of the material used in packaging for re manufacture— for example, glass bottles are recycled into more glass bottles. Recycling can also refer to:

- chemical recycling, where compounds within the packaging are recovered. For example, oil can be recovered from some plastics;
- the recovery of energy embodied in the packaging through incineration. Paper and plastics packaging have a high calorific content (especially compared to brown coal) and are particularly suited to incineration with energy recovery;
- low-grade materials recycling, where the packaging material is recovered, but reprocessed into a different material. This approach is sometimes taken with mixed plastics because of high sorting costs; and
- the reuse of products after cleaning or treatment.

A great deal of recycling of waste packaging materials occurs at the industrial and post commercial stage of production. Offcuts, and rejected material are

generally recycled as is a substantial proportion of transport packaging. However, used packaging is much more visible in the community at the post consumer level and post consumer waste has achieved a great deal more policy attention. This can lead to the community underestimating how much recycling actually occurs in our economy. It also focuses policy initiatives on recycling in an area where, for all its public visibility, increased recycling can often only be achieved at substantial economic (and sometimes environmental) cost.

Used packaging in household waste streams has four characteristics which suggest that the social costs of reuse or recycling programs will often be higher than for other forms of disposal, such as landfill.

- Used packaging is widely dispersed amongst the general community in small amounts (and often food contamination raises the cost of recycling).
- Units of used packaging are of low value individually.
- Relative to the value of kerbside recyclate, collection and sorting costs are high. The most modern automated systems — which are best for employee health and safety — involve relatively high capital costs.
- The ‘marginal cost’ of disposing of used packaging through the waste stream are generally very low. This is because waste bins and collection systems already exist to handle waste which is not recycled.

Recycling will offer economic and environmental benefits if the resources used in the process of recycling are not greater than the resources saved.

Any difference in the cost of using recycled as opposed to virgin materials could arise from several sources. There may be differences in either the private or social costs of use (see Section 5.4.1). For example, virgin material prices to users may be less than for the equivalent recycled material substitute.

Price may not be the only determinant in selecting between the use of virgin and recycled materials. The quality of the inputs may also be a factor. Some materials such as metals and glass do not deteriorate with reprocessing. Organic materials such as paper and plastic do.

The cost of using recycled materials includes the costs of collection, sorting, cleaning, and re-processing prior to use. Some recycling may reduce energy consumption, but kerbside recycling may also involve additional environmental costs (for example, energy use and air emissions from truck exhaust). These issues are discussed below.

The Commission is concerned that considerable resources may be devoted to recycling some materials when there are both net economic and environmental costs. With some materials, such as glass and aluminium, market forces

reinforce environmental benefits, providing an incentive to reduce energy use and greenhouse gas emissions. However, for a number of other products, market forces alone would not lead to significant recycling activity. Plastics such as HDPE are a case in point. With such materials, industry support of recycling schemes is necessary to encourage collection and reprocessing. In other cases, while there may be economic benefits associated with recycling there may be environmental costs — for example, a full life-cycle analysis may indicate that recycled paper is responsible for higher carbon dioxide emissions than virgin paper (see Box 5.1). Clearly, both environmental and economic benefits and costs of recycling must be considered when determining policies relating to recycling.

6.3 Waste management policy and the use of targets

Recycling and waste reduction targets represent a major focus of the policy response to community interest in environmental issues and recycling. The targets have, in turn, become a major driver of efforts to reduce the amount of waste going to landfill, and to increase the level of recycling.

National and State targets have been set with the aim of achieving a dramatic (50 per cent) reduction in the level of waste going to landfill (in New South Wales, the target has recently been revised up to 60 per cent); and a substantial increase in access to kerbside recycling within ten years.

There has also been a set of recycling targets developed for individual packaging materials. Most of these targets expired in 1995. New measures are currently being considered by the Australian and New Zealand Environment and Conservation Council (ANZECC)¹.

The major strategies containing waste reduction and recycling targets are outlined below.

The Australian and New Zealand Environment Council (ANZEC) released the *National Packaging Guidelines* in 1991, which set targets for reductions in domestic and industrial waste. For example, domestic packaging waste requiring disposal is to be reduced by 50 kg per person (equivalent to 5 per cent per year) from the 1991 level by 2000. (ANZEC 1991).

The *National Waste Minimisation and Recycling Strategy* was released by the Commonwealth Government in July 1992. The Strategy is designed to

¹ The Australian and New Zealand Environment Council (ANZEC) became the Australian and New Zealand Environment and Conservation Council (ANZECC) in 1991.

encourage a reduction in waste at both the production and post production stage, and an increase in recycling. It also includes targets for waste reduction, and proposes a waste management hierarchy of waste avoidance, reduction, reuse, recycling or reclamation, treatment and disposal (CEPA; DASET 1992).

In early 1992, ANZECC endorsed the establishment of a *National Kerbside Recycling Strategy*.

Table 6.1: Agreed material recycling targets (& post-1995 proposals)

<i>Material</i>	<i>Target</i>	<i>Progress</i>	<i>1995 draft proposals^d</i>	
	(%)	(%)	(%)	
Plastic containers ^a	PET	30	29	75
	HDPE	50	35	75
	PVC	15	10	–
	polypropylene	15	(c)	–
	polystyrene	10	(c)	–
Glass containers	45	42 ^b	50	
Aluminium cans	65	>65 ^b	75	
Steel cans	25	18 ^b	50	
Liquidpaperboard	20	11	75	
Newsprint	40	45 (est.)	–	
Paper packaging	71	71 ^b	–	

a Overall target was 25 per cent.

b These figures taken from relevant submissions. The remainder from CEPA 1994.

c Polypropylene and polystyrene packaging is not generally recycled because of contamination (CEPA 1994).

d Draft targets only proposed for HDPE, PET, glass, steel, aluminium, and liquidpaperboard.

Sources: ANZECC 1992; Packaging Council of Australia, sub. 57; Litter and Recycling Research Association, sub. 25; Alcoa, sub. 122; CEPA 1994; company estimates

The Strategy included voluntary recycling targets (see Table 6.1), and other targets, including that:

- all local government areas should be covered by municipal waste management plans by June 1993;
- local authorities to charge for domestic waste services by June 1994 based on full waste disposal costs;
- more than 90 per cent of households in major urban areas should have access to kerbside recycling by June 1994; and
- at least 60 per cent of households with access to a kerbside system should use it at least once a month by June 1993 (ANZECC 1992).

In its *National Strategy for Ecologically Sustainable Development*, the Commonwealth defined Ecologically Sustainable Development (ESD) as:

using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased. (Commonwealth of Australia 1992)

The Strategy, adopted in 1992, included agreement by governments on the issue of waste minimisation and management. The overall objective is to improve efficiency in resource use and reduce the impact of waste disposal on the environment.

Governments agreed to, among other things:

- develop improved means for supporting local councils' recycling activities, including kerbside recycling collections, and better planning and operation of landfill disposal sites;
- work toward the introduction of prices and charges which reflect the full economic and environmental costs of waste disposal;
- encourage greater levels of involvement by industry in recycling activities;
- have regard to the principles and recommendations in the National Waste Minimisation and Recycling Strategy and the Industry Commission's report on recycling;
- develop methodologies for the evaluation and assessment of the costs and benefits of waste minimisation options; and
- continue action to promote a greater level of household recycling and to minimise the production of household waste.

The Strategy also considered the role of taxation and prices in encouraging more efficient use of resources. In relation to these issues, Governments agreed to:

- continue to develop practical experience in the use of pricing and economic instruments; and
- ensure that taxation regimes foster sound environmental practices.

While the use of targets may be beneficial in some circumstances, the Commission has serious reservations regarding the manner in which many of the waste management targets have been set and pursued. In addition, issues such as who should pay for meeting targets remain unresolved. The costs and benefits of targets are discussed further in Section 6.5.

6.4 Collection of post consumer packaging

Community involvement in recycling takes several forms. Material is collected from households via kerbside schemes, drop-off centres and from local government public bins.

6.4.1 Kerbside collection

Kerbside collection schemes have grown rapidly in Australia in recent years. The collection of recyclable materials from households at the kerbside has become a relatively common feature of waste management in many Australian municipalities. The BIE survey of councils found that over 50 per cent of surveyed Local Government Areas had kerbside recycling initiatives, and around 49 per cent of the population were found to have access to kerbside recycling. The survey also found that 81 per cent of major urban areas had regular kerbside collection of recyclables at the start of 1994 (BIE 1994a).

Australian Bureau of Statistics survey data reported that in 1992, 46 per cent of households were involved in kerbside recycling, while over 53 per cent used drop-off centres. Around 16 per cent did no recycling (ABS 1992). By State, Victoria had the highest kerbside recycling rate with 71 per cent of households involved.

The survey prepared for the RRRC found that 77 per cent of households in Melbourne were either 'very actively' or 'fairly actively' involved in kerbside recycling (Keys Young 1994).

6.4.1.1 Collection and sorting costs

The costs of kerbside collection will be influenced by the type of collection system and the level of utilisation of collection equipment. Unit collection costs are considerably higher for kerbside collection, compared with centralised drop-off systems.

The level of utilisation for kerbside collection is affected by:

- household yields;
- household participation rates;
- collection frequency; and
- economies of scope.

Household yields will also be influenced by the costs of waste disposal faced by households. If households are charged according to weight or volume of waste,

this provides an incentive for them to minimise their waste and divert material to the recycling stream.

This point is amply illustrated by the garbage and recycling scheme operating in Seattle, Washington. Here, recycling services are provided free of charge, but garbage collection services are provided at high cost. The minimum annual charge is \$US75, but for one 120 litre (32 gallon) bin, the annual charge is \$US193, for two 120 litre bins, \$US386. People are able to minimise the costs of garbage collection (which are volume based) by recycling.

The resulting high levels of recycling are argued to have had an additional benefit in the form of avoided garbage collection and disposal costs. This is estimated at \$US7 per household (Seattle Solid Waste Utility 1994).

The Commission contacted around 30 local councils Australia-wide for information regarding the costs associated with their recycling systems. This found that participation rates, which also affect the utilisation of collection systems, ranged between 15 per cent and 92 per cent. It is likely, as some have argued, that there is a link between participation rates and the convenience of recycling programs. As such, in order to divert increasing amounts of material from landfill (by way of recycling), households must be offered more expensive recycling programs (see Judge and Becker 1993).

Collection times are influenced by household density. For example, higher densities in urban areas are likely to be reflected in lower collection costs (per household).

BFI Australia has advised that using a 240 litre mobile garbage bin system, collection costs lie between \$104 and \$125 per tonne. Of the 30 councils contacted directly by the Commission, the cost per tonne ranged from \$70 to in excess of \$1000 (for an average of \$504), depending on the kerbside system used, the region in which collection occurred, and the material collected. 1990 data from the United Kingdom indicate that kerbside collection systems varied in cost between £50 and £150 per tonne of recycled materials collected.² Data from ACT Waste Management indicate collection costs (net) of around \$133 per tonne (sub. 153).

A key determinant of sorting costs is the quality of sorting by households. In this respect, user pays charging for garbage collection provides incentives for households to separate materials, reducing costs and increasing yields for recyclers.

² Data based on a kerbside collection system collecting paper, board, plastics, glass, ferrous metal, and aluminium; source: UK DoE (1991) *Waste Management Paper no.28, A Draft for Consultation*, London; cited in Pearce and Turner 1992.

In some circumstances there will be 'synergies' or 'economies of scope'. Those already committed to collecting kerbside waste can collect recyclables at lower cost than anyone else. They may have infrastructure such as trucks, collection systems and/or management and marketing systems which can be used both for kerbside waste collection and recycling. Existing tendering practices may foreclose such possibilities if kerbside waste and recycling tenders are let separately, for different periods, or using incompatible collection technologies.

This is wasteful. Competitive tendering for kerbside waste collection and recycling should be designed to enable the capture of economies of scope where this is feasible. Increasingly, recycling and waste disposal are being treated in an integrated manner when waste management contracts are being set.

Table 6.2: Revenue from sale of recyclate

<i>Material</i>	<i>Proportion of materials collected through kerbside in ACT, December 1994</i>	<i>Estimated price^b</i>	<i>Revenue contribution per tonne collected</i>	
	(% by weight)	(\$ per tonne)	(\$)	(%)
Paper	53	40	21	16
Glass	44	115	50	37
PET	1	550	39	29
Aluminium cans	2	1600	24	18
Steel	2	78	1	1
Total	102 ^a	2 383	135	100 ^a

a The figures may not add to 100 due to rounding.

b Buy-back contracts, and therefore prices, vary.

Source: ACT Department of Urban Services sub. 86; sub.14; Dubbo City Council.

The range of materials selected for kerbside collection varies across the country. For example, all paper is collected in Melbourne, but only newsprint is collected from the kerbside in Brisbane. Different areas face different costs and markets for materials collected. Councils' decision making will be distorted in economic terms by company recycling subsidies. Once long term contracts and infrastructure are developed for recycling, the schemes become dependent on company support. The lack of transparency on the economics of recycling various materials then carries risks for local government and the community as well as the companies themselves.

While collection costs vary between materials, the revenue contribution per tonne of collected material also varies, confirming that the viability of kerbside collection varies according to the materials collected (see Table 6.2). For

example, in the ACT, while PET represents less than 1 per cent of material collected (by weight), it is estimated to account for 29 per cent of revenue.

6.4.1.2 *Energy, pollution and transport costs*

Energy savings are often an important benefit of recycling. In energy intensive production processes, such as those for glass and aluminium, the amount of energy used in the recycling process is less than that associated with production from virgin material.

In the case of aluminium, a figure of 95 per cent energy saving is frequently cited (sub. 25; sub 122; sub. 65; Pearce and Turner 1992b).

For glass, the claimed energy saving varies. Submissions cited an energy saving range between 20 and 35 per cent for glass production using cullet compared with virgin materials (sub. 25, sub. 122). Other estimates have put the maximum energy saving at only 13 per cent (Gaines and Mintz 1994). Pearce and Turner cite studies which suggest a range between 4 per cent and 32 per cent.³

Various studies have found that the use of recycled materials generally results in a net reduction in pollution.⁴ In its 1991 *Recycling* report, the Commission noted that recycling can reduce and prevent pollution, but that it can itself be a polluting process (IC 1991a).

A study commissioned by Keep America Beautiful (completed in 1994) examined energy and environmental issues associated with kerbside recycling. It concluded, among other things, that while results were highly variable (depending on, for example, the mix of recyclable materials), when compared with landfill only disposal, kerbside recycling can produce net energy savings and lower air and water pollution. The study did not attempt to quantify the other economic costs of the alternative means of disposal (Powers 1995).

Distance from recycling markets (hence the economic and environmental costs involved in transport) will also be an important factor in determining the economic viability and environmental appropriateness of recycling schemes.

³ Pearce and Turner (1992b) cite Bartone C., (1990) 'Economic and policy issues in resource recovery from municipal solid wastes', in *Resources Conservation and Recycling* 4, pp. 7-23.

⁴ Pearce and Turner (1992) cite: OECD (1979) *Waste Paper Recycling*, Paris; OECD (1983) *Household Waste: Separate Collection and Recycling*, Paris; Pearce and Walter (eds.) (1977) *Resource Conservation: Social and Economic Dimensions of Recycling*, Longman, Harlow, UK; Turner, R.K. (1991) 'Municipal Solid Waste Management: an Economic Perspective'. In: *The Treatment and Handling of Wastes*, Bradshaw A. et al (eds) Chapman and Hall, London.

For example, in the case of glass, one estimate of the energy saving is 4.8 MJ/kg. However, estimates from the United Kingdom are that the average car consumes around 5 MJ/vehicle mile, so any energy savings are quickly reduced if special journeys are made to return bottles (Pearce and Turner 1992b).

Gaines and Mintz found that the energy effects of glass recycling depend on local factors related to collection and the cost of disposal. For example, energy savings increase if waste must be transported long distances to a landfill; and decrease if collected glass must be transported to a sorting facility or glass plant, or if material losses in the recycling loop are high (Gaines and Mintz 1994).

Little research is publicly available in Australia on the economic or environmental costs of transport involved in kerbside collection.

6.4.1.3 Cost of alternatives

Recycling can be considered as part of the suite of policies designed to reduce the costs associated with waste disposal. The major substitute is landfill. Landfill costs vary according to land values. Therefore, lower land values in non-urban areas (coupled with lower volumes) are likely to make recycling less viable.

These average cost estimates are indicative only. Existing landfill prices are frequently underpriced (that is, they do not include the full costs of operation). On this basis, the least cost schemes could well be viable without subsidy if landfill were charged appropriately. Higher cost schemes could not be justified in this way. Where recycling costs are very high, this is likely to reflect (at least in part) high environmental costs in terms of energy and materials consumed.

6.4.1.4 Costs and benefits of kerbside recycling: an illustrative example

Community expectations and government policies regarding the availability of recycling services have led to local governments around Australia responding with a range of recycling initiatives. These vary significantly between councils in terms of materials collected and the mode of collection — and consequently, costs.

Making the economically efficient trade-off between waste disposal options is problematic with insufficient data. As a result, even recycling systems which are technically good may not be economically or environmentally desirable. Other considerations, such as residents' expectations regarding waste disposal

and recycling services, are also relevant. These may not relate to the issue of economic viability.

Box 6.1: Economies of scale in garbage collection and disposal

Strong economies of scale could be expected for the two of the three core activities associated with garbage collection and disposal.

Bin capacity

The cost of bins increases only marginally as volume increases significantly. For example, the Commission was advised that a 120 litre bin costs around \$54, while a 240 litre bins costs around \$60. The marginal cost of increasing garbage volume capacity for each household is therefore quite small. Put another way, the economic benefits of reducing the amount of kerbside garbage *collected* are low. However, the capital cost of garbage bins represents only a small proportion of total garbage and collection costs.

Collection

Where collection is automated, the costs of collection of either a 120 litre or 240 litre bin are very similar. Where bins are larger, trucks may need to travel more frequently to disposal sites, but any additional costs arising from this would be small. Collection costs appear to be the major cost item in garbage collection, representing around two-thirds of total garbage collection and disposal costs.

Disposal

Disposal would not appear to display substantial economies of scale characteristics, and at current charges represents around 30 per cent of total garbage collection and disposal costs.

Poor data is a major problem for policy makers in many environmental policy areas, and waste disposal is no exception. As a waste disposal option, the economically efficient level of recycling is largely determined by other waste disposal costs — particularly the cost of landfill.

The Commission has derived some illustrative estimates of the costs and benefits of a recycling scheme, which may face an administration responding to community (and government) pressure for recycling.

The analysis has found, among other things, that the avoided garbage collection and disposal costs in the presence of a recycling scheme (as material is diverted

to recycling) were relatively small compared to the costs involved with implementing a new and separate recycling collection stream.

In deciding whether or not kerbside recycling schemes are economically viable, the relevant issue is the additional costs associated with the new collection infrastructure. As such, the additional costs are the total cost of a new collection stream (for recycling) less the avoided costs, which consist of any avoided garbage collection costs, and the avoided garbage disposal costs.

However, there would appear to be strong economies of scale in kerbside garbage collection (see Box 6.1). Thus, adding a new collection infrastructure (for recycling) raises costs per kilogram of material collected. As such, total collection costs (for both collection streams) are likely to be higher than if there was a single collection infrastructure collecting the same quantity of material. Even if there was not excess capacity, additional capacity could be added at substantially lower cost (per kilogram of garbage) than the average cost (per kilogram) of the existing waste disposal system.

The costs and benefits outlined below illustrate these issues. They are derived from a system servicing around 100 000 households, where all materials are collected kerbside. Where there is kerbside recycling, around 20 000 tonnes annually are estimated to be diverted to recycling⁵, while around 60 000 tonnes of material (garbage and recyclables) in total are assumed to be collected kerbside (annually) in both cases. Both the recycling and the garbage collection systems are highly mechanised.

Collection cost estimates vary. For garbage collection, they reflect economies of scale, and the average cost is lower as more is collected. Where all the material is collected as garbage, the average cost is around \$80 per tonne. When recycling is introduced, the average cost per tonne is estimated at \$110. For the collection of recyclables, the average collection cost per tonne is estimated to be around \$135 (net of revenue from sales). These estimates have been derived from data provided from kerbside collection tenders, kerbside collection trials, and actual cost data.

Disposal costs are estimated to be around \$40 per tonne at landfill.

The Commission's calculations imply a net cost of kerbside recycling of the order of \$15 per household per year.

⁵ This figure is derived from estimates regarding the amount of material collected kerbside less the amount of recyclables previously deposited at drop-off centres prior to the introduction of the kerbside collection system.

Table 6.3: Estimates of kerbside collection costs

<i>Garbage only collection</i>		<i>Volume</i>	<i>Collection cost</i>	<i>Disposal cost</i>		
		(tonnes per year)	(\$ per tonne)	(\$ per tonne)	(\$m)	(\$m)
	Garbage	60 000	80	40	7.2	
	Recycling	–	–	–		
Total						7.2
<i>Garbage and recycling collection</i>						
	Garbage	40 000	110	40	6	
	Recycling	20 000	135	–	2.7	
Total						8.7
<i>Additional cost of recycling</i>						
	Total per year					1.5
	Total per household					15.0

Notes: This example was chosen to illustrate some of the basic principles involved with establishing a kerbside recycling scheme, given prevailing community expectations and government policies. To accurately illustrate particular circumstance of a specific scheme would require more detailed information on a range of other technical matters.

The average collection cost for recyclables would be lower for any material currently deposited at drop-off centres (estimated to be around half).

Sources: ACT Department of Urban Services: sub. 14; sub. 153; Commission estimates

These calculations also imply different breakeven prices for landfill (that is, the cost that landfill would need to be to make kerbside recycling economically viable). Based on the Commission's calculations, landfill would need to be well in excess of \$100 per tonne to make a similar scale of kerbside recycling scheme economically viable.

6.4.2 Drop-off centres and other collection systems

Kerbside collection has tended to dominate the debate about recycling mechanisms. There are alternative systems, which involve different tradeoffs between cost and collection volumes and efficiency.

Drop-off centres are a major alternative way of collecting recyclables. Wage costs and possibly transport costs are reduced where individuals bring recyclables to centralised drop-off points, although transport costs may easily rise if special trips are made. An OECD study from the early 1980s found that,

in general, drop-off systems had lower material yields, but significantly lower collection costs per tonne collected (reported in Pearce and Turner 1992b).

Box 6.2: The Kingfisher Centre

The Kingfisher Centre in Queensland is a community recycling station that involves the local community in recycling, including students and young adults with disabilities. The Kingfisher Centre is a recycling drop-off centre located within the Aspley Special School. It was built in 1992 and is open seven days a week. It provides 280 hours per week work and work experience for 50 people with disabilities. The school commenced collecting and processing of aluminium cans in 1984 and other household recyclables in 1987.

The centre processes glass bottles and jars; aluminium cans, sheet and foil; cardboard; clothing; hessian; car and truck batteries; non ferrous metals; phone books; plastic plant pots; jiffy post bags; envelopes and stamps; bottle corks; and toner cartridges — materials for which the centre finds markets. This makes the operation economically viable, although the centre's primary objectives are educational and therapeutic.

The school population have intellectual and physical disabilities. The students 'learn by doing' and sort materials for reuse or recycling. In school holiday periods, the processing is done by a group of elderly citizens.

The school has won awards and attracted international interest in its recycling activities, with several visits from Japanese delegations.

However, there are also a number of hidden costs with drop-off systems — in particular extra traffic congestion and energy costs generated by private vehicles making special trips to deposit small quantities of material. These costs are minimised if drop-off centres are located so 'users' do not make special trips (for example, at shopping centres).

Other advantages of drop-off centres include: relatively low capital costs (per tonne collected); wide accessibility; adaptability to different site and population densities. Disadvantages may include: variable qualities and quantities; relatively low overall recovery rates; vulnerability of bins to theft and vandalism; and local area problems of noise, unsightliness, and odour (Pearce and Turner 1992b).

The labour cost component of recycling costs is reduced where collection and sorting is undertaken by voluntary or other groups in the community. An example is the Kingfisher Centre in Queensland (see Box 6.2).

In addition to providing the recycling and reprocessing facility, the centre provides work which the students feel is making an important contribution to the environment, and through this, to the community. As such, the centre provides an additional benefit. To the extent that kerbside collection schemes inhibit operations such as this, they may have the effect of ‘crowding out’ this additional benefit.

6.4.3 Assessing recycling options

Community support for recycling has developed with limited awareness of its economic and environmental costs and benefits. Similarly, in responding to this support, local government has been implementing kerbside programs without full knowledge of volumes, costs and benefits. Data limitations are a major problem.

Several spreadsheet models have been developed to be used as a tool for assisting local government in assessing likely costs of proposed kerbside recycling programs. These have been used by some councils to assist them in establishing kerbside recycling systems. In the case of the PERFORM model, many metropolitan Melbourne councils use it as the kerbside recycling service contract management tool.

However, even the use of these models is hampered by the lack of comprehensive data. As discussed previously, there is also a lack of knowledge in the community and at council level regarding the related environmental effects of the range of waste disposal options.

This is a problem affecting all local councils involved in providing the range of waste management services — including recycling, garbage collection and landfill disposal.

The Commonwealth Local Government Development Program may be an avenue by which co-ordinated research in this area could be undertaken. The program has three major objectives:

- to promote a partnership approach to local government development;
- to facilitate systemic change and reform in local government; and
- to foster delivery of national priorities. (National Office of Local Government 1995)

These objectives relate to several identified national priorities, which include environmental management. The program identifies waste management, the development of pricing mechanisms, and improved planning for waste disposal as environmental issues for which funding could be provided.

The need for improved information in this area has been recognised elsewhere as an important issue for local government. As noted in Chapter 5, a Co-operative Research Centre for Waste Management and Pollution Control was established to, among other things, establish a national waste database. In its study on Waste Management and Landfill Pricing, the BIE identified the need to develop software to assist local government in formulating waste management policies (BIE 1993). Similarly, the BIE report on Plastics Recycling recommended that the Commonwealth Government assist with the development of a standard costing tool for use by local government in landfill pricing (BIE 1994b).

The Commission is aware of several models which have been developed, with different scopes and objectives. For example, the New South Wales Environment Protection Authority has developed a kerbside recycling cost model; the Waste Management Council in Victoria has funded the development of a waste management financial evaluation model which analyses costs associated with collection and processing of materials in the waste stream; and the Commonwealth Environment Protection Authority is currently developing a landfill cost model.

Recommendation 8

DEST and the Office of Local Government should co-operate to prepare a national inventory of waste management modelling tools currently in use.

Subject to evaluation of tools currently available, DEST and the Office of Local Government should co-operate to fund the development and maintenance of a municipal waste management and recycling planning and decision modelling tool, incorporating economic and environmental parameters.

The modelling tool could be used in the development of any future recycling strategy.

Recommendation 9

Local government should not proceed with recycling schemes unless clear economic and/or environmental benefits have been established.

Where this is the case, the scheme should proceed if it can be funded on a commercial basis.

Where recycling schemes are not commercially viable, local governments should consult their constituents in deciding the extent to which:

- the council commits funds to establish recycling services; and
- such funds might be allocated to more highly valued environmental or other uses (including being rebated to ratepayers).

6.5 Reuse

Some environmental groups have argued there are environmental and economic benefits associated with the reuse of packaging, particularly the reuse of beverage bottles. For example, Friends of the Earth argued that:

the shift in the 1970s from refillable to throw-away bottles led to an externalising of the post-consumer impacts and costs of packaging. It was most irresponsible that governments at the time did little to prevent this ... (sub. 22, p. 9; see also, Australian Conservation Foundation, sub. 16, Att.)

Neither the economic nor the environmental costs and benefits of reuse are uniform across applications or regions. They are both determined by market and use factors. Under certain circumstances, reusable containers are less costly than single use containers. This is reflected in the endurance in Australia of

some networks for refillable glass bottles for both milk and soft drinks. Indeed, the market share of refillable glass in soft drink packaging has declined less over time than that of single use glass containers (see Appendix E).

6.5.1 Trippage rates

Trippage rates are an important determinant of the environmental desirability of reusing glass bottles.

Friends of the Earth cited the New South Wales Dairy Corporation, which found that milk in refillable glass was cheaper than paper or plastic bottles, assuming a trippage rate of 25 (transcript, p. 64). Similarly, the Kingfisher Centre (sub. 3) cited a study by the United States Environment Protection Agency which found with a trippage rate of 19, refillable bottles had a lower waste impact and energy usage compared with single use glass, plastic, and aluminium containers.

A European study sponsored by Friends of the Earth International found that a refillable bottle averaging 20 trips fares better environmentally than non-refillable containers. This study also found that the environmental benefits increase with the size of the bottle, and that refillable PET bottles are superior to refillable glass in terms of energy consumption, waste and air emissions.

In a study funded by the Association of Liquidpaperboard Carton Manufacturers, the Centre for Resource and Environmental Studies found that refillable glass bottles use less energy and produce less waste than other forms of packaging but only if the trippage rate is above 20 (sub. 39).

In survey work undertaken for Fost Plus⁶ in Belgium, average trippage rates were determined for containers in a number of different product sectors. The 1993 data indicate that trippage rates varied between four (for wines and spirits) and 45 (for fruit juice and nectars). The rate for milk containers was 33. However, the survey noted that high trippage rates are often attributable to specific distribution networks. In this example, the high trippage rate for fruit juice and nectar was related to 90 per cent of the packaging being distributed in hotels and restaurants (Ecobilan S.A. (France) 1995).

In Australia, high transport distances and poor trippage performances tend to militate against the economic viability and environmental benefits of container reuse. One seller of refillable bottles indicated that in a market where there was a household collection system, trippage rates were as high as 25. However, in the absence of such a distribution network, trippage rates averaged around 10.

⁶ Fost Plus is the organisation formed by the packaging industry and retailers to undertake collection and recycling on their behalf.

At both of these trippage rates, the cost of using refillable containers was higher than for the one way package. Cooper's Brewery, which recently switched from reusable to single use glass containers, achieved trippage rates of four — even with the assistance of container deposit legislation.

6.5.2 Reuse policies

Policies directly or indirectly aimed at increasing the use of refillable containers are a feature of waste management regulatory regimes internationally. For example, the German Packaging Ordinance requires the imposition of a beverage container deposit tax if mandatory collection targets are not met, and if the national market share of refillable containers falls below 72 per cent. In Belgium, there are quotas on the proportion of reusable containers in use.

Other than container deposit legislation in South Australia (which is designed, in part, to encourage reuse), there are no legislative initiatives relating to reuse in Australia. However, the New South Wales *Waste Minimisation and Disposal Act* includes elements of the 'waste management hierarchy', to include reuse as an option under the proposed Producer Responsibility Scheme. Industry Waste Reduction Plans, required for nominated industries under the scheme, require the determination of methods for reduction and reuse.

As discussed, market factors which improve the commercial viability of refillable container systems include:

- a high trippage rate;
- short distribution distances;
- frequent and popular delivery systems; and
- low breakage rates.

In the case of refillable glass soft drink bottles in Australia, in some circumstances several of these conditions are satisfied (for example, where distribution systems are well established) and where distribution networks operate as systems for both delivery to and return from consumers.

Where these favourable circumstances do not apply, the appropriateness of reuse will be more questionable from both economic and environmental perspectives.

Reuse may also conflict with other objectives, such as public health and safety, consumer protection and product liability. For example, as noted in the Victorian Litter Reduction Strategy, there are circumstances where certain materials are unsuitable. One example is glass at beaches.

While reuse is often considered desirable within the community, cost remains a key determinant of consumer demand and so of economic viability. Recent experience in Western Australia suggests that there may be a gulf between many people's in principle preference for reusable glass containers and their behaviour when they are provided with choices as consumers (see Box 6.3).

Box 6.3: Are political preferences consistent with private choices?

In 1990, the Western Australian Government received a petition with around 34 000 signatures calling for the reintroduction of refillable milk containers. Milk in 600 ml glass bottles was reintroduced in the Perth metropolitan area in November 1990 at a recommended retail price of 64¢–5¢ above the recommended retail price of a 600 ml carton, reflecting the increased costs of supply through glass bottles. The bottle was only offered in the metropolitan area because of high distribution costs.

Within five weeks, the glass bottles were withdrawn due to difficulties in obtaining the returns. By this point, sales in glass represented around 4 per cent of the market. In January 1991, glass bottles returned at a reduced recommended retail price of 63¢. A 30¢ per bottle deposit scheme was also implemented, to be administered by vendors. By the end of June, glass bottles accounted for 1 per cent of the market, and never rose beyond this level. They were withdrawn from sale in September 1993, with market share being less than 0.3 per cent.

Source: Dairy Industry Authority of Western Australia

From society's point of view, the relative (and absolute) level of reusables as opposed to single use containers is not important — as long as there are no significant external environmental or economic costs associated with either of them. It is the prices of raw materials, other inputs (such as energy and the costs of transport) and disposal which provide a mechanism for balancing the costs and benefits of reuse relative to single use containers. Where trippage rates, and other economic factors, mean that reuse is worthwhile, companies will reuse rather than opt for single use containers.

6.6 Costs and benefits of waste reduction and recycling targets

Where the underlying objectives are clear and the costs and benefits of targeted outcomes are well understood, target-setting may be beneficial. The use of

targets can help focus public attention on particular issues which may, in itself, be an important and useful catalyst in bringing about what many will consider as desirable cultural change.

Promoting the profile of an issue through targeting may also help overcome the inertia of past practices. For instance, some have argued that certain standards in industry and government may unnecessarily disadvantage recycled materials. Kemcor argued that there are numerous standards and other specifications which act as a barrier to the use of recycled plastics. An Australian Standard on flashings specifies that virgin polymer be used for damp-proof courses, whereas Kemcor argued that recycled resins could meet the appropriate technical performance requirements (sub. 80).

Some participants were also strongly supportive of the need for and usefulness of targets. For example, the Local Government and Shires Association of New South Wales argued that targets were “... essential for waste minimisation ...” (sub. 167, p. 8)

The Recycling and Resource Recovery Council (RRRC) noted that:

While acknowledging that many target setting exercises in the past have been poorly constructed, it is possible to approach this in a manner that takes full account of the environmental benefits and economic costs. The Commission needs to acknowledge the major benefit of target setting in motivating the general community. (sub, 180, p. 2)

However, the use of targets has been highly problematic in waste management for a wide range of environmental, economic and public policy reasons.

Most (if not all) targets associated with recycling and waste reduction, the underlying environmental objectives, and the basis on which targets have been set, have been unclear. While the targets appear to embrace environmentally attractive values they do not embrace coherent environmental objectives. The targets reflect an attitude which assumes that less waste going to landfill is better than more, and more recycling is better than less — irrespective of the economic and environmental costs involved.

As such, the level of waste going to landfill or recycling is often seen as an end in itself, rather than as a *means* for delivering better environmental performance in areas of clear environmental significance (such as lower levels of landfill leachate contamination, CFC or toxic air and water emissions).

However, these activities have complex environmental effects — resources used in recycling and reducing waste may result in a net increase in the physical use of resources which exceeds any waste reduction (see Pearce and Turner 1992b). However intuitively appealing assumptions against landfill and in favour of recycling are, they are by no means universally justified.

In not specifying *environmental* objectives, the targets appear to have been set given what was feasible considering the existing practices, infrastructure, and markets — rather than what was desirable from an economic or environmental perspective.

The Packaging Council of Australia (PCA) were concerned that any environmental effects or benefits of targets were never quantified (sub. 57).

The Industry Commission (1991c) found that the National Waste Minimisation Strategy:

- did not adequately specify particular objectives for the proposed measures;
- contained inadequate analysis, as costs and benefits were not considered; and
- failed to identify any environmental market failure.

The Department of Environment Sport and Territories (DEST) argued that the recycling targets contained in the National Kerbside Recycling Strategy resulted from negotiations with industry about what was achievable. They commented in response to the draft report that it would have been unrealistic to expect a full cost-benefit analysis to have been undertaken on the setting of targets:

It is unrealistic for the Commission to expect a full economic, social, and environmental cost-benefit analysis ... In this light the NWMRS adopts a precautionary approach, that the lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. (sub. 168, p. 6)

The Commission agrees that the standard for action may not need to be as high as scientific certainty. However, in the case of the targets there appears to have been virtually no scrutiny at all of the environmental effects of important policies.

In fact, several of these problems appear to have been envisaged in the preparation of the strategies. In the case of the *National Kerbside Recycling Strategy*, there was an acknowledgment by State and Territory Governments that economic limits on recycling activity should be set. While it was recognised that, at least in the short term, recycling would be expected to incur net financial losses, States and Territories considered that after an initial development period (up to five years):

... kerbside systems should be expected to at least break even, after accounting for full long term savings in waste disposal costs... (ANZECC 1992, p. 29)

If it could not have been seen then, it can certainly be seen now, that many kerbside recycling systems are not economically justified according to this criterion (see Section 6.4).

However, these and other commitments were made with substantial shortcomings in the data available. Thus not only did the targets fail to embrace coherent environmental objectives, they were often arrived at in substantial ignorance of what they would involve!

For instance, the national waste management target of reducing the amount of waste going to landfill by 50 per cent was set without a clear understanding of how much waste was actually going to landfill. A study commissioned by CEPA found that the lack of reliable data for 1990 in many parts of Australia meant that the task of halving waste from the 1990 was 'meaningless' (CEPA 1994, p. 12). However, DEST argued that it has been the targets themselves which will lead to better data:

The setting of targets has in fact spurred the collection of better data on waste generation rates, which will lead to better matching of policy instruments with waste minimisation objectives in the future. (sub. 168, p. 6)

The extent to which the measures involve compulsion has been unclear (this has been one of the reasons the measures were able to escape the scrutiny of governments' regulatory review mechanisms) — in particular the implications of not meeting the targets.

The Industry Commission (1991c) considered that to the extent that voluntary targets are accompanied by the threat of regulation, they may constitute *de facto* mandatory targets. As such, they may breach the Government's regulation review guidelines.

DEST argued that it was wrong to equate the targets with mandatory targets for the reason that their non-achievement has not been used against specific industries (sub. 168). However, the *National Waste Minimisation Strategy* proposes that performance against the established targets should be monitored, and if this shows that the targets are not being reached, CEPA will "...discuss with the States and Territories options to enforce them" (CEPA; DASET 1992, p. 28). Similarly, the *National Packaging Guidelines* note that if monitoring indicates a lack of progress it may be necessary to implement regulations to achieve compliance (ANZEC 1991 p. 12). In the case of the *National Kerbside Recycling Strategy*, it was recommended that sanctions were not necessary "so long as satisfactory progress is being achieved towards relevant targets" (ANZECC 1992, p. 17).

There is often a tension between national targets and making allowance for specific regional differences. The level of recycling that is economically and environmentally desirable in an urban centre is likely to be higher than in a rural setting where the per unit collection and transportation costs are higher and the cost of landfill is lower. Although they are often framed to allow for the

prospect of regional differences, national targets often become minimum performance benchmarks.

Participants were also concerned that:

- changing targets increased uncertainty which was not desirable (Australasian Soft Drink Association, sub. 37);
- since the release of the strategy, governments have not been committed to monitoring or enforcing compliance with the stated targets, and several of the targets may not be met (Friends of the Earth, sub. 22); and
- deviation by individual States from national targets (as New South Wales has by moving to a 60 per cent reduction in waste going to landfill) would increase costs of compliance (Huntsman, sub. 159).

6.6.1 Who should pay?

It has not always been clear who is intended to fund the achievement of the targets. It appears to have been envisaged that a substantial proportion of the cost of the national landfill and kerbside targets would be met by households as ratepayers. But local governments have differed in the extent of their response and many are calling for industry to meet more of these costs.

Compounding this problem, packaging manufacturers and fillers and government representatives are often reluctant to criticise targets for fear of appearing environmentally irresponsible. Given the ambiguities and interdependencies involved in setting and meeting targets, energies are diverted from considering the appropriateness of the targets towards efforts to shift the cost of meeting targets between firms and councils.

While the economic case for kerbside recycling is not strong, there is significant commercial support. Industry programs have provided markets for materials and reprocessing facilities. Many industry schemes have assisted recycling by subsidising some parts of the collection, sorting, or transport infrastructure. Industry has also supported recycling with subsidised buy-back prices for recyclates.

For example, BHP and the Canmakers' Institute of Australia have a steel can recycling strategy which, among other things, includes guarantees to take all steel cans collected; provide a floor price; provide infrastructure; and promote recycling (sub. 86).

Kemcor indicated that the total HDPE recycling subsidy (in the form of, for example, development activities, education and collection) represents 25 per cent of the margin on industry turnover (Kemcor, sub. 80).

However, where industry funds the achievement of targets through subsidised buyback prices — as has occurred for PET, clear HDPE and tinplate — most of the funding will eventually be met by consumers of packaged products in higher prices.

Nevertheless, even with subsidised buyback prices, the level of recycling for many materials depends on the extent of kerbside recycling infrastructure. On this issue, there is considerable ill-feeling.

The LGRC argued that the product users should pay for recycling rather than paying through rates because paying through rates:

disguises the true cost of recycling; is inequitable because some people use more of a product than others; removes any pressure on manufacturers to reduce packaging (sub. 156, p. 10)

The Association of Liquidpaperboard Carton Manufacturers (ALCM) argued that its capacity to meet recycling targets for liquidpaperboard has been compromised by insufficient local government commitment to improving local collection infrastructure (sub. 39). In contrast, the Local Government and Shires Associations of New South Wales argued that the kerbside recycling strategy imposed insufficient obligations on industry: local government had to provide recycling facilities, ensure high participation, and cover costs (sub. 35).

Commercial subsidies may also involve commercial difficulties between competing firms. In the market for recycled PET, ACI and Smorgon (now Southcorp) have been reluctant to provide competitors with access to their recycling networks.

The LRRRA identified this as a problem where recycling is not commercially viable:

... when you get a small minority or a majority supporting it [recycling] ... then you are not going to assist your competitors to get involved if they're not going to contribute in the same way. But if it was economically viable to do so, then it really would not matter whose material was coming back ... (transcript, p. 142)

Similarly, BHP complained of 'free riding' from tinplate imported as filled steel cans:

... [imported steel cans] if collected, these cans are automatically recycled through the BHP program, thus reaping the benefit but incurring none of the cost. (sub. 86, p. 9)

Where recycling is not economically motivated, there are several options.

The first is simply not to do any recycling. If it does not make commercial sense, there is an argument for not pursuing it. However, this fails to consider

the possible environmental benefits, and does not recognise public preferences and the commercial marketing benefit of recycling.

Another option is for the users of recycling to pay. The attraction of the 'user pays' principle is that people making the decision to recycle face the full costs of that decision, and act accordingly. The problem in this case is that there may be economies of scale in recycling (as in garbage collection) which mean that unit costs would increase as less people were involved.

Finally, industry could pay. So-called extended producer liability policies are a feature of waste management policies overseas. However, it is not clear who bears the cost (the producer or ultimately the consumer), and such arrangements may be inefficient to the extent that mandating levels of recycling is not likely to be the least cost way of meeting environmental objectives.

6.6.2 The future of waste management targets

The recycling targets contained in the NKRS were to be met by 1995 (with the exception of steel cans). ANZECC has begun to look at additional initiatives in this area, and has decided that they will be broader than the packaging industry to enable the target of a 50 per cent reduction in waste going to landfill to be met. Specifically, in April 1995 ANZECC established a taskforce to prepare a discussion paper addressing issues including:

- proposed new waste reduction targets for the packaging industries covered by the previous ANZECC agreement;
- proposed waste reduction targets for identified priority industries (for example, building and demolition waste and tyres); and
- a detailed analysis/comparison of the objectives and processes of current industry waste reduction agreements in different States and Territories.

The Taskforce has considered the additional targets for packaging (outlined in Table 6.1) which relate to expectations regarding what is achievable through the new proposed waste reduction agreements. These include recycling rate targets of 75 per cent for all beverage containers.

In this context, at the November 1995 meeting ANZECC authorised the Taskforce to negotiate with industry on new waste reduction agreements. Subsequently, major industry participants were advised in December 1995 of a forum on 1 February 1996 to discuss general issues; and furthermore, that preliminary work on draft agreements would need to begin during January. Participants were advised that in order to have new agreements for the next

ANZECC meeting, the draft agreements will need to be completed by April 1996.

The Commission acknowledges that the setting of performance targets generally and the use of targets to meet specified environmental objectives can be an important means of motivating behaviour.

However, these policies continue to be pursued with little regard for sound principles of regulatory design as embraced by Australian governments. In particular, these policies have rarely been subject to either economic or environmental analysis, either upon their introduction or subsequently. It seems likely that some existing and proposed recycling efforts — particularly in remote communities — have negative environmental effects in important respects such as energy usage. Despite this uncertainty, higher recycling targets are being considered without analysis of the likely impact.

Specifically, the process being pursued by ANZECC in the preparation of new industry waste reduction agreements is not consistent with COAG principles, adopted in 1995 (COAG 1995). Specifically:

The principles apply to agreement or decisions to be given effect through principal and delegated legislation, administrative directions or other measures which, when implemented, would *encourage* or force businesses or individuals to pursue their interests in ways they would not otherwise have done (COAG 1995, p. 2 (emphasis added)).

Further, the principles state that:

Development of voluntary codes and other advisory instruments should take account of these guidelines and principles where there is a reasonable expectation that their promotion and dissemination ... could be interpreted as requiring compliance. (COAG 1995, p. 2)

A key element of these principles and guidelines is the need for regulatory impact assessment (see Section 5.4.3).

Recommendation 10

Decisions to introduce a measure (at the local, State and/or Commonwealth Government level) to reduce packaging waste going to landfill and/or to assist recycling should not be made unless clear economic and/or environmental benefits from such initiatives have been established.

Where this is the case, the initiative should proceed if it can be funded on a commercial basis.

Where commercial funding is not viable, the initiative should only proceed if, according to regulatory impact analysis, it is:

- justified on a balance of economic and environmental costs and benefits (including external costs and benefits); and
- the initiative is the most economically efficient way of meeting those objectives.

Recommendation 11

COAG should take action to ensure that the process undertaken by ANZECC in the preparation of industry waste reduction agreements is consistent with established COAG principles regarding national standard setting and regulatory action. Specifically, this would involve consideration of the likely costs and benefits of any waste reduction agreement.

Existing waste management targets (namely, waste reduction targets contained in the National Waste Minimisation and Recycling Strategy) should be reviewed according to these principles within 12 months.

6.7 Other regulatory approaches

Many participants claimed that modern products used excessive packaging and the Commission received requests to recommend legislation which required industry to, among other things:

- eliminate all unnecessary packaging;
- reuse packaging;
- eliminate single use, throw away containers;
- use recycled materials; and
- reintroduce returnable, refillable containers for drinks and other fluids.

These objectives appear worthy. However, the Commission has serious reservations about their wisdom. As the Commission discovered in its inquiry, whether packaging is excessive is a matter about which many differ. Further, there may be a disparity between the in-principle views espoused by many in these areas and the private choices made by individuals (see, for example, Box 6.3 — on Perth reused milk bottles).

In addition, the effect of different waste management policies is not always complementary. For example, some participants highlighted the incompatibility between the goals of source reduction and recycling.

It is far from clear that these are matters about which some *social* and *in principle* decision is necessary. In the 1970s there was a consensus that it would be beneficial for the community to use less fuel, by reducing the use of large cars. But the community made the movement towards much greater levels of fuel efficiency not by banning larger cars, but by ensuring that the rising cost of fuel was passed onto users. The resultant movement towards more fuel efficiency was made as a result of peoples' choices in the face of higher fuel prices.

In the Commission's view similar considerations apply here. The Commission was presented with a range of proposals for reducing the impact of packaging. Yet the environmental or economic benefit flowing from such proposals was far from clear.

To take two examples, one participant commented on corn cobs packaged in plastic while another commented on the use of disposable packaging in airlines. In each case, it is far from clear that the firm making the packaging decisions did not face a cost very close to the full costs of the packaging it was using. (That is, if there had been a packaging tax to capture the external costs such packaging was imposing on the environment it would have been very small — see Section 5.5.2.) Further, the packaging may have been serving a clear economic function: in the former case to lengthen the shelf life of fresh corn; in the latter case to lower handling costs and weight. In each case it is not clear that the alternative would be environmentally superior. Where private composting is not available or practiced — as is often the case in medium and high density housing — fresh corn cobs may generate greater waste to landfill in their original rather than their artificially packaged state. In the latter case, reusable packaging would be heavier and so less energy and fuel efficient in airlines.

There are some other examples — men's shirts, and luxury confectionary — where it is likely that most people would consider products over-packaged. However, the producers of these products bear the cost of producing this packaging — which is often substantial. Further, those who dispose of such goods either do, or can be made to bear the substantial proportion of such disposal. In such circumstances, the Commission can see no reason why the choices individuals make should be constrained by 'in principle' community judgements embodied in regulation.

7 PACKAGING AND LABELLING REGULATION

Packaging and labelling are regulated by governments to meet a variety of public policy objectives, including:

- protection of human health, safety and property;
- protection of consumers' interests including people's interest in accurate product information;
- protection of agricultural and domestic animals and plants;
- protection of the environment; and
- satisfaction of treaty obligations.

Some of these regulations directly relate to the packages themselves (for example, child-proof caps and cigarette packaging), but most relate to characteristics of the product and its use.¹ Examples include quantity restrictions per package on the sale of sugar substitutes and cosmetics labelling requirements that influence the size and shape of packaging.

Any given package or label might be subject to the jurisdiction of several bodies of regulation. Even within an individual jurisdiction, the variety of objectives which regulations seek to achieve can lead to complex, sometimes conflicting requirements. These complexities are compounded where producers for a national or international market are required to comply with the regulations applying in many jurisdictions. In the resulting confusion, there is a real danger that many of the objectives will not be achieved, reducing the benefits but increasing the costs of regulation.

This chapter examines the extent of these problems and proposes a number of solutions.

General laws also impose requirements including rules imposing liability for losses caused by faulty packaging or misleading labelling, and general regulation of misleading and deceptive conduct.

There are some common problems with packaging and labelling regulation. First, regulators do not have the close contact with consumers that firms gain through market-place interaction. Second, regulation can be slow to adapt to changing market environments, emerging consumer and producer needs, and

¹ These regulations are more fully described in Appendix F.

new technologies. Third, because of the numerous objectives of packaging and labelling regulations, and multiple jurisdictions, over time a mass of possibly conflicting or overlapping regulations can develop. Together these can defeat the purposes for which they were developed. Fourth, the effectiveness of regulation is readily undermined when enforcement is inherently difficult or under-resourced.

Inquiry participants expressed concern with the present content of regulation in many areas and with regulatory processes.

7.1 Design and responsiveness of regulation

The issues regulatory agencies are required to address and the effects of regulatory decisions can be costly and are usually complex.

Box 7.1: The complexity of regulatory effects: the case of child-proof packaging

The requirement to package drugs and poisons in child-proof containers is an example of how regulation can have complex effects on efficiency and equity. Child-proofing regulation involves important and difficult equity trade-offs and unforeseen consequences. Many of the costs of complying with child-proofing regulations are passed on to consumers in the form of higher prices. Additional costs fall on the aged who can suffer considerable inconvenience from this form of packaging. Thus, many of the costs of the regulations are borne by people who do not benefit.

Research (Viscusi 1992) suggests that some adults leave these packages open between uses to avoid the inconvenience created by the lids. In these instances, the regulation is likely to be counterproductive in its aim of protecting children.

By themselves these considerations are not sufficient to determine whether regulation is justified but they illustrate the complexities of some regulations and the difficulty of foreseeing all consequences.

It is therefore important to develop regulations which maximise the net benefits to the community when regulation is proposed. These considerations are widely applied in Australia and elsewhere and are contained in the OECD recommendations on instituting regulations (1995b).

The design of new regulation should involve:

- choosing the right jurisdiction and agency to consider action;
- defining the problem to be addressed;
- assessing all the regulatory and non-regulatory options;
- estimating all the relevant effects of proposed regulation;
- drafting a regulation proposal and consulting with all interested parties; and
- identifying the most effective means of compliance.

These principles are reflected in the 1995 agreement by the Council of Australian Governments' (COAG) principles and guidelines for national standard setting and regulatory action. There are several ways in which these principles are brought to bear on the formation of packaging and labelling rules. Many packaging and labelling regulations are developed by Ministerial Councils (composed of Commonwealth, State and Territory ministers) and by standards setting bodies (such as the National Food Authority (NFA)). The principles are also frequently requirements of the Acts which establish national bodies (such as the *National Food Authority Act 1991*).

Regulation can become dated as community preferences, technology, the information available to regulators, trade patterns and other conditions change. The incentives for regulatory agencies to act efficiently and responsibly in the face of changed circumstances are different from those faced by market participants. Consumer demands and competition between producers in markets impose a performance discipline on firms. Regulatory bodies, unlike market participants, are not generally subject to direct competition. Instead they face a range of government imposed disciplines such as reporting to the responsible minister of Parliament, the State and Federal Audit Acts, decision appeal structures, the budget process, ombudsmen and regulation review offices. Both regulatory agencies and firms also face public scrutiny.

Unless they are carefully structured the government incentives upon regulators can hamper the ability to update regulations. Although they ensure the quality of new regulation is high, the regulatory design safeguards can discourage regulatory agencies from responding to proposals to improve regulations. For example, in another Industry Commission inquiry the Federal Office of Road Safety² commented that one reason it had not responded to proposals to improve regulations was that resources and effort would have had to be put into an

² Public hearings for the inquiry into Vehicle and Recreational Marine Craft Repair and Insurance Industries.

Regulatory Impact Statement (RIS). Innovative, less costly ways of satisfying regulatory policy aims can thus be stifled.

7.2 Performance based regulation

Once a regulatory objective has been identified, deciding how to best design regulation can involve trade-offs. One approach regulatory agencies can take is to specify many of the details by which the regulatory objective is to be achieved. For example, regulations might require particular words, sizes or styles of warnings on labels. This approach can be referred to as a *prescriptive* approach. Another approach is to impose obligations very similar to the objective itself. For example, a regulation might require a label to be designed such that a certain proportion of consumers understand the information it conveys when they first encounter the label. This can be referred to as *performance based* approach.³

Many labelling regulations have been in place for some time and there is growing evidence that many of them are too prescriptive. In many cases prescriptiveness is tending to defeat the very objective for which the regulation exists. For example, a warning's compulsory wording might not convey the message intended. A second problem is that when there are several pieces of information to be conveyed by a label, each piece 'crowds out' the others.

Two studies conducted by the Federal Bureau of Consumer Affairs (FBCA 1995) indicate that the combination of poor layout, size and style of print and mandated use of particular expressions meant that information on labels was not reaching consumers. For instance, labelling did not accurately convey information about usage to those people surveyed — sometimes prescribed words were misunderstood in potentially dangerous ways.

Kellogg (sub. 90) indicated that in many respects the material required on labels by the Food Code was an ineffective means of communicating with consumers. In particular, consumer research has indicated that the prescribed format of the Nutrition Information Panel does not facilitate effective communication.

The Australian Institute of Petroleum (sub. 68) provided an example of the problem of crowding out. It was particularly acute because the label in question was subject to five unrelated sources of regulation.⁴

³ When the level of prescription in regulation becomes *very* small, the regulations have been referred to as a principle based approach (ORR 1995).

⁴ Trade Measurement legislation, Hazardous Substances legislation, Dangerous Goods legislation, the Poisons Schedule and Consumer Affairs legislation.

The Communication Research Institute of Australia (CRIA sub. 105) compared the performance of the mandatory labels with labels redesigned to improve performance. The redesigned labels did not comply with the regulatory requirements governing the phrasing, presentation and positioning of warnings and instructions. A survey of consumers confirmed that they comprehended the content of the redesigned labels. Box 7.2 provides an example of an original label and its redesigned counterpart.

Prescriptiveness can hamper international trade when countries require different words, sizes or styles of warning. In such circumstances it may be necessary for producers to make distinct labels and hold separate inventories even if the information being conveyed is similar or identical. The Food and Beverage Importers Association stated:

Imports are often labelled for markets other than Australia and, whilst the required information might be on the label, it might not be in the mandatory forms of the Code. (sub. 195, p. 6)

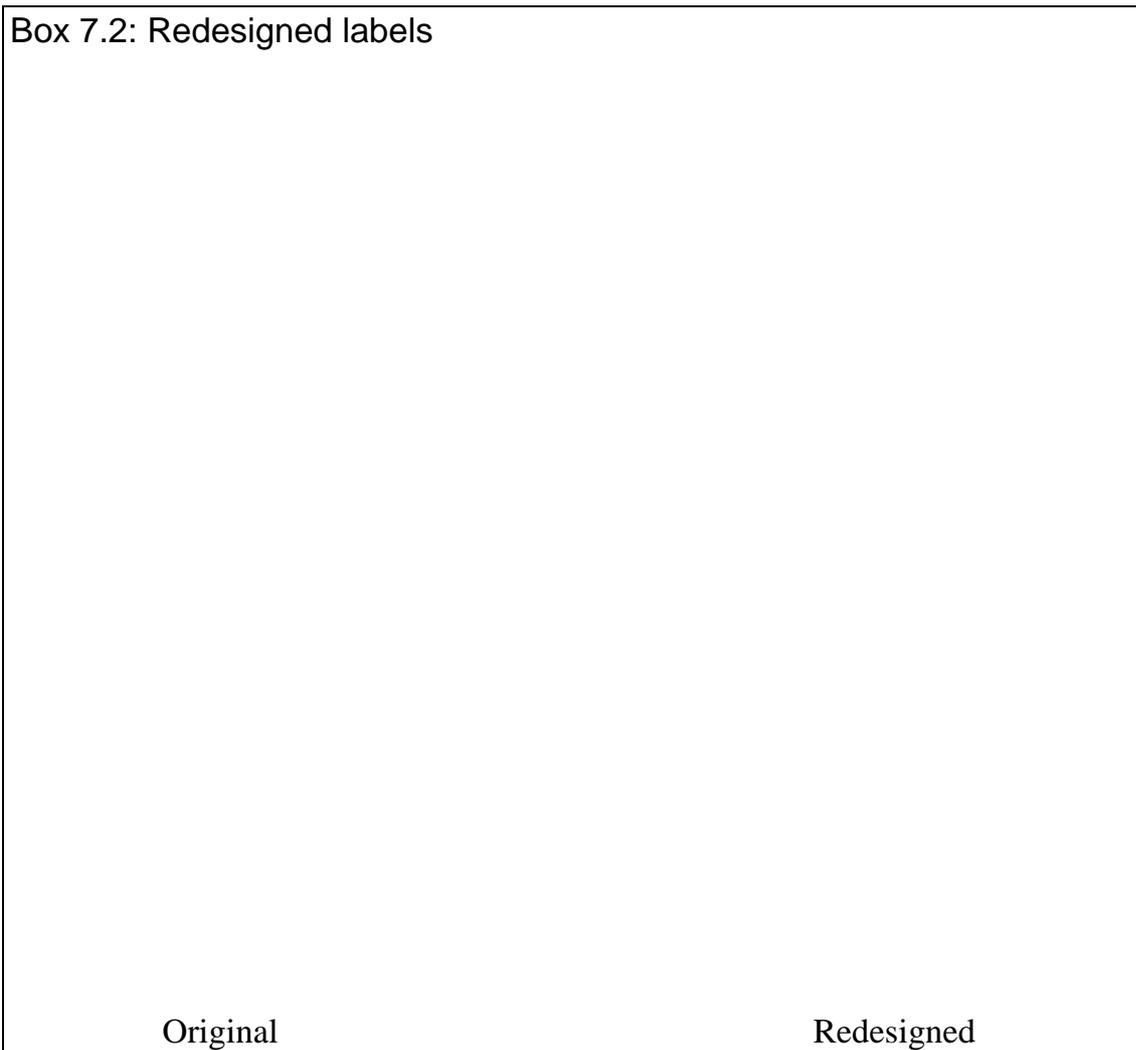
The product liability provisions of Part VA of the *Trade Practices Act 1974* (TPA) are an example of a body of recent regulation which contains very little prescription. Section 75AD establishes a performance standard: firms are liable for any injuries caused by safety defects in their products. This gives firms a great deal of freedom as to how to ensure product safety. For example, depending upon what is the most effective for their own product, they can concentrate on:

- enhancing the safety of the product itself; or
- influencing how the product is used through instructions and warnings on labels, pamphlets or the manner in which it is marketed.

Consumer Product Information (CPI) sheets are one means to convey information to consumers of many therapeutic products — labels are another. The regulation of CPI's takes a very performance based approach. Schedules 12 and 13 of the Therapeutic Goods Regulations require general categories of information to be supplied to the consumer in writing (such as information concerning storage conditions and what action to take in the case of overdose) but the use of particular words, styles or sizes of labelling is not prescribed.

Labelling regulation, in particular, can benefit from a performance based approach because for any given product no one regulatory agency is responsible for creating a coherent, entire label.

Box 7.2: Redesigned labels



7.2.1 Setting performance standards

Packaging and labelling regulation (including primary legislation) could perform better if it stated its objectives in terms of performance outcomes and allowed producers to meet the performance outcome in the most cost effective manner.

There is broad support for a more performance based approach to regulating packaging and labelling (The Proprietary Medicines Association of Australia (PMAA) sub.201, New South Wales Government sub.206, Australian Consumers Association sub. 190)

In some cases regulatory agencies are already considering some performance based regulatory initiatives (NFA sub. 198 in relation to the Nutrition Information Panel and uniform food hygiene provisions).

Performance standard setting and testing can also be costly, for two reasons. First, as recognised by the Australian Pharmaceutical Manufacturers Association (sub. 188), costs are incurred whenever regulations are altered. These costs are incurred in redesign, re-tooling production facilities and through redundant inventories of packages and labels.

Second, it can be costly for individual firms to establish that packages and labels meet the performance based regulation. Performance testing is itself costly and performance based tests can often involve greater uncertainties for both producers and regulators when it comes to enforcement.

Both these costs can be substantially reduced if regulatory authorities are able to deem specific prescriptive regulations to comply with the requirement that producers meet the performance based regulation. This allows firms to choose to meet the performance based regulation or the prescriptive regulation which the regulatory authority has deemed to comply with the performance regulation.

In the first instance, regulatory authorities should exercise this power by deeming the *existing more prescriptive* regulations to comply with the performance based regulation. This avoids the costs to firms of changing to the performance based regulation.

Regulatory authorities should also consider deeming overseas regulations and proposals made by industry or the community to comply — providing they perform satisfactorily. For example, if it were clear that a prescriptive UK labelling regulation was performing well the regulatory authority could deem that regulation to comply. In time, several ‘deemed to comply’ specifications could exist.

As regulatory agencies receive information (from their own studies and from the submissions of firms or consumers) they could remove deeming for the worst performing prescriptive provisions.

7.2.2 Compliance

Achieving an appropriate level of performance depends not only upon setting appropriate regulations but also ensuring compliance with them. Compliance considerations are probably the most significant factor which would increase the extent to which prescriptiveness is appropriate.

In the case of the product liability provisions of the TPA (outlined above) the method of achieving enforcement relies on legal action (by consumers and by the Australian Competition and Consumer Commission (ACCC) when consumers suffer loss.

Sometimes the existing compliance machinery (in firms and in enforcement agencies) can adapt easily to performance based regulation. For example, therapeutic goods regulation and agricultural and veterinary chemicals regulation often require labels to be pre-approved. In these cases it can be relatively simple for firms to supplement the existing performance testing of the chemicals with the performance testing of the products' labels.

Compliance in areas that rely more heavily upon inspection (such as Product Information Standards issued under the trade practices legislation or food labelling) may require changes in the number and training of inspectors. This is because identifying and proving that labels are under-performing will often be more involved than the present approach which merely entails comparing the label against a check list of prescriptive requirements. According to the National Food Authority:

... it is much more difficult to bring a successful action against an infringement of a general provision than against an infringement of a specific provision ... The courts have suggested that excessive reliance on general provisions wastes the courts' scarce resources. (sub. 198, p. 5)

For those areas of regulation which involve extensive prosecution, the ease with which prosecutors can establish the matters necessary for conviction should also be considered.

Enforcement is therefore an important consideration when deciding whether and how fast to move to a performance based regulatory approach.

Recommendation 12

Legislatures and regulatory agencies involved in setting packaging and labelling standards should consider drafting regulations in terms of specific objectives or outcomes which producers are required to satisfy, instead of prescriptive standards.

When regulating on this performance basis, regulatory authorities should have the capacity to deem prescriptive standards to comply with the performance based standard.

7.3 Labelling regulation

Consumers need accurate and relevant product information to make efficient purchasing decisions and to make the most effective use of products once they have been purchased. Labels are an important source of this information.

Labels generally provide customers with basic product information which often includes:

- identity of the product and its producer;
- contents of the product;
- product's performance and how the product should be used; and
- safety, health, environmental and ethical aspects of the product.

If a product characteristic is desirable to consumers, then producers have a direct incentive to provide the information. Producers could also make deceptive claims about desirable product characteristics, impairing consumers' ability to make appropriate purchasing decisions. Similarly, producers have incentives *not* to provide product information which is true but negative on labels. Sections 52 and 53 of the TPA⁵ are designed to prevent misleading conduct by giving recourse to victims and the ACCC recourse in the event of misrepresentation, including on labels. Section 53 also imposes financial penalties for contraventions.

Information can, in many instances, be obtained from other sources, but consumers are frequently at a disadvantage when compared with producers in gaining access to information. This is because large producers usually have

⁵ Equivalent protection is provided in *State Fair Trading Acts*. This generally provides at least as good protection as contract and tort based remedies for deception.

more information concerning the characteristics and performance of products as part of the production process and they can spread the costs of compiling the information across all consumers of their product.

The TPA (Part VA, and Divisions 2 and 2A), as well as the common law of Contract and Tort establish a basis upon which consumers can hold producers liable for product defects. Producers who provide warnings to consumers (including through warnings on labels) can usually better defend themselves in actions under these provisions. This creates some incentive to provide certain types of information concerning undesirable product characteristics.

Further specific regulation may also be necessary where there is neither a substantial market incentive nor general regulation requiring particular information to be provided.⁶ This may arise through public concern creating political pressure for regulation, or a problem may be identified by a regulatory, technical or advisory body.

In some cases silence adequately informs consumers. For example, consumers generally correctly assume that eggs which do not claim to be free range are battery produced eggs, and that food which does not claim to be Kosher is not Kosher. In both cases there would be costs associated with regulating labelling to confirm consumers' correct assumptions with negligible benefits.

In other cases, such as potentially hazardous ingredients, the situation is very different. For instance, the costs of providing handling information are likely to be small when compared with the benefits of enhanced safety to the population generally. Where there is little market incentive to provide such information, standards requiring the disclosure of safety information are likely to be appropriate.

Many of these issues are being raised in relation to food by the National Food Authority's Review of the Food Standards Code currently under-way. The review will include:

- nutrition and health claims on labels (Section 7.3.1 below); and
- the control of the use of certain terms, for example, "jam" and "ice-cream".

The control by the Food Code of certain terms is used for several purposes, such as controlling the level of some artificial additives in consumer diets. One

⁶ Section 52 and contract and tort based remedies only provide protection when a failure to provide information combined with other statements and conduct would amount to misleading conduct. For example, protection would be provided if statements strongly implied a product was free of hazardous substances but in fact did contain a hazardous substance.

potential cost of controlling these terms is that it reduces firms' flexibility to respond to changes in prices of ingredients, consumer preferences and the ordinary use of language. The NFA is examining options to reduce this cost.

7.3.1 Nutrition and health claims

The Australian Food Standards Code (A1 (19)) currently permits nutritional claims on food but contains a general prohibition on the use of health claims for food. Advertising and product presentation often implicitly make health claims. The strong incentives upon producers to promote the desirable attributes of their products could be harnessed to reap substantial gains to public health through the provision of accurate information on labels. The NFA considered the distinction between nutritional and health claims in the following light:

Nutrition messages ... relate to 'good health' consequences, they highlight the basic nutritional relationship between specific nutrients (not foods) and their contribution to the achievement of physiological health, for example, 'this food is a good source of calcium, calcium helps build strong bones and teeth'. In contrast, health claims relate to 'a disease or health-related condition'... for example, 'this food is a good source of calcium, if we don't obtain enough calcium, this often leads to osteoporosis'. (NFA 1994a, p. 27)

As part of the NFA's review of the Food Code it has issued a Concept Paper on Health and Related Claims (NFA 1996). Submissions are sought concerning whether to maintain the current Australian regulatory system or adopt a proposal very similar to the current system used in the US.

Nutritional claims are covered by a mixture of regulation and a voluntary code of practice. Regulation A1(13) requires that if nutritional claims are made they must be accompanied by a nutrition information panel. Other aspects of the claims are dealt with by the NFA's Code of Practice on Nutrient Claims in Food Labels and in Advertisements. However, providing it is accurate, the above example of a prohibited health claim could be of substantial benefit to the community.

The NFA argued that health claims are prohibited because of:

... a fundamental principle of public health nutrition that individual foods cannot directly promote health or prevent or reduce the symptoms of a disease or an abnormal physiological state. (NFA 1996, p. 27)

However, consumers' ability to choose a diet appropriately structured for their individual circumstances is compromised by the Food Code's suppression of information which might otherwise be provided by producers. Alternative sources of information upon which consumers can make decisions (such as the

press) do not generally have to meet the rigours of the Food Code or s52 and s53 of the TPA.

It could be argued that the prohibition is also inconsistent with the second *National Food Authority Act 1991* criterion for the drafting of food standards which requires the NFA, when proposing standards, to have regard to promoting the provision of information for consumers to enable them to make informed choices.

The prohibition may even outlaw programs such as the National Heart Foundation's (NHF) 'Pick the Tick' program. The NHF recognises a link between salt and saturated fats, and cardiovascular disease. The program accredits products which laboratory tests have substantiated are low in salt and saturated fats, and permits products which successfully gain accreditation to display its red tick logo.

None of the inquiry participants has so far argued that the 'Pick the Tick' program should be prohibited. If a prohibition were to be enforced against the program, the community would be prevented from reaping any of its benefits.

The US provides an example of how health claims can be made — concerning food types, not particular foods — while regulatory authorities maintain oversight. The Food and Drug Administration (FDA) approves particular expressions called model health claims. Approval has been given for claims outlining the relationship between eight foods and the risk of certain diseases.

For the FDA to approve the health claim it must be supported by valid and substantial scientific evidence. Some paraphrasing of the model health claims is permitted provided their expressions accurately convey the approved claim. However, the lengthy qualifications which must accompany health claims are an example of how labels can become over-crowded. An example of a model health claim is:

Development of heart disease depends upon many factors, including a family history of the disease, high blood LDL-cholesterol, diabetes, high blood pressure, being overweight, cigarette smoking, lack of exercise, and the type of dietary pattern. A healthful diet low in saturated fat, total fat, and cholesterol, as part of a healthy lifestyle, may lower blood cholesterol levels and may reduce the risk of heart disease. (Code of Federal Regulations Title 21 section 101.75 made under the *Nutrition Labelling Education Act (1990)*)

The problem of crowding and complexity is partly overcome by the use of third party (for example, by the National Cancer Institute) references. These include statements and symbols or logos (such as the system now used in the Australian 'Pick the Tick' program). These references are placed on labels to indicate the food has been accredited.

The Commission considers that producers should be permitted to provide consumers with health information.

The Australian Gen-Ethics Network and others have argued that approval of health claims would mean:

... offering quasi-medical advice where no professional backup is available would undermine, not improve public health and safety. Some people would be more tempted than at present to self-prescribe an unbalanced diet on the basis of promotional rather than informational statements. (sub. 172, p. 2)

Because of concerns such as this, the Commission suggests a cautious, regulated approach to permitting health claims.

Recommendation 13

The Commonwealth, through agencies such as the National Food Authority, should establish a procedure for the approval of model health claims. The criteria for approval of the health claims should be:

- there are community benefits to allowing the claim;
- the claim has been supported by valid and substantial evidence; and
- the claims are not made in ways which mislead.

The responsible agency should also accredit bodies that can demonstrate that they can certify health claims for products with sufficient competence and integrity. Certifications by accredited bodies could be signified by logos on labels.

After five years the operation of this new system should be reviewed.

The costs of establishing the approvals is unlikely to be great since in many cases the material necessary for the approvals will already have been produced for overseas approvals, such as for the US system. Provided the responsible agency is satisfied with the data's integrity, it should accept these overseas data to avoid duplication and cost.

Should the Government decide that the NFA is the most appropriate body to supervise the use of health claims it may be necessary to remove (through legislation or otherwise) the doubt which currently exists as to whether the NFA can legally exercise the necessary powers.

7.3.2 Labelling processes in food production

Submissions by the Australian Gen-Ethics Network (sub. 82), the National Council of Women (sub. 143) and the Australian Consumers Association (sub. 190) indicate a degree of community concern over labelling of products which have been produced using novel production processes:

In a recent survey [the results of which have been supplied to the Commission], 89 per cent of consumers believed genetically manipulated food products should be clearly labelled (Australian National University, 1995⁷). The survey report went on to say “without labelling a clear majority opposes genetically engineered foods”. (sub. 190 p. 7)

Box 7.3: Regulatory initiatives in labelling novel production processes

Recently the issue of labelling novel production processes has been raised in the legislatures of the Australian Capital Territory and Vermont US.

A Bill has been introduced into the ACT Legislative Assembly which proposes to require (through the ACT Food Act) that food labels disclose if the food has been subjected to a process involving irradiation or if the food is derived from a plant or animal which was subjected to a process or treatment involving genetic engineering.

The Vermont legislation focuses upon the use of a particular novel process of production — the use of the genetically engineered hormone *recombinant bovine somatotropin* (rBST) which increases milk yields. Vermont retailers are required to label any dairy products produced using rBST and Vermont producers are required to inform retailers when they use rBST.

In both cases the federal regulatory agency responsible for food (Australia’s NFA and the US Food and Drug Administration) have decided that there is insufficient scientific evidence to support labelling regulation on health and safety grounds. However, these legislatures are confronted by community concern on broader grounds which may warrant labelling regulation.

These concerns arise due to public safety, ethics and environmental protection. Australian Gen-Ethics has called for regulations to require that labels disclose when novel production processes have been used.

At present, firms operating in the Australian market are not required to provide information on labels regarding the use of novel production processes in food

⁷ Public Perceptions of Genetic Engineering: Australia, 1994. International Social Science Survey/ Australia, Dr Johnathan Kelley.

(such as genetic engineering). However, some of this information is provided voluntarily. For example, if a consumer wishes to purchase eggs which have not involved the factory farming of hens they purchase eggs labelled 'free range' assuming that those *not* so labelled are likely to be unsuitable.

The *Codex Alimentarius* (Section 5.2), which is a set of standards agreed to internationally (see Appendix G.2.6), requires irradiated foods to be so labelled. To date these requirements have not yet been enacted in Australia but the NFA has considered submissions on radiation and genetic engineering.

The Australian Gen-Ethics Network reported that:

The NFA says there are no safety or consumer deception issues with genetically engineered foods and food products, thus no precedent exists to require labelling. This ignores that deception created by withholding information that consumers expect and need, and also that genetic engineering technologies are themselves unprecedented. (sub 82, p. 2)

Box 7.4: Consensus conferences

It can be difficult for regulatory agencies to balance the input of experts and consumer concerns when significant technological advances occur. Denmark has developed a mechanism to assist regulatory agencies in this task — *the Consensus Conference*.

Consensus conferences are dialogues between a panel of experts and a panel of lay people. One such conference in 1989 considered the irradiation of food. Each panel consists of 10–15 people. The lay panel is chosen from volunteers to reflect the different age, sex, education and occupations of members of the Danish community.

The expert panel explains the new technology and responds to questions from the lay panel. The lay panel then writes a report for use by the regulatory agency. The process and the final report are open to the public. Radio and TV have reported the conferences.

The Industry Commission has no reason to question the technical judgements regarding health and safety which the NFA has made on the matter. On the other hand public confidence in the safety of food supply and the other concerns of the public (such as ethical considerations) are important. Consensus conferences (see Box 7.4) could be a useful way to address public, ethical and scientific or technical issues to better inform decision making.

7.3.3 Labelling of place of origin

There is widespread consumer demand for labelling to accurately identify the country of origin of products (sub 143; sub 71; ACA 1995).

The demand for origin information often arises because consumers wish to support Australian industry, enterprise and employment (ACA 1995). The production of goods involves the combination of labour, materials, capital and intellectual input.

Recent initiatives have concentrated on Australian production and, for food products, Australian ingredients.

Country of origin labelling is already regulated (see Section 7.3.3.1). Several proposals have been advanced to deal with the perceived problems of the existing regulatory regime. However, they have not always followed the COAG principles for design of new regulation (outlined in Section 7.1).

7.3.3.1 *The current rules*

At present country of origin labelling is governed by:

- the TPA s52 and s53(eb)⁸ for all goods;
- the Food Code Standard A1 for most food and beverages;
- the Food Code Standard D1, F1, M4, N1, O2, O7 and O9 for particular goods such as orange juice; and
- the Commerce (Imports) Regulations regulation (c) (1) for imports.

The tests used to determine how producers should use country of origin descriptions are generally the same in each case — for “Made in Australia” it is the *essential character test* (see below).

The Food Code requires country of origin declarations on food labels⁹ but the TPA only regulates the truthfulness of the claims of origin that producers choose to make. Mainly because the food code makes country of origin statements mandatory, the NFA described the current regulation as:

... more rigorous than those of the majority of overseas countries, including Australia’s major trading partners. (sub. 198, p. 16)

Case law provides industry with guidance on how the rules on country of origin claims apply to specific products.

⁸ Equivalent protection from misleading conduct is provided in *State Fair Trading Acts*, *Food Acts* and the *WA Health Act*.

⁹ The Commerce (Imports) Regulations makes origin statements compulsory in relation to eighteen specified categories of imports.

The Federal Court has decided that goods can only be accurately described as 'made' or 'produced' in a country if the product acquires its essential qualities in that country.¹⁰ If the operations which contribute to the acquisition of essential qualities are carried out in more than one country, it is regarded by the courts as misleading to label it as 'made' or 'produced' in any one of those countries.¹¹

When the essential character is not acquired in the country, lesser claims that goods are connected with a country can still be made provided the connection is accurately described. For instance, claims such as 'built' or 'assembled' on goods which have not acquired their essential character in Australia may not be regarded as misleading.¹²

An update of the ACCC guidelines (which would also provide guidance to industry on how country of origin label claims should be made) has been delayed pending further developments concerning proposed changes to the TPA and Food Code.

Proposals currently under consideration would change these laws. The Trade Practices Amendment Bill and the Food Code amendment are discussed in this section. The Commission considers that the Food Code amendment is substantially closer to meeting the COAG principles of regulatory design than the Trade Practices Amendment Bill.

The issue is also under consideration as part of the work program of the World Trade Organisation and the World Customs Organisation (DIST 1995c). This entails aligning country of origin labelling with new country of origin regulations for many other trade related purposes (see Section 3.2.4).

The three options under consideration are: a process which changes a product enough to change its description for tariff purposes; a list of manufacturing processes which are sufficient to confer country of origin upon goods; and an *ad valorem* percentage rule.

7.3.3.2 *Products in general*

Press reports suggest that country of origin claims on the labels of products other than foods are often misleading (The Sydney Morning Herald 26/5/93, The Australian 27/3/93, The Courier Mail 18/6/94). However, there has been no analysis to establish how extensive the problems are, or whether these

¹⁰ *Korczynski v Wes Lofts (Australia) Pty Ltd* (1986) 10 FCR 348.

¹¹ *Thorp v CA Imports Pty Ltd* (1990) ATPR 40.

¹² *Netcomm (Australia) Pty Ltd v Dataplex Pty Ltd* (1988) 81 ALR 101.

problems relate to the content of the rules, such as a problem with the use of particular terms, or result from enforcement difficulties. The NFA stated:

Few instances of specific alleged malpractice have been identified to the Authority, although the media coverage has at times given the impression that false and misleading country of origin labelling of products is endemic. (NFA 1994b, p. 20)

In response to these concerns, in 1993, the Government proposed the Trade Practices Amendment (Origin Labelling) Bill. These rules would only apply to goods to which Part V of the TPA¹³ applies and which are sold in Australia. It would:

- allow firms to choose whether to make a country of origin statement;
- limit the use of the claim “Produce of Australia” to products with predominantly Australian ingredients;
- limit the use of the claims “Made in Australia” and “Produce of Australia” to those products which acquire their essential character in Australia;
- prohibit the use of other descriptions other than “Made in Australia” and “Product of Australia” and symbols that could be regarded as an Australian origin representation unless certain conditions are met;
- require mixed (Australian and foreign) representations as to origin of products to be close to one another with the foreign representation at least as large as the Australian one; and
- place conditions on the use of the Australian Made Certification Mark.

Inquiry participants (subs. 89, 108) expressed concern about the potential costs of this legislation. Costs which the Commission considers significant include:

- descriptions which are sufficiently sophisticated to describe the origin of products with complex production processes would not be permitted;
- it would not be possible (through labelling) to build and benefit from the reputations of particular regions — claims such as “Made in Tasmania” would not be allowed; and
- applying different rules to Australian and imported products in this way would advantage Australian producers for some products and advantage foreign producers for other products.

The Bill’s development has not followed the principles for regulatory action accepted by COAG because there has been no clear demonstration of whether the problem is significant nor consideration of regulatory and non-regulatory

¹³ These are goods produced by corporations, goods traded across State, Territory and Australian borders, goods traded in the Territories and trade involving Commonwealth agencies.

alternatives. Furthermore, there is little sign that those designing the regulation sought the least intrusive regulation necessary to address the particular regulatory objective — in this case perceived truth in country of origin labelling.

Recommendation 14

In accordance with the principles for regulatory action agreed to by COAG, the Trade Practices Amendment (Origin Labelling) Bill should not proceed until:

- the nature of the problem to be addressed has been identified;
- interested parties have been consulted;
- alternative regulatory and non-regulatory options have been considered; and
- the costs and benefits of those proposals have been addressed.

7.3.3.3 Food

In recent years concerns have emerged with regard to consumer confidence in the system of country of origin labelling for food. In particular, judicial interpretation of country of origin labelling of ingredients has not adequately informed consumers.

NFA research (Yann et al. 1995) indicated that consumers regarded country of origin information on food labels as important but distrusted the current labels. It also found that they considered “Made in Australia” to mean that the food acquires its ‘essential character’ in Australia *and* that the food’s major ingredients are Australian. The Courts apply the current rules in a way which does *not* require a food’s major ingredients to be Australian.

In 1992 the NFA received three applications to amend the Food Code with respect to country of origin labelling. The applications were made by the Pork Council of Australia, the Newcastle District Fishermen’s Co-op and the Food Policy Alliance. The NFA prepared a proposal in accordance with the process outlined in the *National Food Authority Act 1991*. The NFA conducted consumer research and took public submissions. In 1992 the Government also set up two working parties to examine country of origin legislation. The NFA continued to develop a proposed Food Code amendment and it was released in 1994 (NFA 1994b). The NFA’s applicants agreed to withdraw their applications and progress on the Authority’s proposal was suspended pending the outcome of the Government’s working parties.

Since it became unlikely that the Government's proposed Bill to amend the TPA (which arose as a result of the two 1992 working parties) would become law in the near future, the focus returned to the Food Code amendment.

By early 1995 several options for change had emerged. However, submissions to this inquiry argued that the proposals did not correct the problems with the current regulations, and were more costly. These submissions argued that the proposals were complex and rigid, making them neither minimum nor effective regulation.

A further round of public forums were conducted and starting in March 1995 the Parliamentary Secretary responsible for the NFA conducted private negotiations between representatives of:

- The Australian Consumers' Association;
- The Australian Council of Trade Unions (ACTU);
- The Australian Food Council; and
- The National Farmers' Federation.

In October 1995 an agreement was announced and put to the NFA. Should the agreement be implemented it would only apply to food products sold in Australia and would provide that:

- most food types sold in Australia must be labelled with country or countries of origin;
- the claim "Product of Australia" can only be used when all the major ingredients and all processing has occurred in Australia;
- "Made in Australia" can only be used if the product acquired its essential character in Australia. Further, if imported ingredients are used this must be included in the statement of origin (unless the ingredients are not available in Australia) — for example, "Made in Australia from imported fruit"; and
- other descriptions of Australian content such as "Packed", "Blended" or "Cured" may be used when there is some Australian content. The specific nature of the Australian content and the nature of imported ingredients must be declared — for example, "Squeezed in Australia from Chilean oranges".

Imported foodstuffs which are not produced in Australia, such as cocoa, will be exempted from the requirements to indicate that they are imported. A list of exempted ingredients will be negotiated between industry, the Australian Consumers Association and the ACTU. The regulations would be accompanied by guidelines for industry and an education campaign.

This proposal commands the support of participants to this inquiry from industry (sub. 204), consumers (sub. 190) and government (subs. 198 and 207). It will reduce the costs and uncertainty of the current system and provide a more stable framework for industry. It is more flexible than its predecessors, better addresses the problem of ingredients, and this process has moved the proposals closer to minimum effective regulation as embraced by COAG (1995).

However, the Commission is concerned that the proposed list of exempted ingredients could undermine achievement of the objectives of the new system. For example, consumers who were not aware that cocoa was not produced in Australia might continue to be misled by chocolates bearing the claim “Made in Australia”. This would also tend to undermine confidence in the system as a whole.

The proposal does not fully conform with the principle of minimum effective regulation because less prescriptive proposals do not appear to have been considered. For example, statements as to the name and address of the manufacturer are not accepted as statements of place of origin. Likewise, the statement “Made in Western Australia” could not be used without also placing “Made in Australia” on the label. Constraints such as these impose costs without any benefit.

There are two ways to overcome the use of terms which mislead consumers. One is to codify the use of the term, as this proposal does. The other is to address directly the misleading use of the term. This could be done by incorporating in legislation a presumption that use of the term “Made in Australia” (or of a region of Australia) implies that the ingredients are of Australian origin, unless there is a clear statement to the contrary. Manufacturers could then be prosecuted if they used the term without identifying imported ingredients.

Consumers would no longer be misled. “Made in Australia” and “Product of Australia” or some region within Australia would generally be used for food products with Australian ingredients — but the descriptions could be used for particular products with imported ingredients when producers can show that consumers have been informed the ingredients are foreign.

7.3.4 Environmental labelling

Labelling regulation to ensure the veracity of environmental information is a complicated matter for several reasons:

- environmental claims can be particularly difficult for consumers (and regulators) to verify;

- environmental benefits may be undermined by environmental harms which are not disclosed. As such, single-attribute environmental claims can mislead;
- an environmental claim might be literally true but invite the consumer to reach the wrong inference. For example, although it might be technically possible to recycle a plastic there may be no infrastructure for that recycling to occur (for example, coloured HDPE); and
- life cycle assessments of a product’s environmental impact are extremely difficult (see Box 5.2).

These issues have implications for any proposal to regulate environmental information disclosure on labels.

Misleading environmental labelling of packaging may therefore have two costs:

- loss of confidence in labelling generally; and
- the direct costs imposed, for example, upon the recycling system when consumers mistakenly include non-recyclable material when collections for recycling are made (see Box 7.5).

In Australia, environmental claims in labelling are currently regulated under the general misleading and deceptive conduct provisions of the TPA. The ACCC advised that there have been very few complaints that have been actionable under the Act — two or three in several years (private communication), especially since the release of guidelines in 1992.

Box 7.5: The case of plastics



‘Chasing arrows’ (also called the Mobius Loop) surrounding an identification number (defined by the Plastics Identification System) are moulded into the base of many plastic containers. The number identifies the polymer of which the containers are made (above right). The same arrows, sometimes with an ‘R’ placed within them, are regarded widely by consumers to imply recyclability (above left).

The ACCC has indicated through guidelines that it does not consider the use of the arrows on the base of the container (not the label) as contravening the TPA, as it is unlikely to mislead consumers when they are making purchasing decisions.

In the Commission's view the act of purchase by consumers is not the only relevant consideration.

Inquiry participants have indicated that many consumers include all containers bearing the symbol in their recycling collections. This increases the costs of recycling because it increases the level of sorting required.

An example is coloured HDPE. The chasing arrows symbol often appears on the bottom of the container, but it appears in order to identify the constituent resin rather than to signify recyclability. Coloured HDPE and HDPE which has been used for products other than dairy or fruit juice are not likely to be recycled.

An international standard (ISO 14 022) which would govern how the symbol is to be used is currently being developed.

These guidelines (TPC 1992a) relate to environmental marketing claims and articulate the ACCC's policy on what constitutes misleading conduct, but do not prevent competitors or consumers bringing court action. In 1995, the ACCC released guidelines covering plastics recycling (see Box 7.5).

The ACCC recently compared the current situation with a 1992 study by Environmental Choice Australia (ECA). The ECA study found that 79 per cent of packaged products surveyed had a claim which might have been considered misleading. In trying to duplicate this study, the ACCC found that of those that remained on the market there were still around 30 per cent which were found to have 'vague or unqualified' representations (see Asher 1995).

Around the world, there is a mixture of government and self regulation in this area (OECD 1991) and both have experienced problems. In practice, specific regulation has proven difficult to design and enforce. The major problem (identified above) relates to the evaluation and verification of claims by consumers (or regulators). That includes difficulties involved in assessing environmental impacts over product life cycles, in financing programs, and in categorising products.

Some participants argued for stronger controls over environmental labelling (see for example, Australian Environmental Standards sub. 154, Queensland

Conservation Council sub. 52, North Queensland Conservation Council sub. 78).

Friends of the Earth (Sydney) argued that the existing plastics coding system is 'highly misleading', and that the Government should introduce a new coding system which reflected the recycling services available in Australia (sub. 22). In contrast, the Grocery Manufacturers' Association argued that self regulation underpinned by ACCC guidelines was appropriate, given that companies' fear of losing standing (and sales) would ensure compliance (sub. 66).

A major previous initiative was a voluntary scheme known as Environmental Choice Australia, which operated between 1991 and 1994. Under this scheme, manufacturers could seek to have a product's environmental claims verified by a scientific committee. However, as there were no set criteria, the applicant could choose a product attribute and gain endorsement on that attribute. Therefore, similar products could gain endorsement on different grounds.

The Department of Environment, Sport and Territories (DEST) argued that a major problem was that the public began to perceive ECA endorsed products as environmentally superior to those without that endorsement, rather than the endorsement being merely a verification of the specific claim. As such, there was concern that this could eventually constitute misleading advertising (transcript p. 815).

Several other self-regulatory initiatives in environmental labelling remain. These typically take the form of product accreditation, and controlled use of logos. Examples are the ECA (outlined above) and the butterfly logo being developed by Promoting the Use of Plastics Again and again and again (PUPA) in South Australia to indicate recyclability. In addition, guidelines for environmental claims are currently being drafted by Standards Australia. These will be consistent with a new International Standard for environmental labelling also being drafted. No regulators are currently proposing to adopt the standard, but industry often voluntarily accepts ISO standards.

7.3.5 Tobacco products

The goal of the Commonwealth, State and Territory governments' National Health Strategy on Tobacco is:

to improve the health of all Australians by eliminating or reducing their exposure to tobacco in all its forms ... [including]

- to prevent the uptake of tobacco use in non-smokers, especially children;
- to reduce the number of users of tobacco products;

- to reduce the exposure of users to the harmful consequences of tobacco substances; and
- to reduce involuntary exposure to tobacco smoke. (Commonwealth of Australia 1991)

As part of implementing the strategy the Commonwealth instituted several initiatives including new health warnings on tobacco labels. *Trade Practices (Consumer Product Information Standards) (Tobacco) Regulations 1994* implemented a national uniform system of strengthened health warnings on tobacco products to inform consumers more effectively of the health effects of smoking. All tobacco products (excluding cigars sold individually) are now required to bear a system of health warnings. The system constitutes the following warnings printed black on a white background:

- one of six rotating health warnings printed on the flip-top and front of the pack;
- a boxed area on the top of the pack containing detailed health information; and
- information about the tar, nicotine and carbon monoxide content of the cigarettes on one entire side of the pack (sub. 142, pp. 3–5).

Opposing views have been put to the Commission concerning these changes to the regulation of tobacco products labelling. Rothmans of Pall Mall (Aust) said that the amendments were “developed without taking account of both the costs and benefits of this approach” (sub. 44, p. 1). However, the Department of Human Services and Health (sub. 199) indicated that a process of industry consultation led to a number of concessions. For example, stickers were permitted to avoid separate printing requirements for Australian packages.

The Australian Council on Smoking and Health suggested more stringent measures:

While health groups welcome the current regulations on the provision of health warnings and content labelling on tobacco products as a strengthening of the previous systems, further improvements are needed to ensure that tobacco products are presented in a format that is appropriate for the dangers inherent in their use. Tobacco is a unique consumer product which kills consumers when used as intended by the manufacturer. (sub 132, p. 6)

The Australian Council on Smoking and Health has also drawn the Commission’s attention to studies which indicate that consumers react to cigarette brand promotion by increasing smoking. Packaging which enables strong brand identification is a significant element in product promotion. The Council has proposed the packaging of cigarettes in plain or generic packaging

as “an important step in measures to reduce tobacco use by adults and prevent the uptake of smoking by children” (sub. 132, p. 6).

Purposes of product labelling include identifying the product, informing consumers and promoting the product. Promotion can increase a branded product’s sales in two ways. It can cause consumers to substitute between brands and it can increase the over-all consumption. For dangerous drugs (both therapeutic and non-therapeutic) identification and providing information are appropriate roles for packaging. Cigarette promotion on labels would appear to be inconsistent with the Government’s policy objectives, especially that of reducing exposure.

In the case of prescription-only therapeutic goods “any statement, label, intended directly or indirectly to promote the use or supply of the goods” is taken to be advertising. Advertising these goods to the general public is prohibited (TGA 1992).

As in the case of prescription only therapeutic goods, some form of branding of tobacco products is necessary to enable the identification of products being sold. The Department of Human Services and Health stated:

In 1993, following consideration of the issue of generic packaging by the Ministerial Council on Drug Strategy, it was decided that ... Government would use a wide range of [other] strategies. Research into generic packaging and its effects on tobacco consumption are both scarce and of variable quality. (sub. 199, p. 4)

However, Registrar of the Australian College of Paediatrics (ACP) has said that the ACP is confident that current research from abroad substantiates that generic packaging is effective and that:

... making tobacco more difficult to market would protect our young people from becoming addicted to what was arguably a lethal drug. (ACP 1995, p. 1)

As further research becomes available, governments should continue to consider constraints on the promotional value of cigarette labels if this could generate a substantial reduction in the level of smoking.

7.3.6 Export labelling regulation

Most countries impose labelling requirements. These generally apply to both domestically produced goods and imports, including goods imported from Australia.

In some cases, Australia also regulates the labelling of exports. For example, regulations require pharmaceutical products to meet Australian labelling

requirements when exported. Producers are therefore required to meet two sets of labelling regulation, which may be irreconcilable.

There are two good reasons for regulating exports.

- Some labelling regulations give effect to Australia's international obligations. For example, regulation of the transport of dangerous goods facilitates trade. The costs of complying with these regulations have been reduced by harmonising them with the regulations for the domestic transport of such goods in Australia and in other countries which are based on the principles developed under the auspices of the United Nations (see Appendix F.7).
- Trade can also be facilitated by regulations to protect other producers who label their goods as Australian. Identifying some exports as Australian is like using a brand name. Regulations can protect this brand name's quality image. This is usually only necessary with meat, agricultural and other homogeneous products where the establishment of brand names or logos can be difficult. In some cases, government certification is required by some countries to which Australia exports and by some bilateral trade agreements. For example, there are usually accreditations required for the export of fruit and vegetables labelled 'organically grown'.

However, generally the importing country is best able to assess the appropriate labelling requirements for their local markets outside the areas discussed above. For Australia to impose general export labelling requirements would increase costs to producers without any benefits.

7.4 Labelling standards, enforcement and international trade

While most countries typically apply labelling requirements to both imported and domestically produced goods, in some circumstances there may be additional regulation of export labelling. Export labelling regulations may exist to give effect to international obligations, or exist as an element of promotion. For example, homogenous products such as wheat benefit from being identified as Australian produce.

In addition to domestic labelling requirements, imports are also sometimes separately regulated.

7.4.1 Specific labelling standards for imports

It is generally undesirable to place requirements on the labelling of imported products over and above those requirements on products in the market generally because compliance costs unnecessarily increase the price of imports.

Parts of the *Commerce (Import) Regulations* illustrate this issue. The regulations (particularly regulations 8 to 20P) contain detailed labelling requirements for many goods (see Appendix F.6) from a period when domestic labelling was more strictly regulated, and domestic production was highly protected. Some include requirements which no longer apply to domestically produced goods.

The Food and Beverage Importers Association argued:

... having two standards and two enforcement agencies is cumbersome, costly and potentially could lead to conflict between Customs requirements and those of the Food Standards Code. (Food and Beverage Importers Association, sub. 195, p. 2)

Participants also provided examples of how regulation increases the costs of importing. JJ Lawson and Rainsfords argued that import labelling requirements cause some packaging and labelling to occur overseas — despite Australian packaging and labelling being cheaper (sub. 29). Intervet argued that some double packaging occurs — products are packaged and labelled in accordance with import regulations and then repackaged and re-labelled after import (sub. 4).

It is understood that the Australian Customs Service regards Regulation 8 (and other parts of these regulations) as anomalous and gives its enforcement a low priority.

Recommendation 15

The Department of Industry, Science and Technology should, as part of its portfolio review of regulation, by July 1997:

- initiate action to remove the requirements contained in Regulations 8, 15, 15A, 15B, 17 and 20 of the *Commerce (Imports) Regulations* which contain prescriptive labelling requirements for a range of imported products; and
- in relation to each of the other regulations of the *Commerce (Imports) Regulations*, initiate action to remove any other requirements that do more than mirror the regulations applying to domestically produced goods. This should be done subject to consultation with responsible line agencies.

To remove the requirements of only some of these regulations would require (and could enable) consequential amendments to the machinery provisions. For example, Regulation 7 would require alteration.

7.4.2 Imports and their compliance with labelling standards

Enforcement is a major determinant of overall performance of the labelling regulatory regime. While regulatory agencies clearly take seriously the enforcement labelling standards upon imports,¹⁴ participants have detailed many instances claiming unequal enforcement of domestic and import labelling requirements. These include:

- aerosol cans without Australian flammability statements, weight statements and propellant statements (Amcor, sub. 141); and
- confectionary imports which do not carry the importer's name and address, correct weight statements and other Food Code requirements (Confectionary Manufacturers of Australia, sub. 89).

Since the Australian Quarantine Inspection Service (AQIS) has been inspecting food imports when they enter Australia,¹⁵ the level of illegal food imports is reported to have fallen (sub. 89). Previously imported food was inspected only at retail by State and Territory inspectors.

Any failure to enforce labelling requirements for imported products can put domestic producers at a competitive disadvantage. For example:

- the warnings occupy labelling space that importers who do not comply can use for marketing; and
- a product displaying warnings appears less safe (and therefore less desirable) to consumers.

¹⁴ AQIS determines which products to place under stricter surveillance as part of the Imported Food Inspection Program by observing which imports more frequently do not comply with the Food Code. The Food and Beverage Importers Association (sub. 195) has indicated that two-thirds of these instances of non-compliance were labelling breaches.

¹⁵ The program began in 1990 and was operational in its present form by 1993.

While imports are required to meet the same labelling standards as domestically produced goods, enforcement priorities and a lack of information explain, at least in part, why imports might more frequently be sold while contravening relevant standards. For example:

- many breaches are technical in nature. For instance, the contents of imported aerosols are sometimes expressed in volume rather than in weight, and required warnings are paraphrased — often because the labels have been produced to satisfy requirements other countries. Enforcement agencies frequently regard enforcement against these breaches as being less urgent than enforcement which clearly promotes health and safety;
- enforcement generally relies on complaints by competitors. Imports often occupy market niches or command small market shares and therefore can be less important to Australian producers than other Australian producers;
- the supply of many imports is irregular. This may make it more difficult to locate goods contravening the regulation. In addition, compliance techniques of warnings and negotiation (even prosecution) are less likely to be effective as a deterrent to future sporadic imports; and
- some exemptions have been granted from the provisions of the Australian Code for the Transport of Dangerous Goods in respect of aerosol cans until that code is fully aligned to the United Nations (UN) recommendations (sub. 150; see Appendix F.7.2.2).

However, current enforcement priorities are not necessarily undesirable. Enforcement resources are likely to yield the biggest benefit when focused on products frequently sold and used. Enforcement costs are no lower for products with limited sales, but fewer consumers would benefit.

Furthermore, strict adherence to Australian standards requiring re-labelling would increase the price of imported products. This may make some low volume items prohibitively expensive to import. These benefits are analogous to those available from unilateral recognition.

Current enforcement practices protect public health through conformance with another country's standards (which are considered adequate in those countries) and by *serious* safety issues being given priority by Australian law enforcement agencies.

The Commission is not aware of any evidence to suggest that current enforcement arrangements are compromising consumer safety. If significant safety problems were to become apparent, stricter enforcement of labelling standards against imports could be achieved by increasing the funding to enforcement agencies.

If Australian labelling regulations were more performance based (see Section 7.3.1), many of the labels on imported products (which are currently inadequate) might conform with the new Australian standards.

7.5 Regulatory institutions

Regulatory activities can be performed at a national, regional or local level or by a combination of these. When deciding whether to create and enforce standards nationally, regionally or locally there are three central considerations.

- Is the protection that the regulation is designed to provide or the objects it is trying to meet common to the whole nation, region or locality?
- Do the firms or production units which are to be regulated serve national, regional or local markets?
- Are the characteristics of the beneficiaries of the regulation national, regional or local?

However, there is also a trade-off between the effectiveness of interactions with individual consumers and producers at the local level compared to dealings with more complex and distant centralised bureaucracies. On the other hand, a well designed centralised regulatory structure can avoid the overlaps or gaps in coverage when the same issues are dealt with in several jurisdictions.

Packaging and labelling regulation mostly applies to a consumer goods market which is traded nationally. In many cases intra-national governments have decided to reduce the impediments to trade in this market by setting standards nationally. National uniformity can be achieved by inter-governmental co-operation or by the Commonwealth making regulations directly (through its own powers or using State powers which have been referred to it). The current initiatives in regulatory co-operation are outlined in Appendix G.

The States and Territories may be well placed to implement packaging and labelling regulation and have existing inspection, enforcement and prosecution agencies. This may be an argument for co-operative systems over unitary systems of national regulation because it may be difficult or costly to move or replicate this infrastructure at the national level. A co-operative regulatory structure can be an effective way to incorporate differing compliance considerations into standard setting.

On the other hand fewer governments (involved in standard setting and enforcement) make for clearer and better accountability for each body of regulation.

7.5.1 Uniform regulation

Inquiry participants have generally been supportive of the initiatives directed towards making packaging and labelling regulation uniform Australia-wide.

The model for regulatory co-operation most favoured is that which applies to food (and also agricultural and veterinary chemicals):

Both the National Food Authority and the National Registration Authority provide appropriate models for the needed reforms. There, due process, industry and consumer participation, and unambiguous rights of appeal are all specified **in legislation**. (PMAA submission to the Pharmaceuticals Inquiry, p. 65)

Participants' comments indicate that the shortcomings of the food model are less than for other co-operative models.

Participants argued that there were shortcomings with the use of the NFA as a national standards setting body. Dr J Wright argued that, first, there remain examples where food standards are not uniform. Second, there remains duplication of bureaucratic effort, as each State and Territory retains responsibility for any standard that is proposed. As long as the standards are a part of State or Territory law, the relevant Minister would have little choice but to repeat efforts of counterparts in other jurisdictions (sub. 9). It is difficult to estimate the quantum of this duplication.

The Food Industry Council of Australia has indicated that decentralised enforcement of the Food Code (see Appendix F.1.3) can undermine the uniformity of food regulation:

... considerable problems still exist for industry because differing interpretations are possible between state and regional officials who are responsible for enforcing the regulations. (sub. 189, p. 9)

The food model can also be criticised for the time-consuming process necessary for changing regulations. This is in part because similar issues are considered by each of the State, Territory and Commonwealth bodies.

The experience of regulatory co-operation in other areas highlights these general issues. For example, the PMAA (in its submission to the Commission's current Pharmaceuticals Inquiry) welcomed the initiatives in regulatory co-operation in the area of drugs, but identified several short-comings including that there are too many decision makers.

The system for the uniform regulation of weights and measures also suffers from slow government action. The States and Territories have signed an agreement with the Commonwealth on Uniform Trade Measurement Legislation and Administration, requiring that they enact a model Act on trade measurement

and refrain from subsequent unilateral amendments. Beginning in 1990, this legislation has gradually been enacted in several States but not in Victoria, Tasmania and Western Australia.

The Uniform Trade Measurement Legislation experience is a prime example of the weaknesses inherent in a system which relies on the States to implement agreements on harmonisation. In the words of Cadbury Schweppes, “the recent experience with Uniform Trade Measurement Legislation highlights how things should not be done” (sub. 24).

Approaches to uniform regulation involving the referral of power and parallel legislation seem superior on the grounds of timeliness, cost and accountability. Ministerial Councils undertake important functions. But there are inefficiencies when they constitute a second step in a regulatory process. The NFA, for example, recommends amendments to the Food Standards Code to the National Food Standards Council. If the proposal is rejected, the process begins again. This takes time, is costly because advice on each matter is provided separately to all Ministers, and lacks accountability because debate is not public and it is difficult to assign responsibility for any failures. The Ministerial Council approach does, however, provide benefits to the States and Territories in terms of the representation of their interests.

Mutual recognition (discussed in Section 7.5.2) can, and has, filled gaps between and within uniform regulatory systems. However, clear examples of mutual recognition directly reducing barriers to trade are limited, especially in packaging and labelling, an area which the Commission would have expected to be a major beneficiary. In part, this may reflect lack of awareness of the scheme.

The overall trend in regulatory co-operation within Australia is that as the States and Territories have gained more confidence in regulatory co-operation they have been more ready to cede powers to one another and to national bodies (such as the NFA).

One option for the future is that, as the States and Territories gain further confidence in the national bodies, the States could refer to the Commonwealth Government the power to regulate national goods markets. Checks and qualifications could be incorporated to provide the States and Territories with some measure of control over Commonwealth Government regulation. For example, it is possible that the function of Ministerial Councils, such as the National Food Standards Council, could change from the development of regulations to the oversight of the process.

7.5.2 Mutual recognition

The initiatives to reform specific areas of regulation (such as trade measurement regulation and food regulation) have been complemented by more general legislation for mutual recognition.

In 1991, the COAG agreed to implement mutual recognition of the regulation of goods and occupational qualifications within Australia. All States and Territories have passed enabling legislation to apply the *Mutual Recognition Act (Commonwealth) 1992*. Amendments to the legislation may occur only with the consent of all participating jurisdictions.¹⁶

Under mutual recognition, goods that meet the requirements for sale in the jurisdiction of manufacture or importation can be sold in any other jurisdiction without complying with any further regulatory requirements.

There are several sources of potential gains from mutual recognition. Firms can benefit from economies of scale through product standardisation and consumers can benefit through greater competition and enhanced product choice.

Regulatory co-operation at the international level is less well developed than between the Australian jurisdictions. Most progress for Australia has occurred in co-operation with New Zealand. Negotiations with New Zealand have focused on extending the existing Australian schemes for uniform Australian regulation (in areas such as food regulation and the regulation of therapeutic goods) and the mutual recognition scheme.

The Commission considers that there are similar benefits to be had from wider regulatory convergence, for example, converging to international standards, as is occurring in relation to the Transport of Dangerous Goods (see Appendix F.7.2). This is becoming of increasing significance to the Australian economy as standards are established for the Asia-Pacific region in waste management, bar coding, packaging, labelling and certification.

On this issue, the Packaging Council of Australia commented:

From the Australian perspective it is far preferable that national standards be developed within the context of a regional framework. Regional harmonisation of standards relating to packaging, labelling and certification requirements, or mutual recognition of individual country standards, is an issue on which Australia, through [Asia-Pacific Economic Co-operation] APEC, has the capacity to play a leading role. (sub. 57 p. 22)

The Commission concurs with these sentiments.

¹⁶ A second, more limited, form of mutual recognition will shortly exist for the transport of dangerous goods (see Appendix F.7.2.2).

There are, however, valid arguments for having different standards across countries on some matters (an obvious example is the language on labels). The Australian Consumer Association (sub. 190) pointed out that it can be more difficult to enforce labelling standards which are subject to mutual recognition. This is especially so when mutual recognition is extended to the standards of countries with dissimilar legal systems and official languages other than English because they can make it difficult for enforcement agencies to comprehend and seek enforcement of foreign laws in Australian courts.

A TERMS OF REFERENCE

I, GEORGE GEAR, Assistant Treasurer, under Part 2 of the Industry Commission Act 1989 hereby:

1. refer Australian industries supplying packaging and labelling to the Industry Commission for inquiry and report within twelve months of receiving the reference;
2. specify that in making its recommendations the Commission aim to improve the overall economic performance of the Australian economy;
3. request that the Commission report on:
 - (a) the efficiency of the Australian industries supplying packaging and labelling for downstream industries (including the food processing industry and the commercial and industrial packaging industry), with particular attention to plastics, steel and aluminium cans, paper and cardboard, glass and composite materials sectors, and assess the implications of full social cost pricing to these industries;
 - (b) the international marketing conditions for the packaging and labelling industries, including any barriers facing imports into Australia or exports from Australia;
 - (c) the current structure and competitiveness of these industries, including an identification of strengths and weaknesses, drawing international comparisons where appropriate;
 - (d) the identification of any impediments to effective competition, and measures which could be taken to remove these;
 - (e) the regulatory conditions affecting the packaging and labelling industries, and their impact on the industries' performance and structure;
 - (f) the appropriateness (including environmental costs and benefits) of current arrangements for waste minimisation, recycling and waste disposal in the packaging and labelling industries;
 - (g) any measures which could be undertaken to remove impediments or otherwise contribute to the efficiency and development of the packaging and labelling industries, in ways that are consistent with the principles of efficient resource use in the economy; and
 - (h) the identification of groups who would benefit or be disadvantaged by 3(g) above; and the effects on industry, the environment, and the economy in general, of any measures recommended by the Commission;
4. specify that the Commission take account of recent substantive studies undertaken elsewhere; and
5. specify that the Commission have regard to the established economic, social and environmental objectives of governments.

GEORGE GEAR

14 February 1995



B INQUIRY PROCEDURES

Following receipt of the terms of reference on 14 February 1995, the Commission advertised the commencement of the inquiry in the press and called for submissions from those with an interest in it. The Commission also published an issues paper to assist in the preparation of these submissions.

Early in the inquiry, discussions were held with various individuals and organisations to obtain background information and to set an agenda for the inquiry. The people and organisations visited are listed in Section B.1.

Submissions were received from a wide variety of individuals and organisations. The Commission received 207 submissions, 60 in response to the Draft Report (see Section B.2). Initial public hearings were held to discuss submissions with participants in Canberra, Sydney, Brisbane, Melbourne and Adelaide in May 1995. Draft report hearings were held in Canberra, Sydney, Melbourne and Brisbane in December 1995. Participants are listed in Section B.3.

Additional information and data were also requested from many organisations at various times during the inquiry. The Commission is grateful for the high degree of co-operation which it has been given by participants.

B.1 Visits

During the course of the inquiry, the Commission met with the following individuals and organisations:

Victoria

Agri-Food Council

Ancor

Australian Dairy Industry Council Inc

Australian Dairy Products Federation Inc

BHP Steel

Brickwood Holdings Pty Ltd

BTR Nylex Ltd

Commonwealth Environment Protection Authority

Coles Supermarkets

CRC for International Food Science and Packaging Science

CSIRO - Division of Materials Science and Technology
Carlton & United Breweries Ltd
Full Cycle Plastics
Grocery Manufacturers of Australia Ltd
HJ Heinz Company Australia Ltd
Label & Tag Manufacturers Association (Aust) Ltd
National Can Industries
Plastics and Chemicals Industries Association
Pacific Dunlop
PBD Recycling
Packaging Council of Australia Inc
Pemara Corporation Pty Ltd
Schweppes-Cottees
Southcorp Packaging
Thomas Frame & Co Pty Ltd
Victorian Horticultural Growers' Council
Visy Board Pty Ltd
Whitehorse City Council

New South Wales

Amcor
Australian Newsprint Mills Ltd - Albury
Australian Consumers Association
Australian Institute of Packaging Inc (NSW)
Australian Supermarket Institute (NSW)
Coca-Cola Amatil Ltd
European Recovery & Recycling Association
Goodman Fielder Ltd (NSW)
Litter and Recycling Research Association
Manly Environment Centre
Nature Conservation Council of NSW
Nestlé
Packaging Council of Australia (NSW Division)
Pax Australia Pty Ltd
Printing & Allied Trades Employers' Federation of Australia
St Regis Bates Pty Ltd
Sydney Institute of Technology, School of Graphic Arts
University of NSW
Waste Services NSW

Queensland

Brisbane City Council
Golden Circle Limited (Qld)
Office of Economic Development
Pacific Waste Management

Australian Capital Territory

City of Canberra
Communications Research Institute
Department of Industry Science and Technology
Department of Primary Industries and Energy
Grocery Manufacturers of Aust Ltd
Trade Practices Commission

South Australia

Absan Pty Ltd
BRL Hardy Ltd
BTR Nylex
Coopers Brewing Co
Fasson Pty Ltd
Northern Adelaide Waste Management Authority
Rib-Loc Australia Pty Ltd
Sheerwater Plastic Traders Pty Ltd
Statewide Recycling
Wingfield Recycling

Overseas Visits

Germany

Environment Ministry - Waste Material Section
European Packaging Federation
Holfelder Packaging
PKL Verpackungssysteme GmbH
Umweltbundesmat (German EPA)
Meinhardt Stadereinigung

Belgium

European Recovery and Recycling Association
 European

France

Carnaud Metalbox
 Environment Directorate, OECD
 TIRU/Sycton
 UNEP

B.2 Submissions received

Organisations and individuals who made submissions are listed below.

<i>Participants</i>	<i>Submission No.</i>
ACI Operations Pty Ltd	114,181
ACT Waste Management	14,153
Adhesive Application Services Pty Ltd	1
Advisory Committee on the Transport of Dangerous Goods	101
Alcoa of Australia	122
Amcor	69,141,171
ANZECC Working Party on Maritime Debris	118
Arisa Ltd	73
Association of Liquidpaperboard Carton Manufacturers Ltd	39,161
Auseon Limited & ICI Australia Operations Pty Ltd	187
Australasian Soft Drink Association Ltd	37
Australian Academy of Design	175
Australian Chamber of Manufactures	119
Australian Conservation Foundation Central Coast Branch Inc (NSW)	16
Australian Conservation Foundation	176
Australian Consumers' Association	190
Australian Council of Recyclers	160
Australian Council on Smoking & Health	132,165
Australian Customs Service	163
Australian Environmental Standards Pty Ltd	19,154
Australian Gen-Ethics Network	82,172,200
Australian Health Ministers' Advisory Council	46
Australian Institute of Packaging	12
Australian Institute of Petroleum Ltd	68,144

Australian Jute & Allied Goods Association	34
Australian Local Government Association (The)	51
Australian Maritime Safety Authority	98
Australian Paint Manufacturers' Federation Inc	107
Australian Pharmaceutical Manufacturers Association Inc.	121,188
Australian Potato Industry Council Inc (NSW)	15
Australian Resource Industries (Australia) Pty Ltd	146
Australian United Fresh Fruit & Vegetable Association Ltd	30,104
Australian Vegetable and Potato Growers Federation	32
Australian Wine and Brandy Corporation	115
Avcare Limited	17,185
AWU-FIME Amalgamated Union	63
Bakker, M	109
Bankstown City Council	20
BHP	86
Big Scrub Environment Centre Inc (The)	42
Blackmores Ltd	125
Brickwood Holdings Pty Ltd	53,127,131
Broken Hill Proprietary Company Limited	191
Browning-Ferris Industries (Aust) Pty Ltd	36
Bulmer Australia Ltd	50
Byron Environment Centre Inc	41
Cadbury Schweppes Australia Ltd	24
Campbell, M	79,126
Capricorn Conservation Council Inc	38
City of Ballarat	192
Claridge, L	71,140,164
Clayton Utz Solicitors and Attorneys	147
Comalco Aluminium Ltd	84
Commonwealth Department of Human Services and Health	142,145,199
Commonwealth Department of Primary Industries & Energy	102
Communication Research Institute of Australia Inc	105,184
Confectionery Manufacturers of Australasia Ltd	89
Conservation Council of SA	60
Council of Australian Food Technology Associations Inc (The)	76
Council of the City of Willoughby (The)	33
CSIRO Australia	61
Dale, J	74
Department of Employment, Vocational Education, Training and Industrial Relations	75

Department of Environment, Sport and Territories	94,168
Department of Premier & Cabinet Tasmania	108,202
EAN Australia	124
Eco-Consumer*	129
Federal Bureau of Consumer Affairs	43,178
Federal Office of Road Safety	150
Ferrero	10
Fidene Corporation Pty Ltd	113
Food & Beverage Importers Association	195
Food Industry Council of Australia	189
Francey, N	116
Friends of the Earth (Sydney)	22,139
Full Cycle Plastics Pty Ltd	157
Gibbings, K	100
Goodman Fielder	8
Grocery Manufacturers of Australia	66
Hannapak	6
Huntsman Chemical Company Australia Ltd	62,123,128,159
ICI Australia Operations Pty Ltd	106,162
Intervet	4
J J Lawson Pty Ltd & Rainsfords Pty Ltd	29,149
Kebet Packaging Services Pty Ltd	169
Keep Australia Beautiful National Association Inc	21,152
Kellogg (Aust) Pty Ltd	90
Kemcor Australia Pty Ltd	80,138
Kimberly-Clark Australia Pty Limited	194
Kingfisher Centre	3,183
Label & Tag Manufacturers Association of Australia	58
Label & Tag Manufacturers Association of NSW (Ltd)	40
Litter and Recycling Research Association	25
Local Government and Shires Association of NSW	35,167
Local Government Recycling Co-operative Ltd	26,156
Maleny Wastebusters	31,136
Manly Council	49,166
Manly Environment Centre	96
Masterfoods of Australia	99
McCormack, L	72,196
Mirani Shire Council	23
Monash University	28
National Can Industries	67
National Council of Women of Australia Inc Ltd	143

National Food Authority	54,198
National Standards Commission	5
Nature Conservation Council of NSW	11,103
New South Wales Government	137,206
North Queensland Conservation Council Inc	78
NSW Manufacturing Industries Advisory Council	47
Nutrasweet Company (The)	92
Nutritional Foods Association of Australia	177
Packaging Council of Australia Inc	57
Pax Australia Pty Ltd	112
Plastech Industries	93
Plastic Technology Pty Ltd	148
Plastics and Chemicals Industries Association Inc	83
Poly Recyclers Pty Ltd	27
Pork Council of Australia Limited	204
Preston Bottle Depot	70
Printing and Allied Trades Employers' Federation of Australia (The)	59,130
Proprietary Medicines Association of Australia Inc (The)	133,201
Public Interest Advocacy Centre	205
PUPA	87,193
Queensland Chamber of Commerce & Industry Ltd	56
Queensland Conservation Council	52
Queensland Department of Business, Industry and Regional Development	110
Queensland Fruit & Vegetable Growers	135
Recycling and Resource Recovery Council	180
Repost Pty Ltd	179
RMIT	2
Rodda Castle & Hind	81,111,170,197
Rothmans of Pall Mall (Aust) Ltd	44
South Australian Fresh Fruit Growers Association	95
South Australian Government	134,203
South East Region Recycling Group	155
South-West Environment Centre	88
Southcorp Packaging	97
Southern Highlands Community Action	48,173
Standards Association of Australia	182
Sutherland Shire Council	13,158
Sutherland Shire Environment Centre Inc	186
Tetra Pak Marketing Pty Ltd	117

Therapeutic Goods Administration	120
Trade Practices Commission	85
University of Melbourne (The)	9
Victorian Government	91,207
Visy Board	64
Waste Contractors and Recyclers Association of NSW	18,151
Wastebusters	65,174
Wildlife Preservation Society of QLD (The)	7
Winemakers' Federation of Australia Ltd	45
W M Billinghamurst and Associates	55
Work Health Authority	77
* 38 individual letters received	

B.3 Public hearing participants

Initial Hearings

Canberra (15 May 1995)

ACT Waste Management
Australian Environmental Standards

Sydney (17-18 May 1995)

Association of Liquidpaperboard Carton Manufacturers
Australasian Soft Drink Association
Browning-Ferris Industries
Ferrero
Friends of the Earth (Sydney)
Goodman Fielder
Litter and Recycling Research Association
Label and Tag Manufacturers Association
Local Government and Shires Associations
Local Government Recycling Co-operative
Nature Conservation Council
Sutherland Shire Council
Waste Contractors and Recyclers Association of New South Wales

Brisbane (22 May 1995)

Australian Institute of Packaging
Kingfisher Centre

Maleny Wastebusters Community Advancement Co-operative
Queensland Chamber of Commerce and Industry

Melbourne (25-26, 29 May 1995)

Amcor
Australian Gen-Ethics Network
Australian Institute of Petroleum
Australian United Fresh Fruit and Vegetable Association
AWU-FIME Amalgamated Union
CSIRO of Australia
Grocery Manufacturers of Australia
Huntsman Chemical Co Australia Ltd
Kemcor Australia Pty Ltd
Label and Tag Manufacturers Association of Australia
Monash University
National Can Industries
Packaging Council of Australia
PBD Recycling (Formerly Preston Bottle Depot)
Plastech Industries
Plastics and Chemicals Industries Association
Printing and Allied Trades Employers Federation of Australia
Rodda Castle and Hind
Visy Board
Wastebusters
Winemakers Federation of Australia
W.M. Billinghamurst and Associates

Adelaide (31 May 1995)

Claridge, L
Conservation Council of South Australia
Environment Protection Agency
Keep Australia Beautiful
SA Fresh Fruit Growers Association

Draft Report Hearings

Canberra (4 December 1995)

Australian Environmental Standards Pty Ltd
ACT Waste Management
Keep Australia Beautiful National Association Inc

Sydney (7 December 1995)

Local Government Shires Association of NSW
Local Government Recycling Co-operative Ltd
Sutherland Shire Council

Melbourne (12 December 1995)

Amcor
Rodda, Castle and Hind
Australian Gen-Ethics Network
Huntsman Chemical Company Australia Ltd
Commonwealth Environment Protection Agency
Recycling and Resource Recovery Council

Brisbane (20 December 1995)

Kingfisher Centre
Association of Liquidpaperboard Carton Manufacturers Inc
Communication Research Institute of Australia Inc

C INTERNATIONAL TRADE STATISTICS

Table C.1: Food and beverage exports at current prices, 1989–90 to 1994–95
(\$million)

<i>Item</i>	<i>1989-90</i>	<i>1990-91</i>	<i>1991-92</i>	<i>1992-93</i>	<i>1993-94</i>	<i>1994-95</i>
Preparations of meat, of fish or of crustaceans, molluscs or another aquatic invertebrates	142	128	133	140	171	156
Sugars & sugar confectionary	1 094	924	723	1 048	1 282	1 701
Preparations of cereals, flour, starch, or milk, pastry cooks products	101	93	118	118	152	176
Preparation of vegetables, fruit, nuts or other parts of plants	109	148	159	176	189	223
Miscellaneous edible preparations	62	77	96	101	149	152
Beverages, spirits & vinegar	213	282	334	374	460	499
Residues & waste from the food industries, prepared animal fodder	121	147	190	242	297	314
Tobacco & manufactured tobacco substitutes	13	16	16	17	23	30
Cocoa & cocoa preparations	45	53	67	70	130	123
Total ^a	1 898	1 867	1 836	2 285	2 854	3 373

a Figures will not necessarily sum to the total due to rounding.

Source: ABS, Cat. No. 5464.0 Int. Trade, Aust: Magnetic Tape Service

Table C.2: Trade in material inputs to packaging at current prices, 1990–91 to 1994–95
(\$million)

<i>Item</i>	<i>1990-91</i>		<i>1991-92</i>		<i>1992-93</i>		<i>1993-94</i>		<i>1994-95</i>	
	<i>Export</i>	<i>Import</i>								
Polymers of ethylene-LDPE & LLDPE	11	63	19	62	18	64	nil	54	nil	69
Polymers of ethylene-HDPE	2	30	5	27	9	32	7	34	9	48
Polymers of vinyl chloride	2	37	3	36	5	44	6	41	6	82
Polymers of propylene	66	21	71	26	71	29	72	28	94	24
Polymers of styrene	23	30	22	23	24	27	27	33	39	38
Subtotal ^a Polymers	104	180	119	174	127	196	112	191	148	260
Products of iron & steel, plated or coated with tin	71	..	86	12	88	2	94	3	78	2
Aluminium plate, sheet & strips (incl canstock)	107	2	138	1	254	1	242	2	254	1
Paper products-kraftliner	1	8	..	14	14	10	7	13	10	13
Sack kraft paper	4	3	4	3	5	3	2	3	3	3
Other kraft paper	5	35	6	55	6	70	3	78	3	73
Other uncoated paper (incl corrugating medium)	40	50	44	34	47	28	50	30	51	34
Corrugated paperboard	6	..	9	..	27	..	15	..	17	..
Coated paper & paperboard	12	49	16	56	9	60	10	68	18	76
Total ^a	349	328	421	349	576	371	534	388	582	462

.. Less than \$0.5 million.

a Figures will not necessarily sum to the total due to rounding.

Source: ABS, Cat. No. 5464.0 Int. Trade, Aust: Magnetic Tape Service

Table C.3: Trade in converted packaging products at current prices, 1990–91 to 1994–95
(\$million)

<i>Item</i>	<i>1990-91</i>		<i>1991-92</i>		<i>1992-93</i>		<i>1993-94</i>		<i>1994-95</i>	
	<i>Export</i>	<i>Import</i>								
Plastic products	48	341	71	491	73	600	80	608	103	636
Glass products	2	20	3	20	2	26	2	31	2	33
Aluminium foil	17	62	19	62	20	62	28	70	42	73
Aluminium containers	29	7	36	8	8	9	4	13	11	12
Steel containers	8	4	9	4	11	5	14	7	15	5
Paper cartons, boxes, cases, bags	15	25	28	33	27	35	22	43	22	37
Labels	7	12	10	14	14	16	16	17	20	17
Total ^a	125	472	176	631	154	752	165	789	217	813

a Figures will not necessarily sum to the total due to rounding.
Source: ABS, Cat. No. 5464.0 Int. Trade, Aust: Magnetic Tape Service

Table C.4: Converted packaging products as inputs to the value of production of food and beverages, 1982–83 and 1989–90

<i>Industry</i>	<i>Paper</i>		<i>Glass</i>		<i>Metal</i>		<i>Plastic</i>		<i>Total</i>	
	1982-83 (%)	1989-90 (%)								
Meat products	3	1	–	..	1	..	2	1	6	1
Milk products	1	1	1	..	1	..	2	2	4	3
Fruit & vegetable products	3	3	2	3	14	9	3	3	23	18
Margarine & oils & fats nec.	2	3	1	1	..	1	8	8	10	13
Flour mill & cereal food products	4	2	–	–	–	1	5	3
Bread, cakes & biscuits	2	1	–	–	1	..	3	4	5	5
Other food products	2	1	3	..	3	3	7	5
Beverages & malt	3	2	5	5	9	9	2	3	19	19
Average for food & beverages	2	2	1	1	3	3	2	3	9	8

– Nil.

.. Less than 0.5 per cent.

Source: ABS, *Australian National Accounts, Input-Output Tables, 1982-83 and 1989-90*, Cat. No. 5209.0, December 1988 and March 1994.

Table C.5: Exports of selected processed food and beverages, 1989–90 to 1994–95
(\$million)

	<i>1989-90</i>	<i>1990-91</i>	<i>1991-92</i>	<i>1992-93</i>	<i>1993-94</i>	<i>1994-95</i>
Vegetables, fruit, nuts & other edible parts of plants	1	1	2	2	2	2
Tomatoes, mushrooms & truffles	1	1	1	1	2	2
Frozen processed vegetables	1	1	1	4	8	14
Non-frozen processed vegetables	4	5	6	7	11	8
Glaced or crystallised fruit, nuts, fruit-peel & other parts of plants	8	8	8	8	9	10
Jams, fruit jellies, marmalades, fruit or nut puree & fruit or nut pastes	7	8	7	10	8	11
Canned fruit, nuts or other edible parts of plants	65	94	101	110	96	85
Fruit juices - bulk	1	1	1	2	3	3
Fruit juices - non-bulk	20	29	33	32	50	89
Canned dog and cat food	32	53	63	83	112	110
Dried dog or cat food	34	37	54	67	87	116
Bottled beer	14	18	15	8	8	11
Canned beer	40	47	45	44	45	47
Wine	119	180	243	293	365	385
Canned mineral & aerated waters	16	8	8	6	5	8
Other mineral & aerated waters	4	6	4	4	8	12

Source: ABS, Cat. No. 5464.0 Int. Trade, Aust: Magnetic Tape Service

D TARIFF PROVISIONS

D.1 Tariff Provisions for Inputs to Packaging and Labelling Activities and Converted Products, from 1 July 1996

Tariff Classification	Goods	General Rate from 1 July 1996 (%)	Special Rate (%)
3901	POLYMERS OF ETHYLENE, IN PRIMARY FORMS:		
3901.10.00	Polyethylene having a specific gravity of less than 0.94	5	DCS:5 CAN:Free
3901.20.00	Polyethylene having a specific gravity of 0.94 or more	5	DCS:5 CAN:Free
3901.30.00	Ethylene-vinyl acetate copolymers	5	DCS:5 CAN:Free
3901.90.00	Other	5	DCS:5 CAN:Free
3902	POLYMERS OF PROPYLENE OR OF OTHER OLEFINS, IN PRIMARY FORMS:		
3902.10.00	Polypropylene	5	DCS:5
3902.30.00	Propylene copolymers	5	DCS:5
3902.90.00	Other	5	DCS:5
3903	POLYMERS OF STYRENE, IN PRIMARY FORMS:		
3903.1	Polystyrene:		
3903.11.00	-Expansible	5	DCS:5 CAN:Free
3903.19.00	-Other	5	DCS:5 CAN:Free
3903.20.00	Styrene-acrylonitrile (SAN) copolymers	5	DCS:5 CAN:Free

3903.30.00	Acrylonitrile-butadiene-styrene (ABS) copolymers	5	DCS:5 CAN:Free
3903.90.00	Other	5	DCS:5 CAN:Free
3904	POLYMERS OF VINYL CHLORIDE OR OF OTHER HALOGENATED OLEFINS, IN PRIMARY FORMS:		
3904.10.00	Polyvinyl chloride, not mixed with any other substances	5	DCS:5 CAN:Free
3904.2	Other polyvinyl chloride:		
3904.21.00	-Non-plasticised	5	DCS:5 CAN:Free
3904.22.00	-Plasticised	5	DCS:5 CAN:Free
3904.30.00	Vinyl chloride-vinyl acetate copolymers	5	DCS:5 CAN:Free
3904.40.00	Other vinyl chloride copolymers	5	DCS:5 CAN:Free
3904.50.00	Vinylidene chloride polymers	5	DCS:5 CAN:Free
3907	POLYACETALS, OTHER POLYETHERS AND EPOXIDE RESINS, IN PRIMARY FORMS; POLYCARBONATES, ALKYD RESINS; POLYALLYL ESTERS AND OTHER POLYESTERS, IN PRIMARY FORMS:		
3907.60.00	Polyethylene terephthalate	5	DCS:5 CAN:Free
3907.9	Other polyesters:		
3907.91.00	-Unsaturated	5	DCS:5
3907.99	-Other:		
3907.99.10	--Polybutylene terephthalate	5	DCS:5 CAN:Free
3919	SELF-ADHESIVE PLATES, SHEETS, FILM, FOIL, TAPE, STRIP AND OTHER FLAT SHAPES, OF PLASTICS, WHETHER OR NOT IN ROLLS:		
3919.10.00	In rolls of a width not exceeding 20 cm	5	DCS:5

3919.90.00	Other	5	DCS:5
3920	OTHER PLATES, SHEETS, FILM, FOIL AND STRIP, OF PLASTICS, NON-CELLULAR AND NOT REINFORCED, LAMINATED, SUPPORTED OR SIMILARLY COMBINED WITH OTHER MATERIALS:		
3920.10.00	Of polymers of ethylene	5	DCS:5 CAN:Free
3920.20.00	Of polymers of propylene	5	DCS:5
3920.30.00	Of polymers of styrene	5	DCS:5 CAN:Free
3920.4	Of polymers of vinyl chloride:		
3920.41.00	-Rigid	5	DCS:5 CAN:Free
3920.42.00	-Flexible	5	DCS:5 CAN:Free
3920.5	Of acrylic polymers:		
3920.51.00	-Of polymethyl methacrylate	5	DCS:5
3920.59.00	-Other	5	DCS:5
3920.6	Of polycarbonates, alkyd resins, polyallyl esters or other polyesters:		
3920.61.00	-Of polycarbonates	5	DCS:5
3920.62.00	-Of polyethylene terephthalate	5	DCS:5
3920.63.00	-Of unsaturated polyesters	5	DCS:5
3920.69.00	-Of other polyesters	5	DCS:5
3920.7	Of cellulose or its chemical derivatives:		
3920.71.00	-Of regenerated cellulose		Free
3920.72.00	-Of vulcanised fibre		Free
3920.73.00	-Of cellulose acetate		Free
3920.79.00	-Of other cellulose derivatives		Free
3920.9	Of other plastics:		
3920.91.00	-Of polyvinyl butyral	5	DCS:5 CAN:Free
3920.92.00	-Of polyamides	5	DCS:5 CAN:Free
3920.93.00	-Of amino-resins	5	DCS:5
3920.94.00	-Of phenolic resins	5	DCS:5
3920.99.00	-Of other plastics	5	DCS:5

3923	ARTICLES FOR THE CONVEYANCE OR PACKING OF GOODS, OF PLASTICS; STOPPERS, LIDS, CAPS AND OTHER CLOSURES, OF PLASTICS:		
3923.10.00	Boxes, cases, crates and similar articles	5	DCS:5 CAN:Free
3923.2	Sacks and bags (including cones):		
3923.21.00	-Of polymers of ethylene	5	DCS:5
3923.29.00	-Of other plastics	5	DCS:5
3923.30.00	Carboys, bottles, flasks and similar articles	5	DCS:5 CAN:Free
3923.40.00	Spools, cops, bobbins and similar supports	5	DCS:5 CAN:Free
3923.50.00	Stoppers, lids, caps and other closures	5	DCS:5 CAN:Free
3923.90.00	Other	5	DCS:5 CAN:Free
4804	UNCOATED KRAFT PAPER AND PAPERBOARD, IN ROLLS OR SHEETS, OTHER THAN THAT OF 4802 or 4803:		
4804.1	Kraftliner:		
4804.11	-Unbleached:		
4804.11.10	--Weighing not more than 205 g/m ²	5	DCS:5 CAN:2.5
4804.11.90	--Other	5	DCS:4 CAN:2.5
4804.19	-Other:		
4804.19.10	--Weighing not more than 205 g/m ²	5	DCS:5 CAN:2.5
4804.19.90	--Other	5	DCS:4 CAN:2.5
4804.2	Sack kraft paper:		
4804.21.00	-Unbleached	5	DCS:5 CAN:4
4804.29.00	-Other	5	DCS:5
4804.3	Other kraft paper and paperboard weighing 150 g/m ² or less:		
4804.31.00	-Unbleached	5	DCS:5
4804.39.00	-Other	5	DCS:5

4804.4	Other kraft paper and paperboard weighing more than 150 g/m ² but less than 225 g/m ² :		
4804.41	-Unbleached:		
4804.41.10	--Weighing not more than 205 g/m ²	5	DCS:5
4804.41.90	--Other	5	
4804.42	-Bleached uniformly throughout the mass and of which more than 95% by weight of the total fibre content consists of wood fibres obtained by a chemical process:		
4804.42.10	--Weighing not more than 205 g/m ²	5	DCS:5
4804.42.90	--Other	5	
4804.49	-Other:		
4804.49.10	--Weighing not more than 205 g/m ²	5	DCS:5
4804.49.90	--Other	5	DCS:4
4804.5	Other kraft paper and paperboard weighing 225 g/m ² or more:		
4804.51.00	-Unbleached	5	
4804.52.00	-Bleached uniformly throughout the mass and of which more than 95% by weight of the total fibre content consists of wood fibres obtained by a chemical process	5	CAN:4
4804.59.00	-Other	5	
4805	OTHER UNCOATED PAPER AND PAPERBOARD, IN ROLLS OR SHEETS:		
4805.10	Semi-chemical fluting paper (corrugating medium):		
4805.10.10	-Weighing not more than 205 g/m ²	5	DCS:5
4805.10.90	-Other	5	
4805.2	Multi-ply paper and paperboard:		
4805.21	-Each layer bleached:		
4805.21.10	--Weighing not more than 205 g/m ²	5	DCS:5
4805.21.90	--Other	5	
4805.22	-With only one outer layer bleached:		
4805.22.10	--Weighing not more than 205 g/m ²	5	DCS:5
4805.22.90	--Other	5	
4805.23	-Having three or more layers, of which only the two outer layers are bleached:		

4805.23.10	--Weighing not more than 205 g/m ²	5	DCS:5
4805.23.90	--Other		
4805.29	-Other:		
4805.29.10	--Weighing not more than 205 g/m ²	5	DCS:7
4805.29.90	--Other	5	
4805.30.00	Sulphite wrapping paper	5	
4805.60	Other paper and paperboard, weighing 150 g/m ² or less:		
4805.60.10	-Weighing more than 22 g/m ²	5	DCS:5
4805.60.90	-Other	5	
4805.70	Other paper and paperboard, weighing more than 150 g/m ² but less than 225 g/m ² :		
4805.70.10	-Weighing not more than 205 g/m ²	5	DCS:5
4805.70.9	-Other		
4805.70.91	--Goods, as follows:	5	DCS:4
	(a) carton boards and box boards (including strawboards);		
	(b) container board (excluding kraft)		
4805.70.99	--Other	5	
4805.80	Other paper and paperboard, weighing 225 g/m ² or more:		
4805.80.10	--Goods, as follows:	5	DC:4
	(a) carton boards and box boards (including strawboards);		
	(b) container board (excluding kraft)		
4805.80.90	--Other	5	
4808	PAPER AND PAPERBOARD, CORRUGATED (WITH OR WITHOUT GLUED FLAT SURFACE SHEETS), CREPED, CRINKLED, EMBOSSSED OR PERFORATED, IN ROLLS OR SHEETS, OTHER THAN THAT OF 4803 OR 4818:		
4808.10	Corrugated paper and paperboard, whether or not perforated:		
4808.10.10	-Embossed or perforated, weighing not more than 205 g/m ²	5	DCS:5

4810	PAPER AND PAPERBOARD, COATED ON ONE OR BOTH SIDES WITH KAOLIN (CHINA CLAY) OR OTHER INORGANIC SUBSTANCES, WITH OR WITHOUT A BINDER, AND WITH NO OTHER COATING, WHETHER OR NOT SURFACE-COLOURED, SURFACE-DECORATED OR PRINTED, IN ROLLS OR SHEETS:		
4810.12	Weighing more than 150 g/m ² :		
4810.12.90	-Other	5	DCS:5
4810.3	Kraft paper and paperboard, other than that of a kind used for writing, printing or other graphic purposes:		
4810.31.00	-Bleached uniformly throughout the mass and of which more than 95% by weight of the total fibre content consists of wood fibres obtained by a chemical process, and weighing 150 g/m ² or less	5	DCS:5
4810.32.00	-Bleached uniformly throughout the mass and of which more than 95% by weight of the total fibre content consists of wood fibres obtained by a chemical process, and weighing more than 150 g/m ²	5	DCS:5
4810.39.00	-Other	5	DCS:5
4810.9	Other paper and paperboard:		
4810.91.00	-Multi-ply	5	DCS:5
4810.99.00	-Other	5	DCS:5
4811	PAPER, PAPERBOARD, CELLULOSE WADDING AND WEBS OF CELLULOSE FIBRES, COATED, IMPREGNATED, COVERED, SURFACE-COLOURED, SURFACE-DECORATED OR PRINTED, IN ROLLS OR SHEETS, OTHER THAN GOODS OF 4803, 4809, 4810 OR 4818:		

4811.3	Paper and paperboard coated, impregnated or covered with plastics (excluding adhesives):		
4811.31.00	-Bleached, weighing more than 150 g/m ²	5	DCS:5
4811.39.00	-Other	5	DCS:5 CAN:Free
4819	CARTONS, BOXES, CASES, BAGS AND OTHER PACKING CONTAINERS, OF PAPER, PAPERBOARD, CELLULOSE WADDING OR WEBS OF CELLULOSE FIBRES; BOX FILES, LETTER TRAYS, AND SIMILAR ARTICLES, OF PAPER OR PAPERBOARD OF A KIND USED IN OFFICES, SHOPS OR THE LIKE:		
4819.10.00	Cartons, boxes and cases, of corrugated paper or paperboard	5	DCS:5
4819.20.00	Folding cartons, boxes and cases, of non-corrugated paper or paperboard	5	DCS:5
4819.30.00	Sacks and bags, having a base of a width of 40 cm or more	5	DCS:5
4819.40.00	Other sacks and bags, including cones	5	DCS:5
4819.50.00	Other packing containers, including record sleeves	5	DCS:5
4819.60.00	Box files, letter trays, storage boxes and similar articles, of a kind used in offices, shops or the like	5	DCS:5
4821	PAPER OR PAPERBOARD LABELS OF ALL KINDS, WHETHER OR NOT PRINTED:		
4821.10.00	Printed	5	DCS:5
4821.90.00	Other	5	DCS:5

7010	CARBOYS, BOTTLES, FLASKS, JARS, POTS, PHIALS, AMPOULES AND OTHER CONTAINERS, OF GLASS, OF A KIND USED FOR THE CONVEYANCE OR PACKING OF GOODS, PRESERVING JARS OF GLASS, STOPPERS, LIDS AND OTHER CLOSURES, OF GLASS:		
7010.90	Other:		
7010.90.90	-Other	Free	
7210	FLAT-ROLLED PRODUCTS OF IRON OR NON-ALLOY STEEL, OR A WIDTH OF 600mm OR MORE, CLAD, PLATED OR COATED:		
7210.1	Plated or coated with tin:		
7210.11.00	-Of a thickness of 0.5 mm or more	5	
7210.12.00	-Of a thickness of less than 0.5 mm	5	
7310	TANKS, CASKS, DRUMS, CANS, BOXES AND SIMILAR CONTAINERS FOR ANY MATERIAL (OTHER THAN COMPRESSED OR LIQUEFIED GAS), OF IRON OR STEEL, OF A CAPACITY NOT EXCEEDING 300 L, WHETHER OR NOT LINED OR HEAT-INSULATED, BUT NOT FITTED WITH MECHANICAL OR THERMAL EQUIPMENT:		
7310.10.00	Of a capacity of 50 L or more	5	DCS:4
7310.2	Of a capacity of less than 50 L:		
7310.21.00	-Cans which are to be closed by soldering or crimping	5	DCS:4
7310.29.00	-Other	5	DCS:4
7606	ALUMINIUM PLATES, SHEETS AND STRIP, OF A THICKNESS EXCEEDING 0.2 mm:		
7606.12.00	-Of aluminium alloys		
7606.12.19	-Exceeding 1 500 mm in width, coiled	5	DCS:4

7607	ALUMINIUM FOIL (WHETHER OR NOT PRINTED OR BACKED WITH PAPER, PAPERBOARD, PLASTICS OR SIMILAR BACKING MATERIALS) OF A THICKNESS (EXCLUDING ANY BACKING) NOT EXCEEDING 0.2 mm:		
7607.1	Not backed:		
7607.11.00	-Rolled but not further worked	5	DCS:5
7607.19.00	-Other	5	DCS:5
7607.20.00	Backed	5	DCS:5
7612	ALUMINIUM CASKS, DRUMS, CANS, BOXES AND SIMILAR CONTAINERS (INCLUDING RIGID OR COLLAPSIBLE TUBULAR CONTAINERS), FOR ANY MATERIAL (OTHER THAN COMPRESSED OR LIQUEFIED GAS), OF A CAPACITY NOT EXCEEDING 300 L, WHETHER OR NOT LINED OR HEAT-INSULATED, BUT NOT FITTED WITH MECHANICAL OR THERMAL EQUIPMENT:		
7612.10.00	Collapsible tubular containers	5	DCS:5
7612.90.00	Other	5	DCS:5

Source: Customs Tariff

E WASTE MANAGEMENT POLICIES IN AUSTRALIA AND OTHER COUNTRIES

This appendix describes the major waste management policies affecting the disposal of used packaging in Australia and overseas, and covers the following areas:

- major policies in Australia at the Commonwealth and State levels (see Section E.1);
- policies in operation in parts of Europe, Japan, Taiwan, and the United States (see Section E.2); and
- elements of the ‘waste management hierarchy’, an important feature of many policies in this area, including relevant Australian practices (see Section E.3).

E.1 Waste management policies in Australia

The three levels of government are involved in waste management in Australia. State and Local governments are responsible for solid waste management, including the operation of landfills, the building of incinerators and the collection of garbage. States also regulate siting of landfill and incinerators, emission limits, and air and water quality standards. The Commonwealth’s responsibilities include international obligations on trans-border movements of intractable waste, pollution of high seas and atmospheric quality.

The Commonwealth, States and Territories have also combined to formulate and implement packaging policy initiatives such as the National Packaging Guidelines, the National Kerbside Recycling Strategy, and the National Waste Minimisation and Recycling Strategy.

E.1.1 Commonwealth initiatives

Performance targets in different areas of waste management — recycling, waste reduction, reuse — have formed an important part of waste management policies in Australia. They involve industry undertaking to meet voluntary targets as an alternative to government regulation. ‘Voluntary’ participation is against a backdrop of possibly stronger measures where targets are not met.

The Commonwealth, States and Territories have combined to formulate and implement policy initiatives which incorporate targets.

In Australia, several initiatives have set voluntary targets for recycling and waste reduction — National Packaging Guidelines; National Waste Minimisation and Recycling Strategy; National Kerbside Recycling Strategy; and National Strategy for Ecologically Sustainable Development. These are outlined in Chapter 6.

E.1.2 State Governments

E.1.2.1 New South Wales

While not specifically targeting packaging waste, there has been an increased emphasis on waste management issues in New South Wales in recent times. This is reflected in the previous Government's 1992 *Waste Management Green Paper*; the establishment of a Parliamentary Joint Select Committee to inquire into waste management in New South Wales and the subsequent release of the policy document *No Time to Waste*. The previous Government also set a target of reducing the amount of waste per capita going to landfill by 50 per cent by the year 2000, based on 1990 levels.

Waste management is co-ordinated in New South Wales by Waste Service New South Wales (formerly the Waste Management Authority). Operating as a government trading enterprise, the organisation operates depots for liquid and solid waste throughout Sydney. In 1991, the Waste Management Authority introduced a Council Recycling Rebate scheme in Sydney, where it would pay local councils a rebate of \$17.50 per tonne of waste diverted from landfill to recycling. In 1993, the rebate was increased to \$20 per tonne. Materials covered by the Council Recycling Rebate include paper, cardboard, glass, PET, HDPE, aluminium and steel cans, and liquidpaperboard.

In addition, there is a landfill levy in place of \$7.20 per tonne. These initiatives were part of the Sydney Solid Waste Management Strategy which also set a recycling target for solid waste.

The current Government has set a target of reducing the amount of waste per capita going to landfill by 60 per cent.

Government Pricing Tribunal Review

The Government Pricing Tribunal is currently undertaking a Review of Pricing Policies of the Waste Recycling and Processing Service of New South Wales. In August 1995, a Discussion Paper was released by the Tribunal.

The Tribunal has been asked to review the principles applicable to the pricing of putrescible waste disposal and related services currently managed by Waste Service New South Wales.

Waste Minimisation and Management Act

The *Waste Minimisation and Management Act 1995* was passed by the New South Wales Parliament in December 1995.

The Act, when promulgated, will formally adopt the Government's 60 per cent waste reduction by 2000 target, and the waste management hierarchy. As such, waste avoidance and reuse are preferred over recycling, with disposal as the last option.

Box E.1: Relevant New South Wales legislation

Environmental Offences and Penalties Act 1989: defines offences and penalties for pollution.

Environmental Planning and Assessment Act 1979: developments involving hazardous substances or processes requiring an environmental impact statement.

Land and Environment Court Act 1979: establishes court to deal with all cases of excessive environmental pollution.

Pollution Control Act 1970: licences and pollution control approvals as required under the *Clean Air Act 1961*.

Protection of the Environment Administration Act 1991: establishes and empowers the Environment Protection Authority (EPA).

Waste Disposal Act 1970: EPA licences or registers generators and transporters of waste, and waste depots within the Metropolitan Waste Disposal Region.

Source: ANZECC 1994

E.1.2.2 Victoria

As in New South Wales, Victorian policy in the area of packaging waste is an element of broader waste management strategies applicable to industry at the production stage and at the disposal stage.

A key feature of this overall policy applicable to the downstream packaging industry includes the obligation under the *Environment Protection Act 1970* to negotiate Industry Waste Reduction Agreements (IWRA) as a means of achieving the target of 50 per cent reduction in waste to landfill by 2000. The Act obliges companies that create or sell items that end up in landfill to negotiate an IWRA which commits companies to identify, reduce, reuse,

recycle, and recover waste from manufacture and post-consumption. For example, an IWRA with the aluminium can industry commits the industry to a 25 per cent reduction in the weight of aluminium cans going to landfill by 1995.

The Act also imposes a levy on waste disposal, and creates a Recycling and Resource Recovery Council (RRRC) and a Waste Management Council. The levy is \$2 per tonne on municipal waste and \$3 per tonne on other waste going to landfill. Fifty five per cent of revenue raised goes to the Waste Management Council and other waste management groups; 35 per cent to the RRRC; and the remainder to the EPA.

Box E.2: Relevant Victorian legislation

Environment Effects Act 1978: environmental impacts of any new development must be considered.

Environment Protection Act 1970: establishes the EPA with powers covering pollution minimisation and industrial waste, including Industrial Waste Management Policy. A State Environment Protection Policy under the Act controls the management and siting of landfills.

Environment Protection (Fees and Penalties) Act 1990: penalties for offences under the EP Act.

Environment Protection (Resource Recovery) Act 1992: amends the EP Act and establishes the Waste Management Council to develop (among other things) recycling and waste reduction strategies, and encourage reuse.

Litter Act 1987: makes it an offence to throw away litter in a public place.

Local Government Act 1958: Councils' powers for the control of waste disposal.

Planning and Environment Act 1987: regulates planning and use of land.

Renewable Energy Authority Victoria Act 1990: encourages minimal energy use and environmentally friendly materials in developments.

Source: ANZECC 1994

Victorian Litter Reduction Strategy

In September 1995, the Victorian Government released its litter reduction strategy. The Strategy emphasises the need for research and data collection on both behaviour and products prior to developing a policy response.

Following research, policies would be implemented — linked to identified behaviour, products and places. For 'people', policies may include addressing specific audiences, and providing infrastructure for litter disposal. For

‘products’, policies may look at product design issues. For ‘places’, policies may aim to improve municipal systems to minimise litter.

E.1.2.3 South Australia

In 1993, a new *Environment Protection Act* established the EPA (replacing the Waste Management Commission), and consolidated existing environmental legislation. The Act’s stated goals include waste minimisation and the encouragement of recycling in the context of ecologically sustainable development principles.

Box E.3: Relevant South Australian legislation

Environment Protection Act 1993: establishes the EPA with a brief to report on environmental matters; sets and enforces pollution standards; administers provisions from repealed *Beverage Container Act 1975*; promotes recycling and reuse.

Local Government Act 1934: councils responsible for litter and waste disposal.

Places of Public Entertainment Act 1913: controls throwing/dropping of waste.

Police Offences Act 1953: owner’s consent required for dumping rubbish on any land.

Public and Environmental Health Act 1987: offence to discharge waste in a public area.

Source: ANZECC 1994

The EPA also co-administers a ‘Cleaner Industries Demonstration Scheme’, in conjunction with the Commonwealth Environment Protection Agency, and the South Australian Economic Development Authority. This scheme provides assistance to companies to develop cleaner production techniques and reduce material and waste treatment costs.

Councils are encouraged to implement a kerbside and greenwaste recycling scheme. The Government has committed \$7 million to a co-ordinated waste recycling scheme and provided financial assistance for regional recycling depots.

The distinguishing feature of Government initiatives in reducing packaging waste in South Australia is the existence of container deposit legislation (CDL) since 1975. This is discussed in Chapter 5.

E.1.2.4 Queensland

There are numerous projects underway in Queensland with the stated aim of establishing an integrated waste management system. Several of these initiatives have a packaging waste focus, and include:

- development of draft Waste Management Strategy, which identifies two components of the objective of effective waste management: waste minimisation and waste containment;
- co-funding (with Queensland Recycling Advisory Council) for a grant scheme to local government for the establishment of community recycling programs for glass, plastic, liquidpaperboard, steel, aluminium and paper;
- a State Purchasing Policy which aims to remove any impediments to the use of recycled products; and
- establishment of a Recycling Industry Incentive Scheme to develop markets for recyclables, involving an allocation of \$3 million over the period 1994–95 to 1997–98.

In addition, the Brisbane City Council runs an extensive kerbside collection program, with contracts with Cleanaway and Pacific Waste Management.

Box E.4: Relevant Queensland legislation

Contaminated Land Act 1991: compulsory notification of contaminated land, no development allowed on land declared as contaminated.

Environment Protection Act 1994: standards and the development of Environment Protection Policies for specific pollutants or geographic areas.

Repealed the *Clean Air Act 1963*; *Clean Waters Act 1971*; *Noise Abatement Act 1978*; *Litter Act 1971*; and *State Environment Act 1988*.

Health Act 1937: disposal of solid waste is the responsibility of local government.

Local Government (Planning and Environment) Act 1990: solid waste disposal must be properly undertaken by local government.

Source: ANZECC 1994

E.1.2.5 Western Australia

Box E.5: Relevant Western Australian legislation

Environmental Protection Act 1986: controls pollution; continues the EPA with powers to establish policies and regulate disposal of solid waste.

Health Act 1911: local authorities may make by-laws in the area of sanitary controls.

Litter Act 1979: makes it an offence to litter; incorporates the Keep Australia Beautiful Council Western Australia.

Police Act 1892: regulations controlling litter and unauthorised rubbish disposal.

Source: ANZECC 1994

Policies directed toward waste management issues emerged in the early 1990s. In 1991 a Health Department Working Group reported on waste management strategies for the future. In 1992, a landfill levy was introduced to support a Recycling and Waste Minimisation Fund, which would assist local government establish collection and recycling networks. In 1993, the Government released a State Recycling Blueprint which included a range of measures, including full cost recovery for landfill and a plan to halve waste going to landfill by 2000 (Western Australia Department of Commerce and Trade and the Western Australian Municipal Association 1993).

In addition to supporting the national recycling targets, the Western Australian Government has set additional targets for individual materials — relevant to packaging is cardboard with a 1995 target of 40 per cent.

Both the Health Department and the EPA are involved in aspects of waste management regulation.

E.1.2.6 Tasmania

In 1992, the Government released a position paper *Tasmanian Solid Waste Management Policy* (Tasmanian Department of Environment and Planning 1992), which stressed waste minimisation as an objective. Goals included a reduction in waste going to landfill of 50 per cent before 2000, and recycling targets.

The Tasmanian Solid Waste Management Policy was subsequently released in 1994, and includes a number of measures promoting waste minimisation and recycling. Included among them is a proposal for a voluntary manufacturing levy, with the funds being used to improve the recycling infrastructure. Legislation currently before parliament contains a proposal for a waste levy on solid waste going to landfill which would also be used to encourage recycling and waste minimisation.

Box E.6: Relevant Tasmanian legislation

Environmental Protection Act 1983: establishes position of Director of Environmental Control with responsibilities to protect the environment and prevent pollution; prohibits disposal of waste without a permit.

Litter Act 1973: penalties for littering.

Local Government Act 1993: local government has control of waste and refuse disposal.

State Policies and Projects Act 1993: replaces regulations establishing environmental standards with 'Sustainable Development Policies'.

Source: ANZECC 1994

E.1.2.7 Northern Territory

Limited recycling occurs in the Northern Territory — a consequence of the distance from reprocessing plants.

In response to a perceived shortage of landfill space, in 1993 the Darwin City Council implemented a composting campaign as a means of reducing the amount of waste going to landfill.

Box E.7: Relevant Northern Territory legislation

Conservation Commission Act 1980: establishes the Commission with responsibilities for environmental management and development of environmental impact studies.

Environmental Assessment Act 1982: requires assessment of any environmental effects of development proposals.

Litter Act 1972: outlaws littering of public lands.

Local Government Act 1993: local councils regulate matters such as waste management; collection of garbage and operation of landfills.

Public Health Act 1952: control of waste, including garbage bins.

Source: ANZECC 1994

E.1.2.8 Australian Capital Territory

Packaging waste has not been specifically targeted by current waste management policies in the ACT. However, the ACT Legislative Assembly Standing Committee on Conservation, Heritage and Environment considered the introduction of a deposit refund system to encourage the recycling of beverage containers. A recommendation to this effect was deferred pending an

assessment of the existing kerbside recycling scheme (ACT Waste Management, sub. 14, p. 2).

Box E.8: Relevant Australian Capital Territory legislation

Commissioner for the Environment Act 1993: creates office of Commissioner to oversee environmental management in the ACT.

Land (Planning and Environment) Act 1991: controls planning decisions; environmental impact study required if waste disposal involved.

Litter Act 1977: littering is an offence.

Source: ANZECC 1994

E.2 Waste management policies in other countries

In the past decade, packaging waste has been an important focus of environmental policy internationally. For example, the majority of OECD member States have approved programs to avoid and reduce packaging waste.

The level of waste, and economic and environmental viability of waste disposal options, vary significantly around the world. This diversity has led to a range of different policy approaches.

Table E.1: Household waste per capita

	(kg)
Germany (1990)	417
France(1993)	348
Belgium(1993)	358
Netherlands (1992)	484
Japan (1991)	400
Great Britain (1990/91)	347
USA (1991)	701

Source:DSD 1995

Two features distinguish European approaches to packaging waste management: extended producer liability (EPL) and the existence of a waste minimisation hierarchy. EPL seeks to transfer the costs of waste management away from government and the taxpayer to the suppliers and the users of the product. Examples of EPL approaches include deposit refund schemes, product take back schemes and voluntary agreements.

The waste minimisation ‘hierarchy’ exists in several programs. The German Packaging Ordinance formalises a hierarchy including avoidance as the priority, maintaining systems for reuse, and giving priority to recycling over incineration.

E.2.1 European Directive on Packaging and Packaging Waste

The European Commission (EC) has been active in considering the issue of waste control. Prior to 1990, the approach saw different waste ‘problems’ being

dealt with on an individual basis. For example, there were directives on beverage containers (85/769) and waste paper (81/972). In 1985, a Liquid Food Container Directive was instituted which required that countries develop national programs for reducing the weight and volume of liquid food containers in household waste. Widespread non-compliance saw this Directive jettisoned in 1989, and the new approach saw the identification of four priority waste streams: packaging waste, plastics, halogenated hydrocarbons and used motor vehicle tyres. In the case of packaging waste, the new proposal was for countries to develop voluntary agreements with industry concerning recycling targets.

The subsequent development of the Directive on Packaging and Packaging Waste reflected the difficulties in reaching consensus on the issue throughout Europe. Following significant debate, the Directive was finalised in late 1994 (Packaging and Packaging Waste Directive (94/62/EC). The status of the directive is that Governments of member States must take whatever action is necessary to ensure compliance, and they have until July 1996 to do so.

The Directive has two key objectives:

- reduction in the overall impact of packaging and packaging waste on the environment; and
- removal of obstacles to trade and distortions in competition.

The Directive covers all packaging placed on the market within the EU, and will affect all companies operating in the packaging industry in the EU, including those engaged in packaging raw material supply, converters, and producers and distributors of packaged goods.

It also uses the following waste management hierarchy:

- source reduction;
- reuse;
- recycling (including composting and biomethanisation);
- energy recovery;
- incineration without energy recovery; and
- landfill.

National Governments are required to ensure that collection systems are set up for used packaging, and that recovery and recycling targets are met.

The Directive also sets recycling rate objectives between 25 and 45 per cent of total packaging waste by weight, with a minimum per material of 15 per cent.

Total recovery objectives of packaging waste are between 50 per cent and 65 per cent by the year 2001.

Higher targets may be set by member States, but the European Commission must be satisfied that there is capacity to deal with the material and it will not interfere with other States. Member States must also issue overall waste management plans, including a plan dealing specifically with packaging waste management.

In addition, by 1998 member States may only allow packaging which meets certain 'essential requirements', and there must be free trade for packaging which complies. 'Essential requirements' include factors such as the minimisation of packaging weight and volume to the amount needed for safety and consumer acceptance.

An important aim of the Directive is to bring existing and proposed national measures closer together so as to reduce the impact of national strategies on third countries.

E.2.1.1 Environmental legislation and trade in Europe

In Europe, there is concern regarding the impact of environmental legislation on trade. One example concerns mandatory refillable containers, which have been argued to increase the costs of imported goods relative to domestically produced beverages, and restrict the sale of imports.

A case in point is the Danish ban on non-refillable containers. Following the ban, German imports of beer fell dramatically. In 1991 the European Commission (EC) sued the government of Denmark, contending that the country was using the ban on non-refillables as a form of trade protection. The argument was rejected by the European Court, which ruled that protection of the environment takes precedence over free trade.

In 1995, the EC is planning to mount a case in the European Court against the German Government for an infringement of the European Union Treaty. The EC is arguing that the German DSD system and the refillables quota restrict trade insofar as they prevent European drink manufacturers from getting access to the German market.

E.2.2 Germany

Environmental issues have been an major public concern in Germany. In terms of packaging and waste management, one element of this has been community

resistance to new landfill and incineration facilities. One consequence has been a focus on finding alternative means of waste disposal.

Legislation related to waste management was first introduced in Germany in the early 1970s. In 1975 the Government set up a Waste Management Program, many features of which became part of an amended Waste Disposal Act in 1986. This Program, and supporting legislation, imposed a general obligation to avoid waste, and accorded priority to recycling and reuse over other forms of disposal.

Packaging products were selectively targeted. For example, in 1988 a regulation was introduced which imposed high deposits on certain beverage containers, mainly affecting plastics. In 1989 recycling targets were set for glass and metal containers, and in 1990 new regulations imposed recycling targets and labelling requirements for plastics.

The *Waste Avoidance and Waste Management Act of 1990* further codified the avoid, reuse, recycle approach, and included provisions empowering the Government to take action on individual products. Furthermore, Technical Instructions and ordinances effective from 1991 required that waste treatments should render products environmentally inert.

German regulation of packaging waste is now dominated by the Packaging Directive and Draft Regulation, both issued in 1990 (operational in 1991), and resulting Duales Scheme. These have since been integrated into the *Product Recycling and Waste Management Act 1994*.

E.2.2.1 The German Packaging Ordinance

The Packaging Directive defines three types of packaging: transport, sales and secondary. Transport packaging refers to packaging which protects goods being transported from the manufacturer to the retailer. Sales packaging is the main form of protection of a product up to the point of consumption. Secondary packaging refers to packaging which is additional to sales packaging, which serves, for example, an advertising or anti-theft function.

Under the German Directive, collection and disposal costs previously borne by the Government are now borne by product manufacturers, distributors, retailers, and consumers. The Directive includes collection, sorting, and recycling quotas for packaging materials. As of 1 July 1995, 80 per cent of packaging waste material must be collected, between 80 and 90 per cent must be sorted, and between 64 and 72 per cent must be recycled (see Table E.2).

The Directive has operated in stages, with one overriding caveat that it does not apply to packaging contaminated by pollution. Stage one required that from

December 1991, manufacturers and sellers were obliged to take back transport packaging (but were not required to collect it); stage two, that from April 1992, the retail sector take back secondary packaging at or near the point of sale; stage three, that from January 1993, retailers take back used sales packaging. Disposal of packaging in landfill or incineration is banned.

Table E.2: Collection, sorting, and recycling targets

<i>Material</i>	<i>from Jan 1993</i>			<i>from July 1995</i>		
	<i>Collect</i>	<i>Sort</i>	<i>Recycle</i>	<i>Collect</i>	<i>Sort</i>	<i>Recycle</i>
	(%)	(%)	(%)	(%)	(%)	(%)
Aluminium	30	60	18	80	90	72
Tinplate	40	65	26	80	90	72
Glass	60	70	42	80	90	72
Composites	20	30	6	80	80	64
Plastics	30	30	9	80	80	64
Paper and cardboard	30	60	18	80	80	64

Sources: OECD 1995; DSD 1995

The Government subsequently agreed that the stage three obligations would not apply to firms who are part of an alternative waste management system set up by industry. However, if the alternative system did not meet the specified recycling and reuse¹ targets by 1 July 1995, distributors would be required to take back sales packaging at the point of sale.

Industry then set up and financed an organisation responsible for all collection and sorting, known as DSD (Gesellschaft Duales System Deutschland mbH). This operates in parallel with other government collection systems. The manufacturers guarantee complete pickup of sorted materials.

Collection and sorting is funded by the 'green dot' trademark, where manufacturers or distributors pay a licence fee for packaging on the market. The 'green dot' guarantees collection. The licence fee is calculated according to the type of packaging material, the weight of the material, and the volume used,

¹ In the case of beverage containers (for beer, wine, soft drinks), even if collection and sorting targets are met, a container deposit system will be imposed if the market share of refillable containers drops below 72 per cent of the national level existing at the time of the introduction of the Ordinance. There is also a separate refillables quota for pasteurised milk of 17 per cent.

and reflects costs of disposal. In August 1994, there were around 17 600 subscribers to the green spot.

Table E.3 describes some of the weight-related fees.

Table E.3: 'Green dot' fees

<i>Material</i>	<i>Fee</i> (DM/kg)
Glass	0.15
Paper and cardboard	0.40
Tinplate	0.56
Aluminium	1.50
Plastic	2.95

Source: DSD 1995

In addition to the weight related fee, there is also the item fee based on package volume or surface area.

The costs and benefits of the dual system are discussed in Chapter 7.

The German Federal Government sees the packaging regime as a first step towards a culture change in waste management within Germany. Packaging was best suited for this purpose because of its high profile in the community. Ultimately, all waste will be subject to similar regimes².

With regard to reuse, a mandatory deposit will be placed on any beverage container if the collection targets are not achieved, and if the national market share of refillable containers falls below 72 per cent. This applies to all beverages (except dessert wines), although there is a separate quota of 17 per cent for pasteurised milk.

DSD³ claims that the amount of packaging consumed in Germany has declined by almost one million tonnes since the introduction of the Directive, with total packaging consumption recently estimated at 7 million tonnes (DSD 1995).

Other sources estimate that 14 to 15 million tonnes of used packaging are produced in Germany annually. Of this, ultimately 9 million tonnes will be diverted from the waste stream through the operation of the directive.⁴ In 1990, total municipal wastes in Germany were 28 million tonnes (OECD 1993). DSD estimated that they would handle around 6.7 million tonnes annually (Brisson 1993).

² In 1994, the *Product Recycling and Waste Management Act* was passed which envisages extending manufacturer's responsibility to other sectors (DSD 1995).

³ Duales System Deutschland GmbH (DSD) — the industry-financed organisation responsible for all collection and sorting.

⁴ These figures are quoted in Perchards (1994), and are based on GVM (Gesellschaft für Verpackungmarktforschung) (1993) *Development of packaging consumption 1992–1995 estimate/forecast*. However, while this estimate represents a halving of the amount of used packaging entering the waste stream, it still represents only 3 per cent of total municipal wastes.

Any benefits have come at high costs. In 1994, the cost of the dual system was estimated at around DM3 billion, or DM40 per person (Schnurer 1995). The DSD itself estimated set up costs of around DM7 billion and annual costs of around DM 3 billion, which implies costs of around DM 450 per tonne (Brisson 1993). Brisson has estimated that landfill user costs would need to be around DM 300–350 to cover the costs of the German system.

Brisson has argued that there are several other shortcomings inherent in the German scheme:

- a major underlying assumption is that all recycling is beneficial, irrespective of costs;
- packaging must be returned and reused or reprocessed, but this must occur outside the existing municipal waste system, thereby imposing additional costs;
- ‘green dot’ licence fees, designed to fund the collection system, are based on volume of packaging before use. In failing to reflect differences in collection and sorting costs, there is no incentive to avoid materials which are expensive to collect and sort; and
- the achievement of collection, sorting, and reprocessing targets depends on consumer participation (to the extent that they must sort and return materials). However, there is no legal mechanism to enforce this (Brisson 1993).

Some German Lands have also introduced local waste management laws. For example, the city of Kassel has imposed a tax on non-reusable foodservice packaging, with exemptions for items collected through the DSD. A similar tax has been introduced in Frankfurt and Kiel. However, in Frankfurt there is no exemption, and in Kiel, tax rates are linked to the level of recycling.

E.2.3 France

The French Government’s National Plan for the Environment (issued in 1990) provides the backdrop for subsequent packaging industry initiatives. The plan outlined key objectives for waste management (for example, to limit waste at source), and set a target of 15 per cent recycling for domestic waste within five years in towns with a population of more than 100 000. In 1993, a target was announced requiring 75 per cent of all packaging be recycled or the energy recovered by 2003.

The legal framework dealing with packaging disposal in France includes the 1992 Packaging Ordinance (no. 92–377), which requires manufacturers and

importers to recover and recycle household packaging materials. A recovery quota of 75 per cent applies from 2002.

A more recent 1994 Transport Packaging Ordinance (no. 94-609) applies to all packaging not consumed in private households. It does not apply to final users of packaging where weekly volumes of used packaging are less than 1 100 litres. The separation of domestic and commercial waste arose because municipalities had been solely responsible for the collection of domestic waste under French law.

A general waste management law requires prevention as the first priority, then material or energy recovery. In 1993, a target was announced requiring 75 per cent of all packaging to be recycled or the energy recovered by 2003.

The packaging ordinances require product manufacturers and importers to recover household packaging materials. In meeting their obligations, companies can choose whether they:

- operate a packaging deposit system;
- join a collective (government approved) collection organisation;
- set up their own recovery system which must also be approved by government.

Most companies opted for the collective scheme, and in 1992 Eco-Emballage S.A. became the first of these organisations, approved by the Government for six years. Packaging companies finance the organisation, which purchases waste from municipalities (who remain responsible for collection and sorting), for processing by recycling or incineration firms. Participating companies are exempted from the legal requirement to dispose of their own packaging waste.

A 'green dot' system also operates under the company, whereby participating companies are able to certify their packages as being recyclable. Around 80 per cent of products sold to households are marked in this way (OECD 1995a).

Several other companies have been established to undertake recycling.

A company known as Adelphe was established in 1993 which is involved in the collection of all types of glass packaging. Manufacturers and bottlers of wine and spirits finance this organisation. Glass is collected via a drop off system.

For the pharmaceutical industry, a collection company (Cyclamed) was established in 1993. It is funded by pharmaceutical companies which contribute 0.03 per cent of their turnover. Local chemists hand out green bags to their

customers who return with old medicines and packaging. Anything that cannot be reused is sent back to the pharmaceutical companies and incinerated.

The wood industry established a collection company (Eco-Bois) in 1993, to collect wooden packaging.

E.2.4 Belgium

The *Environment Tax Act 1994* ('The Ecotax law') introduced an environment tax and compulsory deposits, in addition to requirements for the take back and recycling of packaging. Six product groups are identified:

- carbonated drinks;
- disposable products;
- batteries;
- products containing harmful substances;
- pesticides, plant based pharmaceuticals; and
- paper and cardboard.

For beverage containers, and paper and cardboard, there may be exemptions from the environment tax if reuse or recycling targets are met. For example, for beverage containers there may be a tax exemption if a returnable container has been re-filled seven times, and the packaging is clearly labelled to indicate that a deposit has been charged and the package is reusable. In the case of lemonade, there is a condition in addition to the refillable quota — the remaining single trip containers must be recycled.

Of all beverages supplied, quotas on the proportion of reusable containers apply. For example, in 1995, 48 per cent of all sparkling water containers and 94 per cent on all beer containers sold must be reusable. In addition, there are recycling quotas for glass, plastics, and metals in single use packaging.

As is the case in Germany and France, industry and retailers formed an organisation to undertake collection and recycling, known as 'Fost Plus'. Fost Plus is funded from licence fees paid for the use of the 'green dot' symbol, which are based on weight and material type.

Fost Plus undertakes kerbside collection of plastics, metals, and beverage containers. There are drop-off points for glass.

The objective of Fost Plus is to fulfil a recovery quota of 75 per cent by 2000.

E.2.5 The Netherlands

In 1991, the Dutch packaging industry (represented by the Stichting Verpakking en Milieu (SVM) the Packaging Environment Foundation) and the Dutch Government signed a formal Packaging Covenant. The Covenant set out undertakings of both the industry and the government.

The industry committed to a range of initiatives, which included:

- reducing to nil the amount of packaging waste going to landfill or incineration without energy recovery by 2000;
- reducing the amount of new (not refilled or recycled) packaging to less than 90 per cent of the 1986 figure;
- by the end of 1995, recycle at least 80 per cent of one way glass; 60 per cent of paper and board packaging; 50 per cent of plastic bottles; and 75 per cent of metal packaging;
- reducing the number of polymers used in packaging; and
- replacing materials which cannot be recycled into high quality materials.

SVM is required to report to the Government annually. The Government's obligations include the creation of a legal framework for packaging reduction, prohibition of landfill and the development of recycling capacity.

E.2.6 Japan

To date, there have been no specific packaging initiatives in Japan. However, a proposed law for the 'Promotion and Sorted Collection and Valorization of Waste Containers, Packages and Wrapping' is currently under consideration.

The impetus for the new law has come from an impending shortage of landfill, exacerbated by annual growth rates in municipal solid wastes of 3.2 per cent between 1985 and 1990 (Pacific Waste Management Institute 1995).

The law will apply to all waste packages discharged as municipal solid wastes. The main objectives of the law relate to the collection, sorting, and recycling of waste.

Responsibility for collection and sorting rests with municipalities, while users and manufacturers are responsible for recycling following sorting. The recycling obligation is shared, and calculated on the basis of the proportion of sales.

The Government 'presumes' the use of oil recovery for plastics other than PET, and the plastics industry is given five years from implementation of the law to develop the technology.

The cost of the law has been estimated at ¥105.1 billion per year (approximately \$AUD1.4 billion). Of that, ¥94.3 billion (\$AUD1.3 billion) is allocated to the treatment for oil recovery of plastics other than PET.

E.2.7 Taiwan

As a means of reducing packaging waste, four ordinances have been issued relating to:

- aluminium cans;
- tin cans;
- PET bottles; and
- foamed plastic packaging.

In 1990, the 'Waste Aluminium Cans Recycle Disposal Treatment Measures Ordinance' came into force. It requires manufacturers, importers, and retailers of aluminium cans to meet recycling quotas which are specified each year. The quotas were 30 per cent in 1991, and 55 per cent in 1992.

At the same time the 'Waste Iron Cans Recycle Disposal Treatment Measures' specified recycling quotas of 20 per cent and 55 per cent in 1991 and 1992 respectively.

PET bottles in the waste stream have been a particular problem in Taiwan. In addition to a recycling quota of 55 per cent, a deposit has been applied.

The ordinance on foamed plastic packaging does not impose quotas.

E.2.8 United States of America

Policies regarding waste management and packaging vary dramatically between the States, and it is therefore not possible to generalise a national approach.

In all, 37 States have recycling targets, with quotas ranging from 20 per cent to 70 per cent, and timelines for achievement up to 2010.

The issue of packaging waste approaches something of the significance found in Europe in California, where there is a waste reduction target of 50 per cent by 2000 for waste going to landfill. There is also a recycled content law which ties

government agencies and local authorities to a preferential purchasing policy for goods with recycled content.

In addition, from 1995, plastic bags must have a recycled content of 30 per cent; and from 2005, glass bottles must have recycled content of 65 per cent. From 1995, rigid plastic containers must either be reduced in volume or weight by 10 per cent or be refilled five times.

Some States ban the disposal of packaging materials (such as recyclable beverage containers), and South Dakota is to ban glass, metal, and plastic containers, and other paper packaging from 1997 (Puplick and Kirk 1994).

E.2.9 Great Britain

In contrast to other parts of Europe, packaging waste has not been seen as a major public issue in Great Britain.

Figures from 1990 indicate no household waste was recorded as being recycled or composted (OECD 1993). Similarly, DSD cite 1991 figures which indicate that 83 per cent of household waste went to landfill, 13 per cent was incinerated, but none was recycled (DSD 1995). More recent figures indicate household packaging recycling rates of 14 per cent (Perchards 1994).

In 1993, the Government asked the packaging industry to develop a program of producer responsibility. The Producer Responsibility Industry Group (PRG) was asked to prepare proposals on the introduction of a nationwide collection and recovery system.

The PRG reported in early 1994, and proposed, among other things, that:

- 60 per cent of industrial packaging and 35 per cent of household packaging be recovered or recycled by 2000; and
- local authorities be obliged to organise collection and sorting systems.

E.3 The waste hierarchy

The management of packaging waste is often described in terms of the 'waste hierarchy'. The elements of the hierarchy are:

- source reduction (reduce);
- material recovery (reuse, recycle);
- energy recovery (incineration); and
- landfill disposal.

Proponents of the hierarchy consider that the higher the option in the list the better the option, and therefore reduce, reuse, and recycling should be preferred over disposal solutions.

E.3.1 Source reduction

This section discusses the various trends, pressures, incentives and developments in the reduction of packaging at source. It also discusses current 'reduce' policies, and their benefits and costs.

A number of strategies have been proposed or implemented to reduce the materials used in packaging. These include:

- weight reduction;
- substitution to lighter materials;
- reductions in air; and
- reductions in excessive packaging.

E.3.1.1 Weight reduction

Table E.4: Lightweighting of packaging material

<i>Packaging type</i>	<i>Approximate weight reduction (%)</i>
Steel can (440g)	18 (since 1980)
Corrugated box	30 (since 1970)
Aluminium beer cans (375 ml)	29 (since 1969)
PET bottle (1 l)	38 (since 1978)
Milk carton (HDPE)	30 (since 1980)
Beer stubby (375 ml)	35 (since 1980)

Source: PCA, sub. 57

Advances have occurred through improvements in technology and design. Table E.4 lists some examples of lightweighting of packaging designs.

E.3.1.2 Substitution to lighter materials

Substitution between types of packaging material, more specifically increased use of lighter materials such as plastics, has led to less waste by weight. Kemcor argued that the use of HDPE containers for packaging milk contributes to lower volumes of waste going to landfill (sub. 80, App. 1).

E.3.1.3 Reduction in air

Less air in a package also means less packaging material. However, air in packaging is generally associated with the lighter weight packaging materials such as plastic and plastic composite materials. It is not clear that trends toward

this form of packaging has exacerbated environmental problems associated with packaging.

E.3.1.4 Excessive packaging

Some proponents of 'reduce' policies argue that one important source of waste is excessive secondary packaging. Secondary packaging is packaging that serves no protective purpose, for example, the packaging of a number of separately packaged goods. Friends of the Earth submitted that nearly 50 000 tonnes of packaging was discarded at the point of retail sales in Germany and that 119 types of packaging had been entirely eliminated as a result of the current policies (sub. 22, p. 6).

E.3.1.5 'Reduce' policies

Source reduction is placed at the top of the hierarchy of preferred policy actions in the *National Waste Minimisation and Recycling Strategy*. In addition, the Packaging Guidelines encourage the design of packaging to use materials as economically as possible, while taking into account the role of packaging in protection, preservation and presentation.

Packaging companies also include source reduction in their environmental policy statements. For example, Southcorp's environmental policy includes a commitment to:

... lightweighting by exploring methods to reduce weight and volume of raw materials used in the manufacture of packaging products. (sub. 97, Att. D)

E.3.2 Reuse

This section discusses reuse in Australia and overseas, and considers the costs and benefits of reusable containers, drawing on some case histories and studies, and include the impact on recycling and trade in packaged goods. The section then draws some conclusions on the viability of reuse.

E.3.2.1 Reuse in Australia

The mix of beverage containers for beer, carbonated beverages and milk have altered over the last decade. There has been a trend away from both reusable and single use glass bottles, with PET, and aluminium and steel cans picking up a larger share of the market.

Carbonated beverages

The major change in carbonated beverages packaging since 1985 has been greater use of PET at the expense of both returnable and non-returnable glass (see Table E.5). Significantly, the decline in the use of non-refillable glass bottles has been greater than that for refillable glass bottles. In South Australia (as a result of CDL), refillable glass bottles still have a 40 per cent market share compared with the national average of 12 per cent.

Table E.5: Trends in carbonated beverages packaging mix (by volume), 1995

<i>Material</i>	<i>Share</i>		
	<i>1985</i>	<i>1990</i>	<i>1994</i>
	(%)	(%)	(%)
Aluminium cans	30	32	31
Returnable glass	20	12	7
Non-returnable glass	17	8	4
PET	34	49	57

Source: Australasian Softdrink Association; Packaging Council of Australia

Milk

In the case of plain milk, the trend away from reusable glass has been more pronounced with HDPE the major beneficiary (see Table E.6). Single use glass containers are not used for milk.

Table E.6: Trends in plain milk packaging mix (by volume), 1995

<i>Material</i>	<i>Share</i>		
	<i>1985</i>	<i>1990</i>	<i>1995</i>
	(%)	(%)	(%)
Returnable glass	15	6	1
HDPE	10	43	51
Paperboard	75	51	49

Sources: Association of Liquidpaperboard Carton Manufacturers; Packaging Council of Australia

The 1 per cent of the milk market devoted to refillable glass bottles is concentrated in Brisbane.

The fall in the market share of refillable bottles for plain milk may be attributed to a number of factors, including changes in shopping patterns.

Beer

In the beer beverage market, single use glass has increased market share at the expense of returnable glass bottles and aluminium cans.

The decline in the use of refillable glass for beer may be attributed to several factors which affect viability, including the consolidation of beer production facilities, resulting in increased interstate trade.

Table E.7: Trends in beer packaging mix (by volume), 1995

<i>Material</i>	<i>Share</i>		
	<i>1985</i>	<i>1990</i>	<i>1995</i>
	(%)	(%)	(%)
Aluminium cans	33	40	36
Non returnable glass	38	44	54
Returnable glass	29	15	9

Sources: Australian Can Group; Packaging Council of Australia

Reuse policies in Australia

Australia does not have national or state legislation directly favouring the use of refillable containers as a source of beverage packaging. However, South Australia has container deposit legislation (CDL) which, in part, is designed to encourage reuse.

E.3.2.2 Effects on recycling

It has been argued that higher use of reusable bottles (particularly in South Australia) has made recycling less attractive, as it diverts material away from kerbside recycling. The smaller amount of glass available for recycling, especially brown glass, has lowered the revenue available from recycling in South Australia. A recent study prepared for the South Australian Environmental Protection Authority and the Local Government Recycling and Waste Management Board found that kerbside recycling in Adelaide yielded much less aluminium and glass per capita per annum than in any other capital city⁵.

The study also found that not only does CDL divert material affected by CDL away from kerbside recycling, it also changes behaviour toward all kerbside

⁵ The amount of aluminium collected was one-thirtieth of the average of the other capitals; in the case of glass, one-fifth.

recycling. For example, analysis in the study found that newspaper recycling also fell by 50 per cent in the presence of CDL (Warren 1995).

E.3.3 Recycling

E.3.3.1 Policies

Packaging recycling in Australia and in many overseas locations are the subject of numerous policies and targets.

Apart from targets, other 'command and control' policies have been used to encourage recycling. One such policy has been the replacement of 240 litre bins in many suburbs with 140 litre bins (or in some suburbs even smaller bins). Some councils, such as Nunawading in Victoria and Northern Adelaide Waste Management Authority, have given households the choice of purchasing a further or larger bin for an extra fee. On the other hand, some councils in Sydney have restricted ratepayers to one bin.

E.3.3.2 Industry involvement

There has also been industry involvement in recycling in a number of sectors.

Steel

In 1990, BHP and the Can Makers Institute of Australia developed a strategy to increase the recycling rates of steel cans. This strategy has involved:

- providing information for setting up a steel can recycling service;
- financial assistance in setting up the required infrastructure;
- provision of relevant promotion and advertising materials;
- free transport of baled steel cans to a BHP site; and
- a guaranteed market for all steel cans collected until 2000: a minimum of \$40 a tonne (free-on-truck for baled steel cans) — currently prices offered are \$78 per tonne in metropolitan areas and \$55 per tonne for all other areas.

Steel can recycling is now available to at least 104 Local Government Authorities.

BHP noted that the cost of this program has been around \$750 000 per annum. The company is concerned that imported tinsplate (representing around 12 per cent of the market in 1993–94) can be automatically recycled through the BHP program without incurring any of the cost (sub. 86, p. 9).

HDPE

Through a subsidiary (Full Cycle Plastics) Brickwood Holdings has set up a system for the recycling of HDPE milk bottles in Australia. The company buys baled used bottles and provides baling equipment.

The amount offered peaked at \$475 per tonne in 1993, declining to \$300 a tonne in mid 1995.

Over the past four years Kemcor, Brickwood holdings and Huntsman have invested over \$10 million, including \$7 million on capital equipment.

PET

ACI undertakes the majority of the PET recycling in Australia. A recycling plant in Wodonga has a capacity of 8 000 Mt per annum (30 per cent of current total sales tonnage). The costs of running and establishing the recycling system have been shared with fillers, who have paid a levy.

ACI Petalite offer three year contracts for buy back of baled and loose bottles. Prices offered at the time of the National Kerbside Strategy were \$700 CIF at the Wodonga plant, or \$450 loose to an ACI Agent. The price per tonne in the first half of 1995 was \$550 per tonne baled CIF. Clear bottles must be baled and separated from coloured HDPE, and the lids removed.

Aluminium

The Aluminium Can Group operate a recycling program which includes school recycling programs, kerbside collection, and advertising and promotional support for recycling centres. The main source of used aluminium cans is through buy back centres: 85 per cent of recycled cans are collected in this way (CEPA; DASET 1994).

The buy back price for aluminium is currently \$1 300 per tonne (LRRRA, sub. 25, p. 4).

Glass

Cullet is a major raw material for glass producers. The industry's recycling commitment involves upgrading kerbside collection systems and supplementing them with drop off centres.

ACI also guarantees purchase of all cullet which meets quality specifications. The current buy back price for cullet ranges between \$85 and \$114 per tonne (LRRRA, sub. 25, p. 4).

E.3.3.3 Recycling rates

Table E.8 describes recycling rates for a range of packaging materials. For most packaging materials, recycling rates have increased significantly since 1989.

Table E.8: Packaging material recycling rates, 1989 & 1995

	1995	1989
	(%)	(%)
Aluminium cans	>65	62
Glass	42	26
PET	29	3
HDPE	30	3
Steel cans	18	<1

Sources: PCA, sub. 57; LRRRA, sub. 25; Alcoa sub. 122; Kemcor sub. 80; IC (1991a)

E.3.4 Incineration

Incineration provides an alternative means of waste disposal. In some countries, it is used as an energy source. So-called ‘waste to energy’⁶ plants recover the energy by heat exchange from the hot combustion gases and use it for the generation of heat and electricity.

The energy generated from a waste to energy plant is dependant on the content of the waste. Plastics contain more energy than many fossil fuels, such as European coal. Paper and plastics based packaging is highly suitable for use in waste to energy incineration. Trends in favour of plastic and composite packaging materials are likely to increase the viability of this form of disposal.

Some plastics may also constitute a more environmentally benign feedstock, in addition to releasing energy. Brickwood Holdings argued:

...[that] HDPE dairy material contains nothing harmful in its composition is therefore a strong argument in its favour even if incineration was to become more widely adopted. No matter which technique is used in its disposal — incineration or landfill — HDPE does little damage to the environment and cannot pollute our water or air. (sub. 53, p. 27)

⁶ The concept of energy recovery is typically used only where there is a large proportion of energy contained in the waste which is recovered. For example, in Germany, ‘energy recovery’ only applies where the calorific value of the waste is at least 11 000 kJ/kg; a heating efficiency of 75 per cent is obtained; and the heat generated is used (OECD 1995, p. 24).

E.3.4.1 Current levels of use of incineration

Incineration levels in Australia are low by international standards. About 1 per cent of Australia's waste is incinerated, at an incinerator in South Sydney. The incinerator currently burns 130 000 tonnes of waste annually, which represents around 12–13 per cent of Sydney's putrescible waste. By comparison, in 1992, around 30 per cent of Western European waste was incinerated. In West Germany, the figure is 50 per cent; in Denmark, Switzerland and Luxembourg, 80 per cent. In Japan, 70 per cent of waste is incinerated into energy and feedstock. Waste to energy in the United Kingdom now accounts for 10 per cent of the waste stream, and 15 per cent of the waste stream in the United States.

E.3.4.2 Environmental effects of incineration

The by-products of incineration and waste to energy plants are gases (including carbon dioxide, nitrogen, oxygen and water vapour) and ash. In modern plants, gases are cleaned in a purification system, apart from carbon dioxide emissions.

E.3.4.3 Economics of incineration

The economic viability of waste to energy and incineration processes is influenced by several factors:

- costs of production, for example, the existence of any scale economies and the availability of feedstock;
- costs of alternatives, such as recycling and landfill; and
- in the case of waste to energy — energy prices.

There may be other factors affecting viability in the form of avoided costs from the use of waste-to-energy or incineration, for example, reductions in emissions from the reduced burning of fossil fuels to meet energy demand. Incineration resulting in ash going to landfill may minimise uncontrolled methane emissions from landfill, as well as reduce odours, rodents and litter surrounding the area.

Costs of production

Incineration and waste to energy plants are capital intensive operations. In addition, there may also be economies of scale. Shell Chemicals estimated that the 'gate fee'⁷ in 1992 for a large municipal waste to energy incinerator (where green waste and non-combustibles had been separated) was between \$US50 to \$US70/tonne.

⁷ The 'gate fee' is the net incineration cost, which includes environmental protection and capital charges net of revenue from the sale of energy.

Other factors which affect the viability of incineration and waste to energy include the location and characteristics of the region, such as the size and density of the surrounding population, waste volumes and composition, distance from the plant and costs of transport.

Cost of alternatives

In addition, the cost of alternative means of disposal (in particular landfill charges) affect the viability of waste to energy.

As discussed, current Australian landfill costs often vary depending on the type of waste, but would generally be well below incineration costs of \$US50–\$US70/tonne (\$AUD65–\$AUD90).

E.3.5 Landfill

Disposal of waste to landfill is at the final element of the packaging waste hierarchy.

For councils, waste collection costs represent the major component of waste management costs. Nationally, collection costs accounted for 67 per cent of council waste management costs in 1989; while disposal costs account for 27 per cent. These proportions varied between municipalities (IC 1991d).

Landfill is relatively cheap and abundant in Australia. Table E.9 lists landfill prices for several Australian and overseas locations.

Table E.9: Landfill prices (mixed waste)

	Average (AUD/tonne)
Paris ^a	140
New York	126
Frankfurt	100
South east	97
North west	67
San Fransisco area	57
Mid west	48
LA area	42
Chicago	37
Phoenix	34
Brisbane^b	30
Sydney^b	28
Denver	27
South west	22
Melbourne^b	22
Adelaide^b	18

a Paris figure applies to most packaging materials.

b Australian figures are representative of metropolitan prices for commercial waste at landfill.

Sources: AMCOR, sub. 141; other sources

In Australia, charges for disposal directly to landfill are typically levied by the amount of waste. Landfill charges are applied at the gate and through council rates for household waste collection. Gate charges represent a small proportion of council waste management revenues. The national average in 1989 was 8 per cent. The major source of council revenue is garbage rates, which represented 55 per cent of waste management revenues (IC 1991d).

More waste is disposed of at landfill than is collected. The Commission's survey of councils in 1989 found that waste disposed of per person by councils exceeded the amount collected by around 50 per cent. In some areas, the amount disposed was considerably greater — for Canberra it was four times the amount collected (IC 1991d).

Landfill charges vary within and between States, and to some extent, by the type of material (see Table E.10).

Table E.10: Landfill prices by type of waste

Type of waste	\$ per tonne	\$ per cubic metre
Municipal solid waste	15	7
Mixed commercial	17	7
Mixed demolition	16	7
Clean fill	11	6
Green	14	6

Source: Waste Management and Environment Magazine, Landfill Survey, May, 1995

Household charges also vary. Table E.11 details the range of annual charges applied to households for waste, and the proportion of Local Government Areas in each State which apply charges in that range. While the range of charges vary, in general, they are not related to volumes or costs of disposal.

Table E.11: Charges for waste per household per annum, by local government area

<i>Current charge per household per annum</i>	<i>New South Wales</i>	<i>Victoria</i>	<i>Queensland</i>	<i>South Australia</i>	<i>Western Australia</i>	<i>Tasmania</i>
	(no.)	(no.)	(no.)	(no.)	(no.)	(no.)
< \$10	4	6	2	9	0	0
\$10-\$50	7	14	0	50	5	57
\$51-\$70	13	26	20	27	22	29
\$71-\$90	30	33	16	9	39	0
\$91-\$100	8	10	27	5	11	0
\$101-\$120	24	7	20	0	14	0
\$121-\$130	3	1	4	0	6	0
\$131-\$140	1	1	4	0	0	0
>\$140	8	1	5	0	3	0
<i>charge is specified separately</i>	83	71	90	16	94	73

Source: BIE 1994a

As discussed in Chapter 5, the Commission is interested in the effect on behaviour of changes in landfill charges. Data from the ACT indicate that increasing the charge for commercial waste at landfill from \$11 to \$22 has a significant effect on the amount of waste going to landfill, especially waste for which there are alternative uses or means of disposal. The types of waste for which the increased charge has little impact include putrescible waste (see Table E.12).

Table E.12: Monthly waste by type at ACT landfills

<i>Month</i>	<i>Building</i>	<i>Clean fill</i>	<i>Putrescible</i>	<i>Total tonnes (excluding clean fill)</i>	<i>Total tonnes^a</i>
	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
June 1993	10 546	24 921	5 188	26 725	51 646
July 1993	11 399	22 271	5 466	27 870	50 141
August 1993	14 299	21 453	5 251	30 865	52 318
September 1993	11 272	16 029	5 185	27 445	43 474
October 1993	13 726	15 953	5 552	30 531	46 484
November 1993 ^b	13 747	3 734	6 060	31 777	35 511
December 1993	14 383	4 233	5 714	31 752	35 985
January 1994 ^c	7 823	1 253	4 603	23 381	24 634
February 1994	8 291	1 563	5 145	24 104	25 667
March 1994	10 916	1 431	5 720	27 765	29 196
April 1994	7 646	1 378	5 070	23 031	24 409
May 1994	7 419	776	5 303	23 300	24 076
June 1994	6 828	691	5 112	23 213	23 904
July 1993-June 1994	127 747	90 765	64 183	325 033	415 798
July 1994-June 1995	70 597	4 361	69 032	267 693	272 054

a Total tonnes includes household collections; building waste; clean fill; garden waste; tyres; asbestos; sillage; special waste; putrescible; private delivery.

b In November 1993 the charge for clean fill increased from zero to \$11 per tonne.

c From 1 January 1994 the charge for commercial waste (excluding clean fill) doubled from \$11 to \$22.

Source: ACT Department of Urban Services

F PACKAGING AND LABELLING REGULATION

There are many regulatory authorities and bodies of regulation which govern packaging and labelling. This appendix outlines:

- the process by which packaging and labelling regulations are formed for each body of regulation;
- the regulations in force; and
- enforcement mechanisms.

The product liability regime and general unfair trading provisions contained in Part VA and Division 1 of Part V of the *Trade Practices Act 1974* (TPA) (and the State equivalents) are not covered, nor are environmental regulations.

There are many impending changes to these categories of regulation. There is a great deal of State, Territory and Commonwealth co-operation in packaging and labelling regulation. One recent significant change was the implementation on September 1 1995 of the Council of Australian Governments (COAG) principles and guidelines for the preparation of regulations. These apply to all regulations made by joint State, Territory and Commonwealth Ministerial Councils. The principles require Regulatory Impact Statements to be presented to the Office of Regulation Review (ORR) before the proposed regulation is considered by the relevant Ministerial Council.

The State, Territory and Commonwealth *Mutual Recognition Acts* (see Section 7.5.2) would apply to all of the regulations and legislation outlined in this appendix except:

- the regulations and legislation of the Commonwealth;
- the laws concerning the Transport of Dangerous Goods¹ which are excluded by s 11(3) of the Commonwealth *Mutual Recognition Act 1992* (see Appendix F.7); and
- possibly therapeutic goods regulation.

¹ A separate, and more limited, mutual recognition scheme will apply to exemptions granted by State and Territory officials for the transport of dangerous goods by road and rail when the new code is established (see Section F.7.2.2).

F.1 National Food Code and the Model Food Act

Food is regulated by a mixture of the provisions of the State and Territory Food Acts and the WA Health Act (which generally adopt the provisions of the Model Food Act) and the more detailed standards which form the National Food Code. The system is based on extensive State, Territory and Commonwealth co-operation (see Section 7.5.1 and Appendix G.1).

An example of the specific Food Act provisions is s11 of the Victorian *Food Act 1984* which makes it an offence to pack or label food in a manner that is false, misleading or deceptive. The major effect of the Food Acts is to implement a 1991 Commonwealth/State Agreement. The agreement provided for food standards agreed by the National Food Standards Council (Commonwealth and State/Territory Health Ministers) to be adopted, by reference and without amendment, by the States and Territories. The Food Code is discussed in this section.

Specific issues relating to the Food Code are discussed in Sections 7.3.1, 7.3.2 and 7.3.3.3.

F.1.1 Setting of standards

The National Food Authority (NFA) has responsibility for developing and amending food standards for all foods sold within Australia. The Commonwealth *National Food Authority Act 1991* provides that applications can be made to the NFA to develop or vary a food standard. Alternatively, State, Territory or Commonwealth Ministers and the NFA itself can also initiate the formation of a standard.

The NFA is also required to look at alternatives to regulation.

Providing the NFA initially considers that a standard is warranted it advertises in the Commonwealth Gazette and newspapers for public input. If, after reviewing the public input, the NFA still considers the standard is warranted, it prepares and publishes a draft which is circulated for public comment. That draft is prepared to meet the following criteria which appear in the Commonwealth *National Food Authority Act 1991* (in descending priority order):

- the protection of public health and safety;
- the provision of adequate information relating to food to enable consumers to make informed choices and to prevent fraud and deception;
- the promotion of fair trading in food;

- the promotion of trade and commerce in the food industry; and
- the promotion of consistency between domestic and international standards where these are at variance, providing it does not lower the Australian standard.

It must also take into account any relevant New Zealand Standard.

A draft taking account of the public input, is put to the Australian Council of Health Ministers. Some States and Territories may conduct further examination and consultation in relation to the proposed standard. For example, some States and Territories consult food inspectors, industry and consumer groups. The Council must consider the standard. When it accepts, rejects or varies the standard by majority vote, the standard becomes part of the Food Code. The Code is then adopted (subject to reservations) by regulation into the law of each State and Territory and also applies to imports.

Each State and Territory can make reservations and alterations to the standards in force in that State and Territory. There are very few variations to the standards,² especially in the packaging and labelling provisions, and these variations are generally being phased out.

F.1.2 Current standards

The code contains many regulations which go beyond packaging or labelling. However, there are two General Standards of particular relevance to packaging and labelling:

- A1 Labelling and Advertising; and
- A2 Date Marking of Packed Food.

Other standards cover:

- Cereals and Cereal Products;
- Meat, Canned Meat and Products Thereof;
- Fish and Fish Products;
- Eggs and Egg Products;
- Vegetables;
- Edible Fats and Oils and Related Products;

² For example, South Australia currently allows milk which has not been pasteurised to be sold despite a prohibition in the Food Code. The Northern Territory is considering outlawing the sale of Kava, an alteration to the Code with respect to the Northern Territory.

- Milk and Other Dairy Products;
- Gelatine and Jelly Products;
- Spices, Condiments, Sauces, Vinegar and Pickles;
- Sugar and Related Products, Honey, Confectionary and Icing Mixture;
- Ice cream and Related Products;
- Nuts and Nut Products;
- Fruits and Fruit Products;
- Non Alcoholic Beverages;
- Alcoholic Beverages;
- Tea, Coffee, Chicory, Cocoa and Related Products;
- Special Purpose Foods; and
- Miscellaneous Provisions.

Many of these standards contain additional provisions in relation to labelling.

F.1.3 Enforcement

The States and Territories and the Australian Quarantine and Inspection Service (AQIS) are involved in enforcement of the Food Code. The Code (including the packaging and labelling regulations) is applied to imported foods at the point of import. Domestically produced foods must comply with those parts of the Code which cover hygiene and content at the point of production.

Both imported and domestically produced foods are subject to the enforcement mechanisms at the point of retail. While the standards are uniform across Australia, the rigour with which standards are enforced and the methods of enforcement are not uniform. Enforcement is a mixture of inspections of samples from retail outlets and responses to complaints by competitors and customers (source: communications with authorities). The NFA is currently developing an arrangement for more uniform enforcement of the Code.

The States and Territories have entered into a reciprocal arrangement concerning the enforcement of the code across State and Territory borders. The effect of the agreement is that the home State or Territory of production is informed of any breaches by their producers where-ever the breach is found and may use the information to take action.

Some jurisdictions (for example, in Victoria) deal with breaches where they are discovered while others rely solely on the home State or Territory to deal with

the breach. For example, the Northern Territory and Queensland in practice generally only enforce the code in respect of local producers.

The level of local government involvement varies from State to State. The reasons for local government involvement are partly historical (see Section 7.5.1). Another reason is that food regulation also deals with hygiene standards at places where food is produced. Governments often find this is most efficiently performed by local government inspectors.

The NFA has set up mechanisms with the States and Territories, which are responsible for enforcing the Food Standards Code (the Code), to provide for more consistent interpretation across the country. The States and Territories have also endorsed an NFA proposal to develop a national strategy for surveillance and enforcement.

F.1.3.1 New South Wales

The Health Department has 30 officers in its 15 Public Health Units to enforce, amongst other regulations, the parts of the Food Code which relate to packaging and labelling in New South Wales. Its main activity is to respond to complaints — usually made by the competitors of a producer in breach. Unless the breaches are very serious they are usually not prosecuted. Most producers have registered offices in New South Wales which means that the New South Wales authority will usually treat firms in breach as New South Wales firms.

F.1.3.2 Victoria

State legislation requires local governments to test three samples per year per 1 000 residents. The State Government tests on Crown lands (for example, airports). Prosecution or other action is the responsibility of the authority (usually local governments) finding the breach. Due to the complexity of the Code, the prevailing attitude in Victoria is to negotiate with offending food producers rather than to prosecute.

F.1.3.3 Queensland

Queensland Health conducts all the labelling and packaging enforcement in Queensland. A survey method is used to test the general adherence to a standard, and sampling from retailers and wholesalers is done periodically. Breaches are dealt with by warning, prosecution, withdrawing a product from sale until rectification has occurred and, more commonly, by negotiation (for example, agreeing that a label will be changed for the next print run).

F.1.3.4 South Australia

In South Australia responsibility for enforcement of the food code is split between the local governments and the South Australian Health Commission. Packaging and labelling regulation is dealt with by the Commission. There are 10–15 prosecutions per year.

F.1.3.5 Western Australia

Western Australia has given both the State and local governments the authority to enforce the Code. There has been one prosecution for labelling in two years.

F.1.3.6 Tasmania

The 29 local government Areas enforce the Code by retail checks, surveys and responding to complaints. There is a State-wide testing program which means that each council would conduct a test at least each month. In the last five years there have been about five prosecutions. However, most Tasmanian foods come from interstate and breaches are referred to the State or Territory of production.

F.1.3.7 Australian Capital Territory

The ACT finds that most breaches tend to be on products which are imported from overseas and products packaged by shops. In relation to imported products the Territory usually informs AQIS and does not take action itself.

F.1.3.8 Northern Territory

There is little testing in the Northern Territory, it being left to the ‘big States’ and AQIS. The testing which does occur focuses on the Territory’s own producers.

F.1.3.9 Australian Quarantine and Inspection Service

AQIS is responsible for checking compliance with the Food Code at the point of importation. Its Imported Food Inspection Program uses a risk based approach in which, depending on the category of food, as little as 5 per cent might be tested or as much as 100 per cent. How intensively a group of foods is inspected depends on the compliance history of overseas suppliers and whether a food group has been selected by AQIS for active surveillance.

There have been some agreements negotiated with other countries³ and individual companies concerning conformance assessment which allow foods to escape the full rigour of the Imported Food Inspection Program.

The Commission has received substantial anecdotal evidence that many food and other imports are sold without compliance with Australian packaging and labelling standards (see Section 7.4.2).

F.2 Therapeutic goods

The packaging and labelling of therapeutic goods is regulated by the Therapeutic Goods Administration (and its Therapeutic Goods Orders) and, for therapeutic goods that are drugs, by the States and Territories. Uniform Scheduling of Drugs and Poisons (SUSDP).

The Therapeutic Goods Regulation (TGA; discussed in this Section) is mainly conducted by the Commonwealth with a little enforcement activity by the States and Territories. This regulation focuses upon the *pre-distribution approval* for the use of therapeutic goods within Australia. The SUSDP, which regulates the *distribution* of drugs and poisons, is discussed in the next section (F.3).

The Industry Commission is currently conducting an inquiry into Pharmaceuticals which will deal with both these bodies of regulation in further detail (see also Section 7.5.1).

F.2.1 Setting of standards

The basis for most of the standards are adopted standards from the British Pharmacopoeia, but the Commonwealth Minister for Health and Human Services can institute Therapeutic Goods Orders (TGO) to depart from these standards. The process is as follows:

- a safety issue is identified by the TGA;
- the TGA prepares a briefing paper;
- the brief is presented to the Therapeutic Goods Committee (TGC), which is a Committee of experts appointed by the Minister for Human Services and Health, and considered by the appropriate sub-committee with representation to cover the interested parties;

³ Agreements exist with New Zealand, Singapore, Thailand, Canada and Norway. AQIS constantly negotiates with other countries for suitable certification.

- if the issue warrants, a draft order is prepared by the sub-committee for the TGC who, after any appropriate amendments, circulates it for public comment;
- after final advice from the subcommittee, the TGC recommends a standard to the Minister; and
- if the Minister accepts the recommendation, it is published in the Commonwealth Gazette as a TGO.

F.2.2 Current standards

The TGOs of most relevance to packaging and labelling are:

- TGO 20 Child Resistant Containers;
- TGO 32 General Requirements for Labels for Therapeutic Goods;
- TGO 37 General Requirements for Labels for Therapeutic Devices; and
- TGO 48 General Requirements for Labels for Drug Products.

F.2.3 Compliance

There is a significant amount of interaction with, and supervision by, government of the production and use of therapeutic goods. Product approvals by the TGA, through Pharmaceutical Benefits Scheme listing, and distribution through State and Territory owned or supervised hospitals and other medical institutions all contribute to the compliance regime.

F.3 Drugs and poisons

In the past each State and Territory scheduled (or categorised) drugs and poisons into groups. Today a structure exists to harmonise the regulations (including scheduling) between the States and Territories.

The requirements, imposed by the controlled substances legislation, (including packaging and labelling requirements) are somewhat different for each schedule.

Although each State and Territory, in general, adheres to the outcome of the harmonised scheduling, there are instances in which further substances have been added to Schedules on a unilateral basis. Thus the categorisation of substances to particular schedules and the packaging and labelling standards which applied to each schedule, vary from State to State.

These regulations apply when drugs and poisons are supplied. In the case of drugs, these requirements are in addition to the requirements of the therapeutic goods regulation described above in Section F.2.

State and Territory inspectors enforce the controlled substances legislation in a similar way to the enforcement of the Food Code (see Section F.1.3).

F.3.1 Framing of regulations

The National Drugs and Poisons Scheduling Committee (NDPSC) makes changes to the SUSDP. Proposed amendments are published in the Commonwealth Gazette to enable public consultation. The Committee is composed of representatives of each government (including New Zealand), industry, consumers and the medical profession. Its decisions are made by consensus or by majority of the governments of New Zealand, the Commonwealth, States and Territories.

The States and Territories generally have poisons advisory committees. These committees' input is via their States and Territory's representatives on the NDPSC.

F.3.2 Current regulations

Examples of the regulatory requirements are:

- packaging: child-resistant closures are often required, and some containers must be embossed with statements or descriptions; and
- labelling: statements such as “KEEP OUT OF REACH OF CHILDREN” and “POSSESSION WITHOUT AUTHORITY ILLEGAL” are sometimes required to be printed in particular fonts and sizes.

The substances of each schedule are described as follows:⁴

- S2: Poisons for therapeutic use that should be available to the public only from pharmacies; or where there is no pharmacy service available, from persons licensed to sell Schedule 2 poisons;
- S3: Poisons for therapeutic use that are dangerous or are so liable to abuse as to warrant their availability to the public being restricted to supply by pharmacists or medical, dental or veterinary practitioners;
- S4: Poisons that should, in the public interest, be restricted to medical, dental or veterinary prescription or supply, together with substances or

⁴ Schedule 1 is no longer in use — most of its former contents is covered by S4.

preparations intended for therapeutic use, the safety or efficacy of which requires further evaluation;

- S5: Poisons of a hazardous nature that must be readily available to the public but require caution in handling, storage and use;
- S6: Poisons that must be available to the public but are of a more hazardous or poisonous nature than those classified in Schedule 5;
- S7: Poisons which require special precautions in manufacture, handling, storage or use, or special individual regulations;
- S8: Poisons to which the restrictions recommended for drugs of dependence by the 1980 Australian Royal Commission of Inquiry into Drugs should apply; and
- S9: Poisons which are drugs of abuse, the manufacture, possession, sale or use of which should be prohibited by law except for amounts which may be necessary for medical or scientific research conducted with the approval of Commonwealth and/or State or Territory Health Authorities.

F.4 Trade measurement

A system designed to achieve harmonised Trade Measurement Legislation in each State has been developed. Its two basic requirements generally apply throughout the world:

- the package must not contain less than the quantity stated on the label; and
- the label states the name and address of the packer (or, for imported products, the importer).

Regulations deal with more detailed applications of these principles. For example, allowance is made for some loss in the weight of soap since it dehydrates after packing. These Australian approaches can vary substantially from the approaches of other countries and can cause trade difficulties. The Australian Standards Commission is negotiating with the countries in the Asia-Pacific region to harmonise the requirements.

However, because the legislation, regulation and enforcement are State and Territory responsibilities, harmonisation with other countries is a cumbersome process. Another consequence of the legislation being a State and Territory responsibility is that some States are in favour of extending liability for breaches of the quantity requirement to be extended to the retailer as well as the packer. There is a proposal before government that the Commonwealth take responsibility for Weights and Measures legislation to overcome these and other difficulties (see also Section 7.5.1).

Enforcement is conducted by State and Territory inspectors of which there are fifty to sixty. In most States and Territories these inspectors are also responsible for the enforcement of product information standards (see Appendix F.8). Complaints by competitors and consumers are also used to highlight breaches of the Weights and Measures rules.

F.5 Agricultural, veterinary and household garden chemicals

The Commonwealth *Agricultural and Veterinary Chemicals Code Act 1994* establishes a National Registration Authority (NRA) which is designed to rationalise the regulation of these chemicals. These chemicals may now be sold if approval has been gained from the NRA or under the separate State and Territory systems which operated before 1994.

The NRA considers applications for:

- the approval of chemicals that are *newly offered for sale* in Australia;
- the registration of a *new use* for a chemical which has already been approved for sale; and
- *national approval* for chemicals that have only been previously approved for sale in part of Australia.

Registration, depending on the circumstances, can be free or can cost as much as \$20 000. One State is chosen to test the efficacy and safety of products which are completely new to Australia.

The rules which apply generally to the labelling of registered products are found in Agricultural Chemicals Code, the Veterinary Chemicals Code and the Household Garden Chemicals Code. These codes over-ride the State poisons regulations.

F.6 Australian Customs Service administered regulation

There are requirements relating to labelling and packaging of imports and exports. The Commonwealth *Commerce (Trade Descriptions) Act 1905* prohibits false trade descriptions on imported and exported products. Trade descriptions are statements applied to the goods concerning:

- the nature, number, quantity, quality, class, grade, measure, gauge, size or weight of goods;
- the country of place in or at which goods were made or produced;

- the manufacturer or producer of the goods or the person by whom they were selected, packed or in any way prepared for the market;
- the mode of manufacturing, producing, selecting, packing or otherwise preparing the goods;
- material or ingredients of which the goods are composed or from which they are derived; and
- the goods being the subject of an existing patent, privilege or copyright.

The Commerce (Imports) Regulations apply to products imported into Australia.

There are detailed rules concerning the labelling of particular products, two examples of which are:

- shoes with soles which contain no leather must display the words 'synthetic sole' or 'non-leather sole' in the trade description; and
- jewellery covered wholly or partly by gold must display the words 'rolled gold,' bold cased,' 'gold plated' or 'gilt' in its trade description.

Dried fruit must display prominently the year of production. These requirements are contained in regulation 8 (see Table F.1) and other substantive provisions (see Table F.2).

Table F.1: Trade description requirement of Regulation 8 of the Commerce (Imports) Regulations

Regulation 8 of the Commerce (Imports) Regulations requires many goods to bear a trade description as follows

Food and ingredients for food for human consumption^{a,b}
 Therapeutic products^a
 Fertiliser^a
 Agricultural seeds^a
 Plants^a
 Textile products & apparel including shoes^a
 Jewellery^a
 Plastic goods, leather goods, goods made of vulcanite & fibber goods of at least 150 cm area^a
 Brushware^a
 China, porcelain, earthenware & enamelled hollowware and other products used for the preparation & presentation of food
 Electrical appliances, apparatus & accessories^a
 Toys
 Most tobacco products^a
 Portland cement
 Sanitary & lavatory articles of earthenware, fireclay, vitreous china & similar materials
 Wall, hearth & floor tiles
 Watches & clocks & movements for watches & clocks
 Some packaged goods^a

a Must have a truthful, legible, English trade description (regulation 8(c)(ii)).

b The description must include a statement outlining the presence of deleterious substances and the concentration of the preservatives that it contains.

Table F.2: Commerce (Imports) Regulations

<i>Subject matter</i>	<i>Regulation numbers</i>
Food and food ingredients	10, 11, 21
Medicines	11
Fertilisers	12
Seeds & plants	13, 14
Clothing & fabric	15
Shoes	15B
Tobacco	19, 19A
Jewellery	16
Brushes	17
Incandescent lamps	18
Weights & measures	20, 20A, 20B, 20C, 20D, 20E, 20F, 20G, 20H, 20J, 20K, 20L, 20M, 20N, 20P, 20Q

F.7 Transport of dangerous goods

The transport of dangerous goods is governed by Commonwealth, State and Territory legislation and regulation based on principles developed within the United Nations (UN). Examples of the requirements are that the label must bear the internationally recognised symbol for the dangerous substance and that the container must meet some performance requirements.

F.7.1 Current standards

An example of the provisions governing labelling are that dangerous substances must be labelled:

- with the UN classification;
- the internationally recognised symbol; and
- its recognised chemical name;

when they are transported.

Emergency services carry information on how to deal with each classified substance in case of emergency.

Examples of the regulations concerning packaging are:

- maximum quantities in which the classified substances may be packaged for transport; and
- the performance requirements (such as strength) of containers.

F.7.2 Framing of regulations

The United Nations Committee of Experts on the Transport of Dangerous Goods has developed principles for regulating the transport of dangerous goods. The principles classify goods and regulate how the classifications should be packaged and labelled for transportation. The UN Committees have a wide range of experts from various countries. Australia only has observer status on the committee. The International Maritime Organisation and the International Civil Aviation Organisation prepare codes for the transport of dangerous goods by sea and air. These bodies send observers to the UN Committee and have undertaken to promote harmonisation of the requirements.

F.7.2.1 Transport by sea and air

In Australia, the Commonwealth has adopted the internationally established principles for all air transport, transport by sea between States and Territories, and ships exporting from Australia.

The States and Territories are responsible for the regulation of the transport of dangerous goods between two ports within the same State or Territory. The rules generally follow the Commonwealth regulations closely.

Air and sea standards are adopted by a mixture of direct reference to the code and by making regulations.

F.7.2.2 Transport by road and rail

In the case of road and rail, transport of dangerous goods regulation is developed as follows. The Advisory Committee for the Transport of Dangerous Goods (ACTDG) considers the new code provisions and puts a draft to the National Road Transport Commission. The ACTDG has representation of unions, the transport industry, the States and Territories, and Commonwealth agencies. The draft regulations are then put to the Ministerial Council for Road Transport. Assuming they are approved by the Council they become part of State and Territory law by regulation under the Occupational Health and Safety or transport legislation of each State or Territory.

The ADG Code is currently being re-drafted into a regulatory format which will form the basis for a national uniform dangerous goods transport regime. This re-draft is being undertaken by the Federal Office of Road Safety in conjunction with the National Road Transport Commission. This task has required a restructuring of the existing ADG Code in order to separate the obligatory, advisory and technical components and develop a set of national uniform requirements.

The principles followed in the re-drafting of the ADG Code into a regulatory format are that the new code should meet government and industry requirements and accurately reflect the latest edition of the UN Recommendations for classification, packaging, labelling and transport of dangerous goods.

This system is soon to be replaced by a template legislation system similar to the present Corporations Law system. The ACT will be the template jurisdiction. It will be possible to seek official approval to transport dangerous goods in a way that would otherwise breach the provisions contained in the code. Approval is given by the competent State or Territory authority and a system of mutual recognition operates to make the approval effective throughout the other jurisdictions.

F.7.3 Enforcement

The Maritime Safety Authority and Air Services Australia (formerly the Civil Aviation Authority; CAA) enforce the dangerous goods regulations in relation to air transport, interstate sea transport and export from Australia by sea. The States and Territories enforce the regulations concerning road and intra-state sea transportation and the railways are also responsible for following the regulations.

F.8 Product information standards

Standards can be made by adopting existing product standards or by regulation by using powers contained in Division 1A of Part V of the TPA. For example, a standard has been instituted requiring bean bags, bean bag covers and packages containing bag filling to carry the following statement:

WARNING, Small lightweight beads present a severe danger to children if swallowed or inhaled

The capital letters of this statement must be at least 5 mm tall.

The State *Fair Trading Acts* contain similar powers which are generally exercised to create mirror standards to the Commonwealth ones. However, the States have also made further standards.

Product information standards are enforced by both the Commonwealth and State jurisdictions.

F.8.1 Setting of standards

The Commonwealth standards apply to all consumer trade and commerce:

- by constitutional corporations;
- within a Territory;
- involving the Commonwealth;
- which is across State borders; and/or
- with another country.

The State standards generally apply to transactions which occur (at least in part) within their State (whether or not the Commonwealth standards applies). Some States' standards also have gaps in coverage. For example, the Tasmanian standards do not apply to rented products.

F.8.1.1 Commonwealth standards

The steps for establishing a standard are as follows.

- Once an alleged hazardous product class is identified, the Bureau of Consumer Affairs considers regulatory options including regulating to require adherence to a Standards Australia or overseas standard.
- The Bureau prepares a Justification Paper and consults with industry.
- The market is examined to determine how the regulatory objective can be achieved with least cost.
- The requirements of the standard are published in the Gazette.

F.8.1.2 State and Territory standards

Most States must produce Justification Papers (for example, South Australia) for their ministers or Regulatory Impact Statements (for example, Victoria) for regulations to be introduced on a unilateral basis (see also ORR 1995).

F.8.2 Current standards and enforcement

This section lists the Commonwealth standards (which are mirrored by State regulation) followed by the standards which are specific to particular States.

F.8.2.1 Commonwealth standards which are generally mirrored by the States

The most significant standards for packaging and labelling are:

- Buoyancy aids 1979;
- Bean bags 1987;
- Tobacco labelling 1994 (see also Section 4.2.7);
- Children's nightclothes 1993;
- Children's flotation toys and swimming aids 1992;
- Toys for children under three 1989;
- Care labelling of textiles 1989;
- Cosmetic labelling 1991; and
- Pedal bicycles 1994.

F.8.2.2 New South Wales

The New South Wales Standards which deal with packaging and labelling, and go beyond mirroring Commonwealth standards, are:

- Babies' Walking Frames/ Babywalkers 1994;
- Cot and Bed Restraints 1994;
- Footwear (marking requirements) 1992;
- Frames to support infants in baths 1987;
- Leather Goods 1992;
- Popballs/ Poppin Horror Eyes and the Like 1987;
- Portable Home Exercise Equipment 1988;
- Spa Outlets 1994;
- Textile Products 1992; and
- Underwater Toys 1977.

New South Wales conducts surveys and marketplace inspections, especially around Christmas, and makes product purchases as well as using complaints to identify infringements.

F.8.2.3 Victoria

There are standards in force in Victoria (for example, covering the labelling of spirit stoves) which go beyond Commonwealth standards. Enforcement is mainly a matter of investigating complaints since there are insufficient resources for inspection.

F.8.2.4 Queensland

Queensland will soon adopt a policy of only using its regulations to mirror the Commonwealth standards. The standards are enforced by responses to consumer and competitor complaints and by inspections conducted by the Trade Measurement Inspectors (of which there are 30). There are also surveys conducted by Consumer Affairs.

F.8.2.5 South Australia

South Australia is soon to update its standards. This will involve removing and amending many of its standards. However, there will still be substantial differences between its standards and other jurisdictions. Enforcement is carried out by the Weights and Measures inspectors in field tests.

F.8.2.6 Western Australia

Western Australia does not have many unique State standards. Examples of the ones which do exist are:

- textile products and other 1988; and
- furniture quality 1988.

Breaches are identified mainly by consumer and competitor complaint. There are also trade associations (such as the Furniture Trade Association) which self regulate and thereby reduce the need for detailed supervision.

F.8.2.7 Tasmania

Tasmania has regulations concerning the leather goods and fabric fibre content labelling which go beyond Commonwealth standards. Enforcement is largely a matter of responding to consumer complaints.

F.9 Occupational Health and Safety regulation

Model workplace hazardous substances regulations have been developed by the National Occupational Health and Safety Commission for adoption by each State and Territory. These regulations include a provision for labelling. The detailed guidelines for labelling are included in the National Code of Practice for the Labelling of Workplace Substances.

F.10 Other State regulations

An example of the additional packaging and labelling regulations which are imposed at the State and Territory level are those of New South Wales. New South Wales has several specific areas of regulation concerning packaging and labelling. These cover the following products:

- fertilisers;
- stock foods;
- horticultural stock;
- fruit and plants;
- seeds;
- dried fruit; and
- butter and cheese.

These State and Territory specific regulations of packaging and labelling vary substantially between jurisdictions in the products covered and in the content of the regulations. Differences have arisen for historical and specific regional reasons. Enforcement of this regulation is generally not a high priority.

G REGULATORY CO-OPERATION

Variations in standards between countries can act as significant trade barriers and have adverse trade-diverting effects. (Food Industry Council of Australia, sub. 189, p. 3)

Australia's federal system has led to the development of nine separate regulatory systems. To improve consistency and reduce conflicts and duplication, Australian governments have moved to develop various forms of regulatory co-operation. Regulatory co-operation can take the following forms:

- unilateral recognition of regulations: where one jurisdiction unilaterally accepts goods which comply with the regulations of another jurisdiction;
- mutual recognition of regulations: where two or more jurisdictions agree to accept goods which comply with the regulations of any one of them;
- mutual or unilateral recognition of conformance assessment: for example the acceptance of foreign compliance testing of Australia's regulations in relation to goods imported by Australia, or vice versa;
- mutual or unilateral recognition of international standards;
- convergence between jurisdictions' regulations: a formal or informal process where the regulations of two or more jurisdictions become more alike;
- convergence to international standards: a formal or informal process where the regulations of a group of countries become more aligned with an international standard or standards; and
- movement towards uniform regulations between a number of jurisdictions.

Mutual recognition is discussed in Section 7.5.2. The initiatives in regulatory co-operation which are already in place within Australia are outlined in Appendix F. This appendix discusses:

- the performance of the existing initiatives in regulatory co-operation; and
- the proposals for further, international co-operation.

G.1 Regulatory co-operation within Australia

Regulatory co-operation between the Commonwealth, States and Territories is well developed and there are some indications as to which models of regulatory co-operation are working best. The methods for implementing regulatory co-operation are discussed in this section and the performance of these methods are discussed in Section 7.5.1.

Mutual recognition provides some of the benefits of national uniformity of standards for goods and services. The New South Wales Government, however, claims that:

... in circumstances where a national market exists for goods and services, or ... companies have production centres in more than one State ... consideration of uniform or consistent legislation may be more appropriate than reliance on mutual recognition. (sub. 137, p.10)

This arises because, under the Mutual Recognition scheme, goods may legally be sold if they comply with the regulations of the jurisdiction in which they were made or the jurisdiction in which they are sold — even if they do not satisfy the regulations of the other jurisdictions in which the same products are made.

Regional differences in regulations have often arisen in response to local conditions and uniform regulation in Australia has been difficult to achieve and maintain over time.

Several institutions have been created in recent years to develop national regulatory standards and strategies for enforcing those standards. These are:

- the National Food Authority (NFA);
- the Therapeutic Goods Administration (TGA);
- the National Registration Authority for Agricultural and Veterinary Chemicals (NRA);
- the National Road Transport Commission;
- the National Occupational Health and Safety Commission; and
- Ministerial and advisory committees.

The functions and methods of operation of each of these bodies are outlined in Appendix F.

Such agencies can be established in various ways. First, by relying upon power given exclusively to the Commonwealth by the Constitution. This approach was used to establish the Therapeutic Goods Administration (TGA). Second, by the implementation of parallel legislation by the States, Territories and Commonwealth. This approach was used to create the National Registration Authority for Agricultural and Veterinary Chemicals (NRA). Third, by the establishment of national Ministerial Councils and advisory councils which recommend implementation of common standards on a case-by-case basis. One example is the National Food Standards Council, which considers food standards proposed by the NFA. Fourth, by a referral of power to the Commonwealth by the States and Territories under the Constitution.

G.2 Regulatory co-operation with New Zealand

In the trans-Tasman context, harmonised standards have been developed or are under discussion in a number of areas, particularly where the implications for health, safety or the environment are important — for example, food, packaging and labelling of drugs and poisons, and agricultural and veterinary chemicals. Negotiations to extend the Australian Mutual Recognition scheme to New Zealand are advanced.

G.2.1 Food

In December 1992, Australia and New Zealand established a joint Australia-New Zealand Working Group on Harmonisation to advance trans-Tasman co-operation on food standards. Negotiations have led to an agreement to develop a joint Australia-New Zealand food standards setting system based on an extension of the current Australian system.

Key principles of the joint system are that there be minimal disruption to the Australian system and achievement of uniformity of standards as far as possible, although recognising that New Zealand sovereignty may lead to exceptions in a few cases. It is possible that a joint Australia-New Zealand Food Authority may result.

Labelling provisions are likely to be the earliest food standards to be harmonised.

G.2.2 Drugs and poisons

The Australian State and Territory Governments, the Commonwealth Government and the New Zealand Government have undertaken moves aimed at harmonising the packaging and labelling requirements for drugs and poisons of both countries. Changes are being made to State and Territory poisons legislation, in conjunction with New Zealand authorities, so that a common label is legal in both countries. The changes are to be phased in over several years, and commenced on 1 July 1995. Both the old and the new labelling will be allowed during the phase-in period, after which only the new labelling will be legal.

These changes aim to harmonise the packaging and labelling for drugs and poisons manufactured in Australia and New Zealand so that products will be acceptable for sale in both countries without the need for specific repackaging or relabelling for either country (TGA, sub. 120). Progress in Australia and New

Zealand on harmonisation of labelling will depend on progress in harmonisation within Australia.

G.2.3 Agricultural and veterinary chemicals

Australian and New Zealand authorities are currently discussing harmonisation.

G.2.4 Trans-Tasman co-operation on standards and conformance

There is already close co-operation between the standards and conformance infrastructures of Australia and New Zealand. With regard to standards, Standards Australia and Standards New Zealand signed an Active Co-operation Agreement in 1992 which provides for the development of joint standards. This Agreement is designed to strengthen the flow of trade between the two countries. Thus far, over 300 joint standards have been produced by joint committees, with the objective of ensuring a larger market for goods and services on both sides of the Tasman.

In the area of conformance, the National Association of Testing Authorities and its New Zealand counterpart, Telarc, have an agreement which gives mutual recognition to accredited laboratories. Individual regulatory authorities in both countries have also initiated their own programs of co-operation, for example, in relation to the design and manufacture of boilers and pressure vessels.

G.2.5 Mutual recognition

Australian Heads of Government and the Prime Minister of New Zealand have provided in-principle support for the participation of New Zealand in a trans-Tasman mutual recognition agreement. A Discussion Paper on this subject was circulated in April 1995 to provide a basis for further consideration of the proposal. While negotiations between officials were completed by late 1995, finalisation of an agreement awaits the formation of a new Commonwealth Government.

Submissions to this Inquiry were generally in favour of extending the mutual recognition scheme to New Zealand. The Australian Paint Manufacturers' Federation commented that:

The single greatest cost impost on the Trans-Tasman trade in paints and other surface coatings is the inconsistency between the paint labelling regulations of the two countries. ... many paints, particularly those which are solvent based, have to be relabelled on their shipment from one country to another. The alternative is for a

manufacturer to label products specifically for export. In this case it means short runs with consequent higher unit costs. The alternative is to relabel products on arrival in the importing country. This is also an expensive and unsafe practice as it increases the likelihood of incorrect labelling. (sub. 107, pp. 1-2)

Support for trans-Tasman mutual recognition was given in several submissions, including by the Council of Australian Food Technology Associations:

Mutual recognition of food standards has the potential to reduce packaging and labelling costs. If the same product and label can be used in both Australia and New Zealand, apart from economies of scale, savings can be made by not having to keep stock physically separated. (sub. 76, p. 1)

National Can Industries, however, introduced one note of caution:

There are concerns that mutual recognition could result in down grading of standards to the lower applying between the two countries and thus less protection to the consumers in both countries. (sub. 67, p. 14)

In this regard, it is worth noting the view of the New South Wales Government that mutual recognition “appears to have resulted in lower production costs without a reduction in consumer protection” (sub. 137, p. 7).

G.2.6 Standards and conformance

One particular area is more advanced in terms of international co-operation than any other, and that is standards and conformance. The standards and conformance infrastructure of a country is a collection of technical systems (such as measurement and standards) and services (such as calibration conformance testing, certification and accreditation). The infrastructure can be generally divided into measurement systems and services, the development of voluntary and regulatory standards, and conformance testing and certification.

International co-operation on standards and conformance has implications for packaging and labelling. For example, two of the matters under discussion by the International Organisation of Legal Metrology (OIML) are net contents in packages and information on package labels (NSC, sub. 5).

Amcor suggested that benefits could be had from converging to international standards:

The industry would benefit from having a single set of standards for labelling requirements that could become the basis for mutual recognition with New Zealand and even APEC countries. The size of these benefits varies extensively from product to product and in each case is determined by artwork costs and operating efficiencies created by increased run lengths. (sub. 69, p. 78)

The Australian Institute of Packaging gave the following warning about international regulatory co-operation:

The move to regulatory co-operation on an international level has serious implications for Australian industry and it is important to recognise that the needs of Australasia compared to Europe or North America are different. What may be appropriate for the northern hemisphere, which has a vastly different transport infrastructure for example, may not be suited to Australasia. (sub. 12, p. 8)

Another area in which co-operation is being explored is in the transport of dangerous goods.

[The Federal Office of Road Safety] FORS has proposed that the Asia Pacific Economic Co-operation (APEC) countries undertake a project to examine the adoption of international harmonised dangerous goods transport requirements (including packaging and labelling). This proposal has received considerable support from a number of APEC countries. (sub. 150, p. 1)

The National Standards Commission (NSC) hosted the inaugural Asia-Pacific Legal Metrology Forum in Sydney in November 1994. The forum led to the establishment of a working party to co-ordinate the development of harmonised requirements to facilitate trade. Matters under consideration include the extent of adoption of the OIML prepacked International Recommendations, language requirements, deceptive packaging requirements and requirements for standardised sizes (NSC, sub. 5).

To an extent, there is already some momentum towards convergence to international standards. When developing standards, the NFA is obliged to consider the standards of other nations and of international standards, such as the Codex Alimentarius.

The Codex Alimentarius is an international food code which was first developed in 1962 under the auspices of the United Nations. There is a subcommittee to consider and establish food labelling standards. The labelling requirements include listing ingredients, name and address of the manufacturer, country of origin and lot identification. The standards, guidelines and principles of the code as a whole are contained in 28 volumes.

Foods sold in Australia do not have to follow Codex unless its provisions have been included in Australian regulations or legislation. The standards are used by the World Trade Organisation when assessing whether national standards constitute a barrier to trade.

The obligation on the NFA to consider international standards has been strengthened by developments flowing from the conclusion of the Uruguay Round of the General Agreement on Trade and Tariffs and the new World

Trade agreements. These agreements oblige Australia not to impose technical barriers to trade.

The NFA is conducting a case study for APEC looking at the extent to which national and Codex food labelling requirements differ, the reasons for those differences and possible measures for achieving closer alignment (DIST 1995a). The findings of the case study will provide a measure of the current extent of internationalisation of food labelling requirements (NFA, sub. 54). The outcome of the study should provide the basis for the further development of a work program in this area.

G.3 Regulatory co-operation internationally

This section discusses the initiatives which are under negotiation or which could be considered for international regulatory co-operation beyond New Zealand.

G.3.2 Mutual recognition of conformance assessment — APEC and the European Union

The progress being made in the development of mutual recognition agreements both between laboratory accreditation bodies and other accreditation bodies has encouraged Australia to develop comprehensive mutual recognition agreements on conformity assessment with the European Union and within APEC, covering a broad range of products subject to regulatory requirements.

Mutual recognition agreements on conformity assessment enable products to be assessed and certified in the country of production to the standards of the importing country. It means that there is no need for further testing, inspection or certification at the point of sale to demonstrate compliance.

Mutual recognition can reduce costs for producers and suppliers. Producers do not run the risk of the time delays and additional shipment and other costs involved in having products rejected in distant markets because of failure to meet specified requirements. In some cases where the uncertainty and cost of overseas conformance assessment has created an absolute deterrent to trade, mutual recognition can help create new markets (DIST 1995a).

APEC has as its objective extending the coverage of mutual recognition agreements in all areas of conformity assessment and across the widest possible range of industrial sectors. This objective arose out of a survey of non-tariff measures impeding regional trade, in which standards related issues were rated by businesses as a major impediment. In the long-term, the intention is to

establish these arrangements on a multilateral rather than a bilateral level. However, APEC members recognise that there may be instances where the development of bilateral or sub-regional arrangements can provide a useful building block for the eventual development of wider multilateral arrangements.

An *ad hoc* technical group has been formed, led by the Australian Quarantine and Inspection Service, to look at the potential for developing mutual recognition arrangements within APEC for conformance assessment of food products. Such arrangements could cover all aspects of food regulation, including labelling. They have the potential to remove impediments to trade and enable food control agencies to more productively use their resources (NFA, sub. 54). They could also facilitate exports to APEC markets by reducing import control costs and other technical impediments to trade (DPIE, sub. 102).

Australia and the European Union commenced negotiating mutual recognition agreements on conformity assessment in March 1994. The negotiations are focusing on ten sectors — telecommunications terminal equipment, low voltage appliances, motor vehicles and component parts, electromagnetic compatibility, machinery, aircraft and aircraft airworthiness, pharmaceuticals, medical devices, personal protective equipment and pressure equipment. Other sectors may be added at a later date. Such agreements could cover all aspects of regulation, including labelling.

The mutual recognition agreements being negotiated by Australia and the European Union will oblige signatory governments to recognise the competence of nominated testing and certification agencies and the certification provided by those agencies (DIST 1995a).

G.3.3 Harmonisation of chemical classification systems

Under the auspices of the International Labour Organisation and involving the UN Committee of Experts on the Transport of Dangerous Goods, meetings are being conducted aimed at harmonising chemical classification systems and hazard communication. Worksafe Australia represents Australia at these meetings.

These developments are relevant to the packaging and labelling industries because the outcomes have the potential to affect the content of labels, and international differences in labelling requirements.

At this stage, work has centred on chemical classification. In June 1995, work commenced on hazard communication (that is, labelling). The ultimate aim of this work is to have consistent labelling schemes in use around the world.

Although this aim is ambitious at this stage, the international discussions should help to reduce some of the differences between countries, and to develop mutual recognition schemes between countries.

G.3.4 Other potential initiatives

Internationally, packaging is subject to a variety of rules, regulations, standards, codes of practice and directives, largely with respect to its environmental impact. This is particularly the case in Europe and North America, but, to date, less so in the Asia-Pacific region. The situation in the Asia-Pacific region is, however, changing. By the turn of the century, waste management legislation may be introduced in many countries of the Asia-Pacific region. The countries of this region will also develop their own standards for bar coding, packaging and labelling, and certification.

If these standards develop without any overall regional co-ordination, there is a real risk of significant divergences from country to country which could become substantial barriers to trade.

In some cases regulatory agencies are anticipating this issue:

FORS has proposed that the APEC countries undertake a project to examine the adoption of international harmonised dangerous goods transport requirements (including packaging and labelling). This proposal has received considerable support from a number of APEC countries. (FORS, sub. 150, p. 2)

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