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IMPLEMENTATION OF ESD BY COMMONWEALTH DEPARTMENTS AND AGENCIES

Introduction

As a private company who practices the principles of ESD and delivers services to a wide range of clients we are committed to sustainable development. However, we share a common frustration with many of our colleagues in the environmental information industry (and with most of our private industry clients) that Commonwealth departments and agencies are highly inefficient in the implementation of ESD. A number of papers are attached that address specific issues relating to Landcare funding, the role of private industry in biophysical baseline mapping for ESD projects, and a model for the evaluation of ESD funding to local government, industry and businesses.

The key statement in the Commission's Issue Paper of September 1998 is: *the extent to which Australia ultimately achieves ESD will depend largely on decisions made by industry, business and the community*. This statement should be fundamental to the recommendations of the Commission, particularly in framing the mechanisms for delivery of ESD services and establishing ESD funding arrangements.

There is a Commonwealth (and State) culture in departments and agencies driven by a focus on ESD where there is little context or interest in the imperatives of economic development. From an industry and business perspective the Commonwealth departments and agencies have an inward looking and self- interested approach to the expenditure of ESD funds. Consequently, there is little attention given to the intrinsic link between ESD and sound, commercially viable outcomes for resource development. There is a need to restore the principles of ESD (particularly the economic implications) to this culture. The starting point for the implementation of ESD is a *resource development or economic context*

There is also a general community expectation that governments deliver environmental services to industry and the community and that ESD is *government business*.

Consequently, there is a significant level of Heritage Trust Funds to government agencies. This situation is indicative of a fundamental lack of leadership and commitment of successive Commonwealth governments to ESD delivery within industry, businesses and the community.

Such government agencies at Commonwealth and State levels can not be held accountable for ESD funding outcomes as they are not directly involved in land or resource development, land use and management: this is the activity of industry, businesses and the community.

In many respects, these government agencies are undertaking R&D and delivering services that can be capably undertaken by industry and environmental businesses. The capability of these industries and businesses will only grow in employment and export capability when the greater share of HTF are directed to private industry.

The Commonwealth government has an important leadership role in the implementation of ESD. Fundamental to this role is the legislative framework including policy and regulation, and the exercise of control and quality assurance against this framework. It is acknowledged that many Commonwealth departments and agencies have responsibilities for ESD in decision making. The only common ground is the NSESD objectives, principles and strategies.

However, in many respects the implementation of the NSESD has lacked leadership as there is significant duplication of roles within and between Commonwealth departments and agencies and lack of coordination on fundamental matters such as national resource mapping, R&D, funding, monitoring and evaluation, and reporting. It could be expected that all such Commonwealth activity would be linked to NSESD objectives and strategies. This is what industry, businesses and the community would expect in the documentation of funds allocation and accountability.

As a consequence of this situation the efficient implementation of ESD is limited because:

- The NSESD objectives and strategies are inappropriate in specifying ESD outcomes. An objective should describe an outcome and a timeframe: this provides the basis for measurement (monitoring and evaluation) and reporting. A strategy describes how the objective will be achieved (ie. by the Commonwealth funding arrangements). The principles should include the principles of ISO14004 (ie. information feedback and continuous improvement of knowledge) which form the basis of environmental management. The NSESD should also specify the Commonwealth departments or agencies responsible for implementation, evaluation and reporting on the NSESD objectives.

The National Land and Water Resources Audit is, in effect, not an audit. Its funded projects (consumed primarily by government agencies) do not account for ESD performance against an ESD baseline. The audit is a series of disjointed projects without & development or economic context. One might expect the fundamental maps (baselines) for this audit would be the maps that define current land and water developments (national, regional and local), and the key biophysical maps of environmental processes, eg. climate, soils, vegetation cover condition, hydrology; and the known natural stocks of fish, minerals, timber, etc. This audit is penny packeting exercise that does not adequately contribute to the assessment of ESD performance.

· Commonwealth departments and agencies are delivering ESD services or funding into stovepipes. This appears to occur because there is no overall Commonwealth framework or policy for the integration of implementation or achievement of ESD outcomes (eg. within coastal zone or rangelands management, regional development, industry site selection, etc.). For example, AGSO is funded under the Land and Water Audit to study catchment processes. The question is, why is AGSO undertaking this work (that appears to have no research value or linkage to economic development) and what can they contribute at a regional or catchment scale that is not already being achieved within private industry delivery services? The Commonwealth's DEH is undertaking vegetation mapping that duplicates both State and private industry outputs. Overall, BRS, MDBC and ERIN have failed to achieve a level of resource data integration and map products that are useful to the resource development industry (including plantation forestry);

There is a tendency by some Departments and agencies (eg. ABS and AGSO) to impose significant data purchase costs and other restrictions (eg. data use licence constraints) on the use of public data. This is a major limitation to the use of public data, information and knowledge in the implementation of ESD. The result is that community groups, environmental consultants, local government and developers do not access essential data for decision support, monitoring and evaluation, and reporting. There is a need for an open data access policy at the Commonwealth (and State) level for all biophysical, economic and social data sets. This includes the census and other data sets from ABS that are critical to ESD considerations but are currently far too expensive for industry, community groups or individuals. No government data set should exceed about \$300 or the cost of data transfer to a suitable media for distribution;

The Commonwealth legislation relating to EIS (Environmental Protection Impact of Proposals, Act 1972) is input driven rather than outcomes and resource management focussed. This legislation needs to focus on ESD outcomes and the management cycle required achieving ESD (eg. baseline mapping, decision support, monitoring and evaluation and corporate reporting). Currently, the process of ESD stops at the point of approval of a development based on the EIS outcomes. This should be the start of a process of demonstration by the developer of adequate decision support systems, monitoring and evaluation and corporate reporting. These requirements need to be embodied in the EIS process (as an outcomes/ results focus) and the development

approval documentation. Commonwealth funds allocation for the implementation of ESD will by-pass the Departments and Agencies responsible for resource development (ea. Department of Regional Development and Transport); Local Government and the Regional Organisations of Councils (ROC) who are largely the consent authorities for development are rarely involved in the Commonwealth decision processes of ESD (eg. the direct allocation of Landcare funds to Landcare groups who largely have no development context for funds expenditure or accounting); Commonwealth funds allocation to ESD projects and research have no (or little) requirement for monitoring, evaluating or reporting on outcomes for ESD; The direct involvement of both Commonwealth and State public servants (and quasi government programs such as Greening Australia and Landcare Australia Ltd) at the delivery end of implementation raises serious issues about the contestability of service delivery, conflicts of interest (setting regulation and delivering against those regulations), the National Competition Policy, the implementation of ISO14004 principles and guidelines (ie. the accountability requirement of Lindog funding to a process of information feedback and continuous improvement in ESD knowledge); Most Commonwealth funded ESD projects are addressing environmental consequences (eg. capital works for salinity, acidity, loss of woodlands, etc.) rather than the causes of system dysfunction which is the lack of knowledge, information and data for people who make decisions about land or other natural resource use; There is a serious lack of reliable baseline biophysical data (particularly soils data) for ESD decision support, monitoring and evaluation, and reporting. Commonwealth investment into this area through AGSO, BRS, ERIN and CSIRO is misguided because it does not have a resource management context. For example, the geophysical data collected by AGSO for mineral exploration has greater economic value in land use planning and management but they continue to target only areas of mineral prospectivity and not the areas of greatest economic or development interest (eg. the coastal zone);

Commonwealth agencies such as AGSO, BRS, ERIN and CSIRO (Land and Water Division) will engage in destructive marketing tactics against any private company who is capable of delivering services in competition with them. In many respects, Commonwealth departments, agencies and institutions bring significant resources, prestige and influence to bear onto competitive private companies. Consequently, the views of government agencies and institutions have a high probability of affecting the decisions of all but the most robustly confident prospective clients of small companies; In most cases, the Commonwealth tender process for *ESD type* projects are not evaluated within the guidelines of the National Competition Policy. For example, LWRRDC and the MDBC often produce tenders or invite expressions of interest where the true cost to the taxpayer is not accounted in the funds allocation. State agencies participate in assessment of HTF projects while delivering services against these funds. CSIRO and other government agencies can win ESD projects because they are only seeking 30-50% of the commercial value of the project to offset their available Treasury funds. Consequently, the growth of technology and employment in companies capable of delivering ESD services is stifled, along with potential export dollars;

There is a significant gap between ESD research and the transfer of this technology to industry service providers within private industry. In part, this is a consequence of

private companies being excluded from the ESD implementation process. State government agencies generally receive the greatest share of ESD funding for service delivery or implementation.

There is an increasing *dependency culture* (particularly within the agricultural industry) that government will provide funds for ESD *works projects*. This expectation discourages investment by the agricultural industry into the more pressing areas of baseline mapping, decision support systems, monitoring and evaluation and reporting ESD outcomes.

Changes Required in the Implementation of ESD

The fundamental changes required at a Commonwealth level to achieve effective implementation of ESD are:

- Provide a legislative framework with policy and strategies that define development, economic, social and environmental outcomes for ESD. The legislation should require a management cycle linked to funding that adhere to the ISO14004 principles and guidelines (ie. feedback of information and continuous improvement in knowledge). This cycle should emphasise the importance of baseline mapping, decision support systems, monitoring and evaluation and corporate reporting;

Departments and agencies should only be responsible for policy, regulation, control and quality assurance. Service delivery should be left to private industry to develop effective ESD implementation services and products, including a skilled employment base, export of ESD technology, and an R&D capability in ESD products and services. Delivery of ESD services (including the preparation of national data sets) by government agencies invariably leads to conflict of interest, breaches of the National Competition Policy and Trade Practices Acts, and stifling of the environmental information technology (KIT) industry. Also, the administration of the NHT funds should fall within the Department of Prime Minister and Cabinet rather than Departments or agencies that should be held accountable for implementation of the NSESD; Commonwealth funding for ESD should be delivered through the Department of Transport and Regional Services (or the Department of Industry, Science and Resources) to State based Regional Development Organisations (RDO). Local governments must be involved in decisions on Commonwealth ESD funds allocation as they are invariably responsible (as the consent authority) for development approvals. In the most part, it should be the RDO's and local governments that are initially accountable for ESD outcomes, not Landcare groups or individual land users (except where a specific development is approved by the Commonwealth or Sate). For example, Local Governments in NSW already have to prepare SoE reports (often at regional scales) to State Parliaments. In this way, Landcare Groups would work closely with Local Governments who would coordinate Landcare projects, and provide facilitators (rather than State agencies, as in NSW). ESD monitoring and reporting for Commonwealth accounting purposes should be based on economic regions. The concept of a big-region is meaningless (in ecological terms) and impracticable in terms of ESD reporting;

- The priority for Commonwealth funding for ESD should be to support knowledge building and use of knowledge in decision support systems within industry, businesses and the community. This includes biophysical baseline mapping, decision support systems, monitoring and evaluation and co~porate reporting;
- Departments and agencies need to involve private industry in R&D projects to close the gap between environmental R&D and private industry service delivery. Currently, private industry can not compete fairly for R&D funds against CSIRO, BRS, AGSO, Universities, etc. Also, since universities can establish companies to compete with private industry in service delivery the universities should comply with the National Competition Policy (for example, they can acquire software and hardware under special rates and use public space at no cost);
- ESD funding outcomes need to be measured as economic, social and environmental results that are agreed as part of the funding allocation. The measurement of the amount of fencing around trees (as cited in the Commission's Issues of September 1998) is not an effective measure of an ESD result. A positive change in land condition (eg. the area and condition of regeneration), greater recycling of irrigation water or the relocation of an enterprise to a more ecologically sustainable site are effective measures of an ESD result. The length of fencing represents only a resource input and cost in achieving an ESD result.

Conclusion

The popular idea that economic objectives currently take priority over environmental concerns arises largely from an ESD approach to funding, R&D and service delivery by DoE, AGSO, LWMD, CSIRO, BRS, MDBC, ERIN, etc. Economists should not be targeted for criticism as the environmental knowledge bases that are currently available for economic decision making are very poor and not designed to answer economists/ developers questions. For example, the availability of reliable and suitable biophysical data, and access to these data from government agencies is frustrating and costly for developers, economists and environmental consultants. The conversion of data into information or knowledge for the consideration of ESD requirements is a very utilitarian process that is often best left to private companies (with a government evaluation and reporting process) .

ESD will be successfully implemented when the data, information and knowledge base at the paddock local, regional and national levels are significantly improved for decision support, monitoring and evaluation and reporting. ESD principles can only be addressed through an adequate decision framework. This includes Commonwealth/ State investment into comprehensive biophysical baseline data sets that are the most important component of this framework. To a large extent, the decline of rural communities is a symptom of the lack of knowledge about resource capability for enterprise development.

There is a need to shift the emphasis in ESD to a development/ economic context and the transfer resources out of Commonwealth departments and agencies to regional and local governments, and private industry. This also requires Commonwealth funding to be linked to a resource management cycle and the service delivery mechanisms within private industry.

The Commission should consider whether greater productivity and achievement of ESD outcomes could be better achieved by rationalisation of Commonwealth resources within CSIRO, BRS, AGSO, DoE, MDBC, and the Department of Agriculture, Fisheries and Forestry. These resources may be better utilised within industry, business and the community (ie. *the sharp end* of ESD).

There is also a need for the NSESD objectives to primarily address national issues such as the effects of environmental impact on human health in the urban environment (which accounts for 85% of the population in 1% of the area of Australia). The other national priorities are greenhouse gas emissions, restoration of river flows, recycling of resources, alternative power sources, malaria invasion through Cape York (and other insect borne diseases) and desalinisation of water. The current concentration of ESD funding on issues such as saline scalds, acidity, revegetation (as opposed to regeneration), and many other rural works projects are misguided and unproductive compared to other national priorities. These rural land based issues can be addressed in the longer term through better land use planning and management knowledge within rural based local government, business and communities.

Overall, there is a need for simplification of the ESD implementation process (eg. coordination of public service resources and funding devoted to environmental matters) at the Commonwealth level. Industry, businesses and the community must see the function of ESD implementation at the Commonwealth level as unified and supporting economically and ecologically sustainable development

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ESD MANAGEMENT CYCLE: ENVIRONMENTAL MANAGEMENT INFORMATION SYSTEM (EMIS)

Introduction

An EMIS is a fundamental component of an Environmental Management System (EMS) and essential in the implementation of ESD. An EMIS should be an essential component of the National Strategy for ESD to ensure monitoring, evaluation and reporting of ESD funding outcomes in local government, industry and businesses. A diagram of an EMIS is attached.

The information management technology required to implement an EMIS is well established within private industry and there is an opportunity for the Commonwealth government to support private industry participation in developing *best practice* in the broader application of this technology.

An EMIS enables resource management policy, statutory requirements, business and management plans to be actioned or operationalised through the information management and reporting.

The aim of an EMIS is to strengthen the capability of the industries (eg. forestry, mining agriculture, etc.) and businesses to better manage environmental information and take a leadership role in meeting business, statutory or community expectations in ESD. This approach enables industry to be less reliant on Government agencies for research, data management, advisory services and environmental assessment. The cost benefit is achieved through better information technology (IT) integration, resource management decisions, enterprise site selection, risk analysis and public relations positioning.

An EMIS has two basic requirements:

- closes the loop with resource planning and management through performance measurement and reporting; and
- provides the means of continuous improvement in the information and knowledge applied to planning and management decisions.

Environmental Information Management Methodology

The EMIS methodology complies with ISO14004" principles and guidelines. The methodology provides a superior 11 enabled management framework that:

- reinforces a continuous environmental improvement processes (ISO14004);
- links corporate environmental planning and business management objectives;
- supports risk assessment and field decision support in environmental management;
- enables routine and environmental condition monitoring (measurement); and
- provides corporate SOE reporting against key performance or business objectives.

The overall approach should maximise proven world class technologies to operationalise the environmental planning process by capturing and using knowledge for the management of physical resources at all levels of management and planning. The solution should:

- substantially reduce the need for further stand alone hard copy resource management plans,
- electronically capture and presents expert knowledge in a simple and non-threatening way;
- better support environmental impact assessment and local management decisions;
- present mitigation and cost trade-off options;
- use timely and information rich spatial and non- spatial data in an easily interpreted visual format; and
- support best management practice reporting.

EMIS should comprise a tailored business process design that conforms to ISO14000, supported with *IT systems components* based on off- the- shelf decision support software (DSS), remote sensing and field monitoring technologies. The technologies that can be integrated into a solution are:

- the proprietary decision support software (knowledge based system);
- commercially available Geographic Information Systems (GIS), remote sensing technologies and a monitoring capability;
- field monitoring tools, eg. Global Positioning System (GPS), digital camera, laptop computer, field notes software and other off-the-shelf environmental impact recording tools; and
- management reporting and monitoring databases.

The primary benefit that EMIS offers is to:

- maximise the spatial data, information knowledge gained during the planning, building and set to-work phases for the whole of the life of a project;
- reduce the cost of on-going environmental planning and conformance reporting;
- integrate environmental and operational decision making and
- better manage the risks associated with regulatory breaches.

Staged Implementation

The implementation of EMIS should be staged in the following manner within local government, industry and businesses:

- a scoping study to define the business information requirements of local government, industry/businesses (usually a combination of economic, social and environmental outcomes);

define the Environmental Management Information System (EMIS) and the manner in which an EMIS would enable implementation of ESD;

EMIS functional design and perhaps the conduct of a prototype to demonstrate system capability;

Establish EMIS resources including the integration of the baseline biophysical data. The baseline biophysical data are essential to establish the means for temporal analysis of change.

Build the knowledge base as a decision support system;

- Establish the land condition monitoring process (temporal detection and interpretation of resource condition changes). This process would include the incorporation of routine monitoring data, eg. water quality, within a GIS data base;
- Establish a reporting process to disseminate data, information and knowledge to stakeholders and clients.

Data Management

There is a need to streamline the processes of spatial data management within government and industry by:

- effective use of modern environmental information technology and application of a range of remotely sensed data to derive up-to-date maps of the land cover, land condition and other biological and physical factors down to sub-catchment level;
 - establishing a baseline of biophysical data layers for routine and land condition monitoring purposes;
 - integrating the spatial and non-spatial data sets;
 - maintaining the integrity of the data on an ongoing basis through an outsourced and centralised service bureau (data management) arrangement;
 - ensuring land data are readily accessible to all stakeholders and clients at little or no cost;
- and
- linking the centralised data management functions to the business wide operations of data collection, resource condition monitoring, information reporting, funding accountability and rural resources management consistent with ISO140004 principles and guidelines

The establishment of a planned process to regularly monitor changes can now be effectively implemented. The technology and techniques to monitor the land condition changes have been well developed and applied by private industry using the numerical processing of remotely sensed data. Therefore, it is possible to streamline the processes of environmental monitoring and reporting by requiring local government, industry and businesses to:

establish the monitoring information requirements for resource planning and management;

establish a current baseline of resource (eg. land and water) condition data;

establish a program of data acquisition for change detection purposes;

undertake statistical analyses, interpretation, evaluation and reporting against agreed key result areas or performance indicators; and prepare reports based on results.

Conclusion

An EMIS is fundamental to reporting on the outcomes of ESD. While there is a requirement to implement EMIS within Commonwealth departments and agencies, eg. Defence and MDBC, the greatest need is within industry and large business that manage rural resources.

There is a need for the Commonwealth to provide leadership in the area of ESD evaluation and reporting. This leadership is best provided by the Commonwealth's ESD funding departments. The actions required now are to:

- incorporate the EMIS (IS0140004) into the NSESD;
- link EMIS development and implementation to all ESD funding projects;
- support the development of the capability within private industry for the delivery of EMIS services to governments, industry, businesses and the community; and support private industry investment into the development of world leading computerised decision support systems(DSS). Currently, Defence is importing this technology from Canada when investment into, and strengthening of, Australian companies to further develop DSS would produce a more efficient and practicable solution for ESD.

ESD OPPORTUNITIES FOR THE ENVIRONMENTAL INFORMATION TECHNOLOGY INDUSTRY IN RESOURCE MAPPING

The Commonwealth government has devolved many of the mapping functions from AUSLIG (part of DISR) to private industry but there is still considerable mapping work undertaken in the Commonwealth departments and agencies mentioned above. At a Commonwealth level much of this work falls within the Department of Environment

and Heritage (DEH), Department of Agriculture, Fisheries and Forestry (DAFF), AGSO and CSIRO.

The major competitors of private industry in the area of environmental information technology are Commonwealth and State agencies that maintain extensive resources in traditional environmental mapping, and expect to monopolise the application of new technologies. These Departments and agencies are very reluctant to outsource or collaborate with private companies, and some have blocked projects that are seen to compete in their area of work. In this regard, private industry is yet to see benefits from the implementation of the National Competition Policy and government's initiatives to support small business development.

It appears that in the case of the implementation of ESD the Commonwealth government has focussed on companies that require support in the adoption of sound environmental practices, and the Commonwealth government has expanded to provide such services. The government is building its position by educating and promoting established companies that provide facilities support, however this fails to support companies providing environmental services, and in some areas provides competition. That is, the initiatives can be seen to be negative or neutral to the environmental information services industries, thereby limiting its ability for growth and export.

The allocation of \$12.5 for the development of a national carbon accounting system for land-based sources and sinks provides an example. The funds for greenhouse projects are being spent on government services to the resource industries (eg. energy), and funding to State and Commonwealth departments/ authorities to undertake supporting work. All associated mapping of vegetation change using remotely sensed data is being undertaken by Commonwealth and State departments. The opportunity to further develop industry capability, and therefore export opportunities, has been disregarded.

Further examples are provided by mapping work to support the Comprehensive Regional Assessments (CRA) by BRS, and recent drought mapping in Papua New Guinea by the Australian Geological Survey Organisation (AGSO). Private industry has the capability to undertake such work. However, there is little opportunity emerging for the greenhouse projects, land and water audit and environmental monitoring work currently undertaken by Commonwealth agencies. That is, this type of work is rarely outsourced by Commonwealth agencies.

This delivery of environmental services by Government agencies prevents industry developing the home base needed as a foundation for the development of employment growth and export opportunities. This also counteracts efforts by the Minister for DISR, to promote industry development through research grants as such grants to private companies are of little use where the developed capabilities are not utilised by Governments. The greatest boost that government could give to embryonic industries to utilise its services, thereby allowing the development of a collaborative approach that efficiently meets Australia's requirements while also building an export capability.

Measures that the Commonwealth government can take to support the environmental information technology (EIT) industry in Australia are:

Implement the National Competition Policy and Small Business Development policies within DEH, DAFF and CSIRO;

Require DEH, DAFF, DISR (AGSO) and CSIRO to partner with KIT companies to implement Government policies on natural resource planning and management;

Ensure that government departments and authorities only seek external funds where these are associated with core functions. For example, activities associated with funds sought by CSIRO should constitute scientific research under the Taxation definition, and form an integral part of their strategic research plan; Implement the National Competition Policy within the Heritage Trust Funds arrangements (currently State agencies who deliver environmental services, eg. soil mapping, participate in decisions for HTF funds allocation while competing with private companies for the same business);

Increase the opportunities for private industry access to R&D funding from LWRRDC either by implementation of the National Competition Policy or allocation of at least 20% of their funds to the KIT industry (Commonwealth and State agencies compete very unfairly for LWRRDC funds, and other Government R&D funding sources);

Use the EnviroNET as a new of developing environmental business partnering arrangements (ie. a business and technology matching agency);

CASE STUDY: DIFFICULTIES IN PRIVATE COMPANIES IMPLEMENTING INNOVATIVE INFORMATION TECHNOLOGY TO ESD.

Introduction

This case study outlines issues that surround the proposed application of innovative information technology developed by Environmental Research and Information Consortium Pty Ltd (ERIC) in Commonwealth funded projects. It is our experience to date that when Commonwealth and State agencies are involved in assessing grants under the HTF for community based projects they are apt to reject the application of innovative ESD technology from private industry. This situation arises because Commonwealth and State agencies are actively involved in delivery of services using HTF and are in a position to *stone-wall* competition from private industry. This case study concludes that Commonwealth and State agencies that are closely linked to the ESD implementation process or are delivering services to HTF clients should not be involved in the HTF assessment process, due to conflict of interest issues.

The case in point arises from a decision (based on technical advice given by the NSW Department of Land and Water Conservation (DLWC)) not to approve a proposal from the Jerrawa Creek Landcare Group to use technology and techniques developed by ERIC in the mapping of soil properties using radiometric (gamma-ray emissions data). The DLWC deliver soil mapping services in competition with ERIC. We are concerned that some sections of DLWC have adopted a very negative position that is prejudicial to ERIC's commercial interests. The DLWC position also militates against

the broader development of the technology for application in ESD, and technology export.

The Jerrawa Creek Landcare Group submitted the funding proposal to utilise the radiometric data as an effective means of producing a reliable soil's map because no soil landscape map exists for the Gunning 1:100 000 map sheet, or is likely to exist before 2002. The methodology developed by ERIC has been successfully applied to the benefit of resource management industries, government agencies and community groups throughout Australia during the past 6 years.

The decision of the Committee was based on advice from technical officers of DLWC that *'the project entails the use of a technically questionable experimental techniques and is therefore an inappropriate activity to be funded through the National Heritage Trust'*. The Jerrawa Creek Landcare Group were also advised that *'if you are intending to resubmit it is important that you seek advice from appropriate technical experts and talk with local Landcare coordinators about ways in which your proposal may be enhanced'*.

This decision and the advice given to the Jerrawa Landcare Group raises issues about the capability of LWC officers to provide advice on this technology, and their probity in participating in public funding decisions involving alternative soil mapping technology to that offered by DLWC.

Background

The Jerrawa Creek Landcare Group have previously applied modern technology involving optical and radar satellite data to map the land cover and conditions of their catchment as part of preparing comprehensive baseline biophysical data layers for their land and water management plan. The Group thoroughly assessed the technical and functional application of radiometric data and capability of ERIC for mapping soil's properties, and decided to use ERIC's methodology in their proposal for Natural Heritage Funds. The recent availability of high-resolution data for the catchment enabled the application of this technology during 1998, and the group proceeded to purchase the data from their own funds. Their proposal included field collection of data by the Landcare Group and training in the application of the mapping outcomes in land use management during 1998. The soil map is essential to understanding land use capability, enterprise site selection, land use management requirements, salinity and waterlogging processes.

The Landcare Group is confused by the Committee's decision, but is reluctant to complain or resubmit the proposal for fear the proposal will be further *stone-walled*, or that future proposals will be treated unfavourably. The decision of the Committee will significantly set back the Jerrawa Creek Landcare program for ESD given that the DLWC has offered no effective alternative.

Issues

The main points at issue are:

- The statement that ERIC uses technically questionable techniques.

The provision of advice by LWC staff involving the expenditure of public funds where DWLC is a potential competitor for such funds.

The technically questionable techniques relate to the use airborne measures of gamma radiation (radiometrics) in mapping soils. Given that the DLWC does not have any recognised capability in relation to this methodology, it is not in a position to make valid comment on technical aspects of the approach. Ironically, the Commonwealth's AusIndustry Program has partly funded ERIC's costs in preparing an export marketing plan for this soil mapping technology (SoilMap™)

The DLWC, in its capacity as a Statutory Authority, sets requirements and evaluates outcomes, but it also undertakes the provision of services to meet those requirements. This produces a potential for conflict of interest whereby the DLWC can obtain funds by increasing requirements without independent evaluation of need or performance. In soil mapping, the conflict of interest has changed from potential to actual. This position would appear to be against the joint governments' agreements on competitive neutrality (Policy Agreement of 1995).

Given its lack of capability for mapping soils using radiometrics, the DLWC has a commercial interest in promulgating the current soil landscape approach. There is clear commercial benefit for DLWC staff to denigrate the ERIC approach, and this raises issues of the DLWC taking actions prejudicial to the commercial interests of ERIC, as well as conflict of interest.

Given the seriousness of these circumstances, the DLWC must be prepared to demonstrate the so called technical deficiencies in the ERIC approach. In this regard, ERIC provides statistical evaluations of the reliability of mapping, but we have yet to see such tests of reliability with soil maps provided by the DLWC. Moreover, we can report on a study where the soil landscape approach used by DLWC failed to identify significant patterns in soils in an environment particularly suited to this approach.

While ERIC can statistically demonstrate the limitations of the approach used by the DLWC, and identify aspects of the methodology that produce these deficiencies, these activities were undertaken to provide direction for future developments. We intentionally do not denigrate the work of those conscientiously attempting to do their job, and question why the DLWC does not take such an objective, and positive approach.

The developments in soil mapping initiated by ERIC are significant to the extent of representing a paradigm change. This change is not restricted to the use of radiometrics to provide the base map, but includes the mapping of soil properties, and the provision

of tests of reliability. We appreciate that the number of innovations, and the employment of new technologies, make the approach daunting to those involved in traditional soil survey, but this does not justify the denigration.

Conclusion

The current situation is acting against the best interests of ESD, the Federal Government's industry strengthening initiatives with the environmental information technology industry, export marketing of Australian information technology, natural resource management, and accountability of public funds.

There is a rapidly rising ground swell of industry and community endeavour to establish accountability and efficiency through separation of statutory authority and regulation from service delivery. Government is expected to express community requirements through legislation and regulation, but private industry is expected to deliver. There is also a need for Australia to develop an environmental information technology industry with the capacity to export.

The use and accountability for public funding for resources management must be conducted without prejudice to non- government service providers. In particular, there is a need for a transparent process whereby service providers or recipients of NHT funding, eg. DLWC are not involved in project assessment.

The long-term requirements are for authorities such as DLWC to assist rather than compete with private industry to the benefit of the resources industry and employment. This can be achieved through government departments facilitating access to public data and private industry delivery services.