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The Productivity Commission (and its predecessors) has examined a number of environmental issues within its research and inquiry programs which are relevant to the inquiry of the House of Representatives Standing Committee on the Environment and Heritage into Public Good Conservation (Terms of Reference — Box 1). The Commission’s statutory guidelines direct it to consider relevant social and environmental aspects of issues under its consideration as well as their economic or financial aspects.<sup>1</sup>

**Box 1      Terms of Reference**

The House of Representatives Standing Committee on Environment and Heritage is to inquire into and report on conservation measures undertaken by private land users which bring environmental benefits to the community at large. The Committee refers to these measures as ‘public good conservation’ measures.

The terms of reference request the Standing Committee to enquire into and report on:

1. Impacts on land holders and farmers in Australia of public good conservation measures imposed by either State or Commonwealth Governments;
2. Policy measures adopted internationally to ensure the cost of public good conservation measures are ameliorated for private land holders;
3. Appropriate mechanisms to establish private and public good components of Government environment conservation measures; and
4. Recommendations, including potential legislative and constitution means to ensure that costs associated with public good conservation measures are shared equitably by all members of the community.

Recently the Commonwealth Government released the final report of the Productivity Commission’s inquiry into implementation of ecologically sustainable development (ESD) by Commonwealth departments and agencies (PC 1999), and the Industry Commission’s 1997–98 inquiry into ecologically sustainable land management (ESLM) (IC 1998). Both of these inquiries stressed that sound economic management requires sound environmental management, but concluded that incorporation of ecological sustainability into policy and practice has been ad hoc and incomplete.

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<sup>1</sup> The Commission has published research into such diverse environmental issues as land degradation; greenhouse gas abatement and emissions trading; plastics recycling; valuing the environment; the role of economic instruments in managing the environment; recycling; the costs and benefits of reducing greenhouse gas emissions; water resources and waste water disposal; adding further value to Australia’s forest products; and environmental waste management equipment, systems and services.

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In this submission, the Commission draws on these inquiries to suggest ways to improve the implementation of public good conservation, and the design of environmental policies that may benefit, rather than harm, rural land holders. Specifically the Commission:

- argues that economic or market based instruments should play a major role in policy makers' responses for addressing environmental concerns, and provides some examples of how economic instruments have been used for dealing with environmental issues;
- discusses some issues regarding the distribution of the costs of public good conservation; and
- canvasses other key requirements (reliable information and partnerships between government, industry and the community) that promote the effectiveness of economic instruments or other policy responses to environmental concerns.

### **Conservation outside reserves is important**

Nature conservation involves a number of activities including the protection, continuance or restoration of flora and fauna, land and water, ecosystems and landscapes. Nature conservation may be important for both its use and non-use values. Use values may include direct consumption and recreational benefits, while non-use values may incorporate existence, aesthetic and cultural values (see Rose and Cox 1991, Tietenberg 1992).

Nature conservation activities may range from the protection of a pristine wilderness to a local park. Obvious conservation efforts include World Heritage Areas, National Parks and Nature Reserves. However, many of the features that may require conservation (such as forests, wetlands, grasslands and deserts) are held under private title.

Public demand for conservation and environmental services has grown over the past few decades, reflecting changing preferences in the community. With increasing interest in the environment, more environmental services that were previously lowly valued by the community are now considered important and there is growing demand for their protection.

There is a perception that the old way of providing nature conservation — for example, government owned and run reserves and parks — has been expensive and sometimes less than successful in conserving native species of flora and fauna (Wells, Brandon and Lee 1993). Moreover, there is considerable international and Australian experience to demonstrate that supportive conservation practices on

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private lands surrounding government conservation areas is an important supplement to those government conservation areas. In fact, trying to protect enclaves and islands of flora and fauna within government conservation areas, while the intervening areas are being degraded, has failed to achieve nature conservation in many countries (see Wells, Brandon and Lee 1993; Williams 2000).

So it is not surprising that governments are seeking more cost-effective ways of providing environmental services to the community at large including ways of encouraging private sector involvement in nature conservation.

Generally, private sector nature conservation has tended not to occur where the links between the conservation and commercial gains are unclear — where environmental services have no apparent role in commercial activities. For instance, there has been little financial incentive for private agencies to conserve flora and fauna of non-commercial value, or to conserve ‘in situ’ ecosystems where their private benefits are unclear (even if they have an intrinsic value to many in the community). However with growing demands for conservation and environmental services, the private sector can play an increasing role.

There is ample evidence around Australia that landowners do (voluntarily and without compensation) undertake some relatively small and inexpensive conservation measures. The success of the Landcare movement, for example, is built on voluntary initiatives (not necessarily driven by direct financial returns) but with some financial support from governments. Nonetheless, given that Landcare is a voluntary program, there are limits to its ability to effect change (Campbell 2000, p. 1-2):

Voluntary landcare at community level cannot change the landscape. It can pull some of the tools together but not enough. The average annual input costs of agriculture in Australia are \$28 billion dollars. The National Heritage Trust, \$300 million, 1 per cent of that.

...Landcare groups don't make laws. Landcare groups don't write the tax system. Landcare groups don't determine the rating at which local government rates work. Landcare groups don't set catchment levies or take them away.

The private sector has shown itself willing to be involved in nature conservation, but it inevitably does so within a framework established by government. The objective for government should be for such a framework to minimise the cost to society of achieving the desired environmental outcomes. Using economic instruments to provide incentives for private sector involvement should be an important component of this.

The terms of reference for this Inquiry focus on the impacts on landowners of mandatory conservation measures being imposed upon them. The Commission

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suggests governments should also consider positive incentives to encourage private sector conservation that can minimise costs while achieving agreed environmental objectives.

## **Regulation is not always the answer**

In the past, governments have generally relied on prescriptive regulation to achieve environmental goals. Prescriptive regulation is relatively inflexible and can provide limited incentive (or even barriers) to those being regulated to develop innovative solutions to address environmental problems. Regulatory approaches often specify processes and/or equipment that must be used, or specify allowable discharge quantities or how wastes must be treated and disposed. Due to their inflexibility, such regulations can impose high costs on land owners, industry and the community. Prescriptive regulation can also be costly to monitor and enforce.

The Industry Commission's ESLM Report found that prescriptive regulatory approaches are not working well for dealing with natural resource issues and environmental protection. The Report (1998, p. 5) stated that 'regulation has often not recognized the severe practical limits to what can be achieved with prohibition'. The Report also found that much regulation is ad hoc and often the only response used. Further, the rules imposed by regulations have often been set with limited input from those who are required to work under them.

## **The role of economic instruments**

Economic instruments (or market-based instruments) work by using market signals (relative prices) to alter the incentives faced by decision-makers to change their behavior. Using these instruments, governments can aim to incorporate the cost of environmental degradation into the price of resource use.

In contrast to prescriptive regulation, economic instruments do not specify a particular process or technology that may be used but allow decision makers to determine which is the best method in their particular circumstances to meet a desired environmental objective (in this sense, they are similar to performance based regulation). Their main advantage over prescriptive regulation is that they provide consumers and industry with greater flexibility for responding to environmental concerns and they also encourage innovation. This flexibility means that, in many cases, economic instruments can provide the least cost solution to environmental problems.

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Evidence in Australia and overseas indicates that economic instruments can contribute to environmental protection. As the ESLM Report pointed out, environmental harm can be caused by a lack of markets or by the existence of markets that function poorly. Because of a lack of well-defined property rights to many natural resources, people overuse some resources such as water and undervalue others.

To create markets for environmental services, it is sometimes possible to assign private property rights to natural resources or environmental services through mechanisms such as tradable permit schemes. Permits can be used to create a right for firms to cause some form of environmental degradation up to specified limits. These limits can be set below current levels of degradation. Through trading of permits amongst polluters, the use of a market mechanisms has the potential to achieve any given target reduction at the lowest cost. Firms with relatively high costs of reducing degradation could buy additional permits from those firms that are able to reduce degradation more cheaply. These firms would be willing to sell their permits as long as the price received was greater than the costs of reducing degradation. Overall, the system uses financial incentives to ensure that degradation reductions are made by whoever can do so at least cost, and rewards them for doing so, while financially penalizing those higher cost producers who continue to degrade the environment.

Tradeable permits have been used for the emission of SO<sub>2</sub> in the United States and for trading salinity in the Hunter River catchment in New South Wales. Tradeable emission permits are being explored as a possible response to Australian's greenhouse gas reduction commitments (see Cornwell, Travis, and Gunasekera 1997).

Economic instruments cover a range of measures from relatively simple charges and subsidies to more complex systems involving tradable permits. By changing incentives, appropriately designed economic instruments can encourage conservation and more efficient use of resources and hence reduce the environmental impacts associated with their use.

Examples of economic instruments include taxes and charges or subsidies and tax concessions. Taxes and charges in these cases may simply be regarded as additional 'prices' that firms or other decision makers should pay to cover some, or ideally all, of the costs associated with the pollution or environmental damage. Where taxes and charges have been set appropriately, firms and consumers are able to take into account the costs of environmental damage caused by their decisions. Those firms and consumers that can reduce environmental damage at a cost lower than the levy or charge will do so, while those that cannot, will pay the charge or tax, or lower or even cease production altogether. These measures provide incentives for firms and

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consumers to find innovative and low cost ways to reduce environmental damage to avoid payment of environmental taxes and charges.

Subsidies and tax concessions, on the other hand, are government payments used to encourage producers and consumers to undertake activities that the government regards as beneficial to the environment. Some examples of financial/tax incentives to encourage farmers to provide conservation services are discussed in Binning and Young (1997) and Saunders and Binning (1999). Any such incentives need to be carefully targeted to achieve clearly articulated objectives, and they need to be monitored to ensure they continue to achieve their objectives.

Of course there are many complexities involved in using economic instruments, and the benefits and costs of specific proposals need to be carefully considered. Further discussion of these issues may be found in IC (1997); OECD (1989); Tietenberg (1992); and Dore and Mount (1999).

Nonetheless, the ESLM Report concluded that there appears to be potential to expand the use of market based instruments to deal with public good conservation.

Indeed, economic instruments have been used by all levels of government in Australia to deal with problems associated with land, water and air degradation. Examples include:

- Commonwealth tax concessions for improved land and water management;
- subsidies and grants for tree planting, fencing and vegetation protection initiatives;
- user fees charged for access to areas such as national parks and reserves;
- transferable quotas in fisheries; and
- a trading scheme for managing salinity in the Hunter River in NSW.

The ESLM Report identified the following as areas that could further benefit from the application of economic instruments:

- continuing development of tradable water entitlements;
- separating the ownership of commercial trees (woodlots) from the land on which they are grown;
- pricing reforms to eliminate subsidized use of resources;

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- extending existing tradable discharge permits to new sources of water pollution; and
  - creating new permit systems for agricultural discharges such as salts and nutrients.

The Commission is clearly not alone in calling for an increased use of economic instruments for managing the environment. The National Strategy for Ecologically Sustainable Development (DASET 1992a) and the Intergovernmental Agreement on the Environment (DASET 1992b) both specifically encourage the use of economic instruments.

Although economic instruments can promote environmentally beneficial outcomes, in reality, the choice for policy makers is often not as simple as adopting one option (say a market based approach) over another (say regulation). Each policy option incorporates different characteristics and advantages and disadvantages and thus tradeoffs must often be made. While there is extensive experience with the use of regulations, the use of economic instruments is far less developed.

A range of factors need to be considered when selecting the most appropriate instrument or combination of instruments to address an environmental problem. These include:

- cost;
- efficiency;
- flexibility;
- incentive effects;
- dependability;
- effectiveness;
- certainty;
- acceptability;
- equity; and
- informational requirements.

On a case by case basis, policy makers must make tradeoffs between these criteria as one policy option will rarely satisfy all criteria well. The ultimate tradeoffs made will depend on which criteria are paramount in any given circumstance. For example, governments may be risk adverse where policy failure is irreversible (such as with species extinction). In these cases higher costs may be acceptable in order to achieve greater dependability of the outcome. This criterion may dominate in the selection of the policy instrument. A combination of instruments is often likely to

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work best and reduce the extent to which one criteria will have to be sacrificed in order to promote others.

## **Distributional impacts**

Rural land use is, in part, shaped by past, present and expected financial incentives. Changes in the incentives facing farmers and other land holders will change the amount of land used, and how it is used.

Currently farmers and other users of privately held land would be expected to use their land for their own benefit. It therefore follows that any nature conservation policy which induces farmers and other land holders to change their practices would be expected to reduce the private benefits obtained from that land, even though the overall benefit to the community may be increased.

Nevertheless, farmers or land owners may be able to benefit commercially from an 'environmentally clean' image. For example, many producers are able to benefit from product differentiation for environmental purposes. Environmentally friendly foods such as organic vegetables can be sold at higher prices than conventional products, providing sufficient demand exists for a niche market.

Further, there may be other benefits for Australian farmers from nature conservation. For example, extensive vegetation is likely to improve water quality, both water collected privately and for the broader catchment. Trees on farms may not only assist with nature conservation, but may also help reduce dryland salinity, another major environmental concern for Australia. They may also provide 'carbon sinks' for greenhouse gases.

In practice, however, even where land owners seek to differentiate their products by marketing their environmental attributes and credentials, the potential private benefits from nature conservation measures may not outweigh the costs incurred by land owners.

Where there are few substitutes for the goods and services currently supplied by farmers and land holders, the increased costs brought about by public good conservation measures are likely to be passed on to consumers, wholly or in part. However, where many substitute goods or services exist, farmers and land holders may have to bear a higher proportion of any cost increases induced by nature conservation measures. Much of the Australian agricultural sector operates within a highly competitive world market, and thus the scope for passing on costs may be limited.



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While higher costs and lower profits are undesirable to farmers and land owners, this is not sufficient reason for governments not to pursue environmental policies. Higher costs could actually be considered as more accurately reflecting the real costs of some forms of agricultural production, in certain locations.

Across Australia, it is becoming increasingly clear that *some* farming and pastoral activity is financially marginal or viable only with subsidies (real or implied). As stated by the National Natural Resource Management Task Force in its discussion paper on developing a natural resource management policy (NNRMTF 1999, pp. 6-7):

Quite fundamental changes in land use and management practices may be required at the farm level and across regions in order to sustain an area's capacity for long-term sustainable production or to protect areas that are critical for other uses — such as water supply or biodiversity.

...There will be areas that we cannot prevent from becoming irretrievably degraded. They will be lost to existing production activities and may have limited alternative production options.

Current farming activities may not provide the most economically efficient land use if environmental damage is taken into account. There may be benefits *to the community as a whole* of using economic instruments to integrate environmental factors into land holders' decision making. As a result, some land holders may change the 'product mix' for existing farms, or withdraw marginal lands from conventional production. The community-wide benefits of this may include:

- stopping (or reversing) land degradation and erosion;
- slowing the loss of species of native fauna and flora (ie. enhancing conservation of biodiversity);
- improving watershed management;
- retaining carbon sinks and increasing the rate of CO<sub>2</sub> sequestration; and
- increasing aesthetic, amenity and recreational values.

### **Sharing the burden**

The Industry Commission proposed a statutory duty of care for the environment in the ESLM Report. This would require anyone who is responsible for the management of land and other natural resources (not just land holders) to take all reasonable and practical steps to avoid harming the environment. A duty of care seeks to have natural resource managers — from small farmers to government

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agencies — meet the cost of protecting the environment *where and when it is expected to be economically efficient to do so from a community perspective*. The main effect of ‘reasonable and practical’ is that the requirements for a particular duty holder will vary with the circumstances in each case. This allows a balancing of the risk and severity of the potential harm to the environment with the costs of preventing it.

A limited common law duty of care already exists. This duty of care aims to minimise the harm that one person may cause another and requires each person to take every practical and reasonable step to avoid causing foreseeable harm to another. This duty of care is enforceable by civil action in the courts.

If the principle of ‘polluter pays’ were adopted, land holders and resource managers would be required to meet the full costs of achieving duty of care requirements. In special circumstances it may be desirable to share the costs, such as when it is not possible or practical to identify the cause of environmental damage, or when investment sharing would enable a speedier transition to the attainment of environmental goals and thereby avoid significant (possibly irreversible) losses.

While the Commission does not recommend a particular set of principles for cost sharing, it suggests that the Committee examine the principles developed by the Victorian State Groundwater Council (see Box 2) as a possible reference point for the development of broad principles for allocating the costs of private conservation.

Examples overseas where governments have adopted a cost sharing approach include the European Union which developed a series of counter measures such as set-aside and Environmentally Sensitive Area (ESA) schemes in which farmers were given direct payments in return for adopting environmentally friendly practices (see Latacz-Lohmann 2000). In particular, some of these desired practices involved agricultural ‘extensification’ — that is, a reversal of previously excessive intensive farming and a return to more traditional, less environmentally-demanding regimes.

Programs similar to the EU payments programs have also been applied in other countries. In the US, the Soil Bank program ran for several years to assist farmers to turn their land to non-agricultural uses and promote the development and conservation of natural resources (soil, water, forest, wildlife, and recreational resources) (see Neartica 1999). Under this scheme, payments were made to farmers in return for their conservation practices.

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## **Box 2      Cost sharing principles for Victorian groundwater**

### *Principle 1*

All parties (groundwater users and non-users) have a duty of care to ensure that they do not damage the natural resource base. They should be responsible for the cost of any damage incurred as a result of their actions.

### *Principle 2*

When it is not possible to identify causes of damage then the primary beneficiaries should pay. Contributions from secondary beneficiaries (also known as indirect beneficiaries) will be negotiated with the primary beneficiaries where appropriate.

### *Principle 3*

Government contributes primarily for activities which produce public benefits. Users, both existing and future, are expected to pay for activities which provide private benefit (for the purposes of these principles "private benefits" are defined as those received by groundwater users and "public benefits" as benefits which accrue to society as a whole). Government may agree to contribute to groundwater management activities that produce private benefits as the cumulative up-take of these activities provides significant public benefit. In this instance the Government's cost share would be a result of negotiations with the primary beneficiaries.

### *Principle 4*

Government will only share in the cost of managing existing groundwater management problems. It will not address groundwater management problems caused from new development. That is the responsibility of the new developers. Government will however provide a framework for new development.

### *Principle 5*

Before Government will contribute to any groundwater management activity, that activity must be technically sound and the benefits justify the costs.

### *Principle 6*

Government meets the cost of natural resource management activities such as State-wide planning, State-wide resource assessment, and research and investigation where they are crucial to sustainable resource management and where the market forces fail to ensure their provision. In instances where these activities are not of State-wide importance, the activity must be part of a government accepted management plan.

### *Principle 7*

Government is required ... to make sure that water resources are conserved and properly managed for sustainable use for the benefit of present and future Victorians. In some instances where damage has occurred to the groundwater resource, and is continuing to occur, it may not be possible to immediately recover the cost of remedial action from the polluters or direct beneficiaries. In such instances, Government may intervene in order to ensure that the groundwater resource is conserved and properly managed.

*Source:* Victorian State Groundwater Council, April 1997.

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## Other considerations

Two other key requirements for successful policy responses to environmental concerns are access to reliable information and data and meaningful involvement of the community and affected groups through the creation of partnerships between government, industry and the community. The ESD Report reinforced the importance of these requirements.

Reliable information is obviously critical for designing effective responses to environmental problems and for establishing market arrangements. The Commission's ESD Report found that there is considerable scope to improve the availability of information required to formulate and implement policy responses to environmental concerns. This includes a need, at times, to:

- identify and use existing information before embarking on the search for additional information; and
- prioritise carefully before commissioning new research (which is often very costly).

The Report also emphasised that long term research was warranted, to generate new understanding about these complex biophysical and socio-economic systems.

Similarly, the ESLM Report found that there were significant deficiencies in the generation and dissemination of environmental knowledge and know-how and that this has contributed to the flawed approaches adopted in policies dealing with environmental protection and natural resources. The ESLM Report pointed out deficiencies in the quality and coverage of spatial information collected by government, as well as deficiencies in the relevance of the information collected for management decisions at the regional or local level. It made a number of recommendations on how to improve information and research in the environmental area. One was that all governments should, as a priority, determine agreed standards to facilitate the aggregation and sharing of data between jurisdictions.

In terms of community involvement, both the ESD and the ESLM Reports emphasized that addressing environmental problems requires action from government, industry and the community *working together*.

Governments have a role in coordinating environmental policies and in developing mechanisms that provide opportunities for community and industry involvement in decision making processes. On the other hand, the community and industry have important roles to play in providing local knowledge and perspectives (at low cost). Importantly, the involvement of the community and industry promotes ownership of

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problems and solutions by devolving responsibility and authority. This can increase community commitment. Inclusive and open processes can also promote trust and encourage transparency and accountability of decision making. The ESD Report found that successes in promoting ESD outcomes often involved a high degree of involvement by stakeholders and other interested parties.

## Conclusions

The promotion of sound environmental management can be seen as the shared responsibility of governments, land owners/managers, industry and the community as a whole. The issues of public good conservation have far reaching implications that test the skills of policy makers in defining and prioritising problems and then devising appropriate equitable solutions.

The use of economic instruments to pursue environmental goals has increased in recent years. However there remains scope to use them further, particularly in combination with other measures.

While economic instruments are not a panacea for dealing with environmental concerns, they can significantly contribute to the promotion of sound environmental management and conservation. This, and the efficient use of natural resources, is not only good for both the environment and the economy, but also essential to national wellbeing and prosperity in the longer term.

Any public good conservation measure should be designed to address the cause of the degradation. It is apparent in the light of the European Commission's experience that existing systems to artificially support harmful land use systems will need to be disbanded. Otherwise, land owners and farmers will continue to face perverse incentives to degrade the land.

Policy options designed to encourage land owners and farmers to change land use practices include the use of direct payments for their production of (environmental) public goods, tax concessions and acquisition subsidies. Such programs should be set at levels that are sustainable over the long term. Consideration should be given to the development of broad principles for sharing the cost of conservation.

There will be a need for accountability and reporting of public good conservation measures so that government can assess to what extent conservation goals are achieved. Performance indicators will need to be developed, and any public funding for conservation measures should (like regulatory instruments) be carefully targeted to achieve specific agreed outcomes.

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