

A Policy Framework for Implementation of Economic Instruments for Environmental Management

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Abstract: This paper describes a policy framework for managing environmental degradation using economic instruments. Economic instruments are designed to affect production decisions either through pricing mechanisms or by changing the economic attractiveness of specific actions. Although referred to as non-regulatory, these instruments require a legislative basis to delineate, modify and enforce property rights over the use of a natural resource. Management of environmental externalities will require a carefully designed economic instrument, or a combination of instruments together with at least some regulation. Design of the instrument must be based on robust science and be established within a legal and policy framework. Such tools would need to reward achievement as well as set and maintain industry minimum standards.

INTRODUCTION

As a result of the second United Nations World Summit on Sustainable Development in Johannesburg [2002], the last decade of environmental management is coming under increasing scrutiny. Despite an explosion of 'command and control' legislation designed to curb environmental degradation many key aspects of environmental health continue to decline [Commonwealth of Australia, 2001; UNEP 2002]. Environmental managers and policy makers are now expanding the scope of instruments available to encourage more sustainable practices.

Instruments for environmental management include command and control regulation, financial and market-based incentives as well as moral suasion approaches. Currently, the choice of instrument is largely made outside of any overall management framework. The traditional expansion of 'command and control' legislation can lead to a 'complex regulatory web that is uncertain in its application and inefficient in its approach' [Bates, 2001:7]. The costs of enforcement can also be prohibitively high. At the other extreme, moral suasion approaches are also limited in their effectiveness. These approaches include education and voluntary industry codes of practice that rely on economic agents voluntarily adopting best management practices.

Financial incentives and disincentives offered to economic agents to encourage them to adapt their behaviour or to undertake improved production techniques require substantial public sector funding and continued monitoring. Where adoption of best management practices by agricultural or industry producers or adoption of environmentally friendly practices by urban communities can be converted into a market or financial advantage, then there is a greater likelihood that these approaches would be successful.

FRAMEWORK FOR ECONOMIC AND REGULATORY INSTRUMENTS

Externalities are a major source of market failure when they are not accounted for or internalised as a part of the costs or benefits of economic agents. Externalities can lead economic agents to behaviours that optimise economic gain at the expense of environmental

sustainability. Failure of the market to consider externalities is commonly regarded as due to a lack of appropriation of property rights over externalities that subsequently lead to market inefficiencies. Delineation and enforcement of property rights over externalities is crucial for appropriation. Without enforcement, the ability of an individual to capture the gains from environmentally beneficial actions is reduced and the ability of polluters to avoid costs is increased. If property rights over externalities were clearly defined and protected then, for the most part, it should be possible for the market to allocate externalities to those producing them and for them to be internalised as costs or benefits, as the case may be. Delineation of property rights is largely the responsibility of the state. As such, legislation is required to appropriate property rights and to set the rules for a market in these rights and it is the role of courts to uphold the legislation and to enforce such rights.

Economic instruments for environmental and natural resource management are defined generally as instruments oriented towards improving the economically efficient allocation of resources by modifying the behaviour of economic agents by providing incentives for them to internalise the externalities they may be producing. Economic instruments are reliant on a legislative framework to establish their validity and to ensure enforcement. What is needed is a structured and balanced provision of incentives to provide greater encouragement than moral suasion or the free market, yet avoid complex, prescriptive and penal legislation.

A 'regulatory tiering' approach could help achieve this balance. Regulatory tiering is the combination of regulatory and policy tools to meet a common objective [Wisconsin Department of Natural Resources, 2001]. In the context of this report, regulatory tiering would use regulation to set and enforce minimum standards while using incentives and the creation of new markets to encourage best practice management (see Figure 1). This approach provides a framework for the implementation of the recommendations from the Industry Commission [1998] in its report *A Full Repairing Lease: Inquiry into Ecologically Sustainable Land Management* that a general duty of care for the environment should underlie future statutory regulations. The adoption of voluntary standards of practice was suggested as a means to encourage self-regulation in preference to command and control mechanisms.

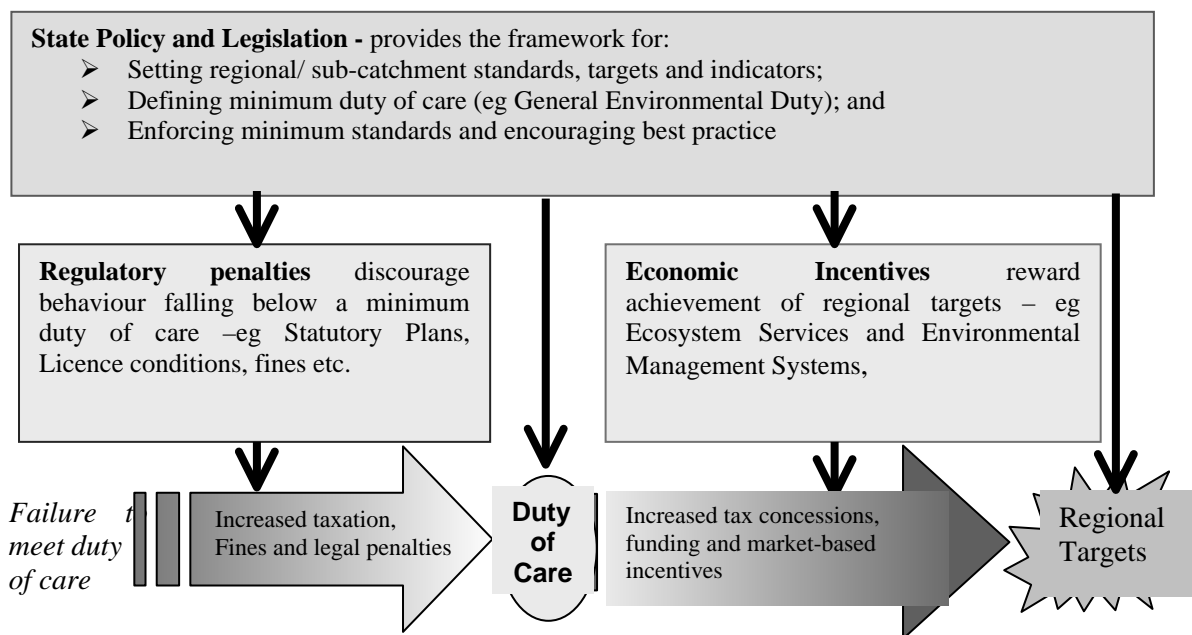


Figure 1 Possible regulatory tiering framework

The regulatory tiering approach is consistent with the recommendations from Bates [2001] who was contracted by the Productivity Commission to clarify the issues associated with the

concept of duty of care, particularly in relation to the protection of biodiversity on land. Bates was critical of command and control regulation contending that these policies are generally resorted to by regulators in an effort to coerce landowners to undertake stewardship duties on their land. He describes command and control regulations as 'inefficient, unnecessarily intrusive and unduly expensive to administer. Some regulations may inhibit innovation and discourage people from searching for new and more efficient ways of using a resource' (p.6). He makes the observation however that 'some forms of command and control regulation may serve as an essential safety net, providing a backdrop of minimum legal biodiversity protection standards' (p.7). In this sense the duty of care concept may play a role to underpin a regulated minimum standard.

Bates's [2001] recommendations suggest the need for a framework to balance regulation and incentives, where regional minimum standards form a duty of care requirement supported and enforced through regulatory penalties (see Figure 1). Regional targets, aimed at best management practices, form the benchmarks for voluntary activities attracting tax concessions, public funding and enhanced market opportunities.

Marketing ecosystem services

To a large extent, environmental degradation can be attributed to the failure of markets to reward landusers for the provision of ecosystem services. This market failure leads to an under supply of healthy ecosystems capable of delivering goods and services. The role of government in this approach is to regulate resource use by delineating property rights over resources. The market is expected to facilitate the trade or transfer of rights and to encourage private sector investment. One proposal for the promotion of an ecosystem services approach to environmental management [Binning et al, 2002] requires the engagement of non-government investors. Many of the options to promote investment in the supply of ecosystem services require the enhancement, through some form of brokerage, of existing marketing opportunities.

The marketing of ecosystem services provides a useful adjunct to the regulatory tiering approach described previously. If markets in ecosystem services could be established then it is conceivable that these would promote best management practices and the achievement of regional targets.

The Rural Industries Research and Development Corporation (RIDC) has put forward an investment framework for ecosystem services that provides a useful structure to incorporate various incentives including ethical investment, carbon credits and salinity credits. The RIDC proposed framework relies heavily on the creation of transferable credit systems that extend beyond catchment or regional boundaries. Small, ad hoc markets are likely to be inefficient and hinder the formation of larger markets. However, statewide, national or global trade in water, carbon or salinity credits is unlikely in the short to medium term. In the meantime the proposal relies on government investment in the purchase of ecosystem services and hence is subject to volatile political will that hinders long term investments. The reliance of the framework on credit markets also risks a narrow focus that stifles innovative and flexible solutions. For example, a farmer providing off-stream stock watering may significantly reduce stream turbidity and nutrient levels yet fall outside the credit systems.

The market incentives proposed and trialed for trade and legal transfer of goods and services provided by ecosystems including offsets and conservation banking have the overall objective of ensuring 'no net loss' or 'net gain' to the environment as a result of development. Instruments including habitat offsets or credits and carbon and salinity credits are an attempt to encourage investment in ecosystem services. Identification and valuation of the goods and services provided by ecosystems facilitates the use of instruments such as tax concessions and habitat credits. These instruments encourage investment by land managers in best

management practices internalising the benefits landholders create for the community through retaining and restoring natural areas. In other words, these instruments help pay landholder for the ecosystem services their land and natural assets provide. There is a growing body of Australian publications relating to establishing markets in the provision of ecosystems services (see, for example, Binning et al, 2002). Identification of the services provided by an ecosystem could provide the basis for determining the habitat credits associated with land that may be marketed for conservation banking or as an offset.

An essential first step for developing investment in ecosystem services is the identification and quantification of environmental benefits provided by individual ecosystems that would form the basis of a currency for markets. This step requires substantial science to establish the criteria for a credible currency.

CONCLUDING COMMENTS

There is a vast range of economic instruments available to environmental managers to address failure of the market to deal with environmental externalities. There are two broad groups of economic instruments that can be applied; financial incentives and market-based incentives. Though frequently described as non-regulatory, economic instruments require legislative support to be implemented. The effectiveness of the instrument will depend on the specifics of the activity requiring correction.

It unlikely that one instrument alone will achieve the desired environmental objective. Governments need to be strategic in their design of economic instruments to ensure they are well coordinated, consistent and credible. In brief, correcting market failure by internalising externalities requires a carefully designed economic tool, or a combination of tools, based on robust science and embedded within a comprehensive legal and policy framework. Such tools would need to reward achievement as well as set and maintain regional minimum standards. There is a need, therefore, to attend to the broader policy framework such as regulatory tiering and the promotion of ecosystem services in which economic and regulatory instruments work together to achieve environmental objectives. As financial and market-based incentives increase in number and complexity, regional bodies will need to be established to act as brokers to facilitate private sector investment. Brokerage will include the promotion, coordination and delivery of incentives and monitoring to ensure that the incentives achieve environmental goals or regional targets cost effectively.

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