

Taxation and the Fostering of Biodiversity Conservation in Australia

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1. INTRODUCTION

The impact of human activity on the environment has contributed to a rapid deterioration of ecosystems and the loss of species worldwide. Scientific estimates indicate that 34,000 plants and more than 5,000 animal species now face extinction around the world.¹

Australia's environment, which is one of only 17 mega-diverse environments in the sense that it is home to 10% of the world's known species of flora and fauna, 80% of which exist nowhere else in the world, has also suffered more than its fair share of species extinction and loss of biodiversity.² The report entitled *2002 Australian Terrestrial Biodiversity Assessment*³ paints a dire picture of the current situation. It notes that:

- 2,891 threatened ecosystems and other ecological communities are identified across Australia;
- 94% of bioregions in Australia have one or more threatened ecosystems, with the greatest numbers in the highly cleared regions of southern and eastern Australia (which incidentally is the area with the highest number of threatened species); and
- mammal extinction has been substantial within the last 200 years; 22 Australian mammals are now extinct,

representing one third of the world's recent extinctions; a further eight species now exist only on islands.

The sheer magnitude of these losses have fuelled concerns among scientists and the community at large, particularly because of the growing awareness of the economic value of wild species and the "ecological services" they provide. The community at large has recognized that plants and animals have value in and of themselves and that they are also the basis of the ecosystems that support human life. The loss of species, therefore, translates directly into the loss of a genetic reservoir that is of immeasurable potential benefit to humanity. On an ethical level, increasing numbers of people are coming to value the earth's diverse organisms as fellow beings with a right to exist.

Like the responses of most of its OECD counterparts, Australia's response to the challenge is reflected in the number of multilateral agreements on biodiversity issues to which it is a signatory. At the domestic level, Australia has relied on a combination of measures to address the problem, such as direct regulation, fiscal instruments and voluntary approaches. While the primary focus of this article is the role that fiscal measures have played in addressing the challenges of biodiversity loss, the article also discusses other measures where appropriate. In considering the role of fiscal instruments in fostering policies to protect the environment, it would be an oversimplification to concentrate on policy at the federal level to the exclusion of the role that the states play in the process. The interaction of some aspects of the federal and state policies in this area has been characterized by inconsistencies as well as actual and potential conflicts which have detracted from the efficacy of the measures designed to foster the conservation of biodiversity in Australia. Mechanisms that have been put into place to minimize these disruptive impacts are cursorily reviewed in this article.

Australia's Constitution confers the power to impose taxes on the federal government, subject to certain restrictions.⁴

1. *Sustaining Life on Earth: How the Convention on Biological Diversity Promotes Nature and Human Well Being* (Secretariat of the Convention on Biological Diversity, 2000), at 5.

2. The 1992 United Nations Convention on Biological Diversity defines biodiversity in Art. 2 as: "the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems."

3. *Australian Terrestrial Biodiversity Assessment 2002*, published by the National Land and Water Resources Audit (a programme of the Natural Heritage Trust), Canberra.

4. For an overview of the constitutional framework governing the imposition of taxes in Australia, see Ashiabor, H., "Constitutional Constraints to the Implementation of an Integrated Environmental Tax Management Policy: The

The traditional forms in which this power has been exercised by the federal government have been the imposition of tax and the deliberate provision of incentives. While taxes can be an effective device to induce or discourage certain activities, Australia does not levy direct taxes that are designed to protect the environment. Rather, most of the tax measures dealing with environmental management issues provide a deduction or offset for expenditure incurred for environmental protection purposes. To the extent these measures constitute a form of government support extended to an economic sector, generally with the aim of promoting an activity the government considers beneficial to the economy overall and society at large, the measures fall within the definition of "subsidy". Indeed, this is one of the main roles that governments should perform: to encourage activities which, if left solely to the markets, would not be performed properly or at all.

At a general level, this article evaluates the existing expenditure policies in order to understand their impact on behaviour. The article also critiques the specific expenditure measures designed to foster the conservation of biodiversity, such as the tax provisions dealing with environmental impact assessments, land rehabilitation measures and conservation covenants, with a view to ascertaining the extent to which the measures have integrated ecologically sustainable principles. Of particular interest is a critical assessment of some of the practical constraints that have hampered the effective implementation of these fiscal measures in addressing the challenges of biodiversity loss. In this context, specific attention is paid to the failure to recognize the implicit and otherwise hidden subsidies of environmental externalities. The experiences of other OECD countries in addressing similar problems are also reviewed.

2. INTEGRATION OF AUSTRALIA'S INTERNATIONAL COMMITMENT TO PROTECT AND CONSERVE BIODIVERSITY INTO DOMESTIC LAW

2.1. Australia's international commitments

Australia is a signatory to several international treaties designed primarily to address issues relating to the preservation of biodiversity. These treaties have, to a large extent, provided the basis for a great number of legislative interventions in this area.⁵ The federal government ratifies international treaties pursuant to the external affairs power conferred upon it by the Constitution (Art. 51(xxvi)). Under Australia's treaty practice, the federal government ratifies such treaties after it has voluntarily consulted the states. Ratification is often the first step in the legislative process and has no effect on domestic law since ratification simply marks the formal acceptance of the terms of a treaty. For the terms of a treaty to be binding within Australia, the federal government must give effect to the treaty by enacting domestic legislation.

A recurring theme underlying most of the international treaties ratified by Australia is the concept of "ecologically sustainable development", of which the conservation

of biodiversity appears to be a significant part. This concept emerged from a widespread concern about the current and future impact of social and environmental activity on economic growth and development, and the concept was articulated in the 1987 Report of the World Commission on Environment and Development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".⁶

The concept was formally embraced by the Australian government in 1990 through the release of the *Ecologically Sustainable Development (ESD) Discussion Paper*. The consultative process culminated in a final report, *The National Strategy for Ecologically Sustainable Development*, released in December 1992, which defined 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. Put more simply, ESD is development which aims to meet the needs of Australians today, while conserving our ecosystems for the benefit of future generations.⁷

The final report obliged the signatory nations, including Australia, to adopt national strategies, plans or programmes to conserve biological resources. The final report recommended that environmental regulation move beyond the usual menu of safety regulations, zoning laws and pollution control enactments; environmental objectives must be built into the tax system. The role of public policy was seen as providing disincentives to businesses engaged in polluting activities, as well as providing incentives for businesses to take account of environmental factors in technologies they developed or in any development they undertook.

The final report recommended a wide range of initiatives such as: landcare, farm plans and community groups, improved access to funds for groups seeking assistance under resource management programmes, the use of tax incentives, more efficient use and pricing of water, integration of institutional arrangements, coping with greenhouse gas emissions, and monitoring and reviewing the ESD programme.

Since the mid-1990s, Australia has consolidated and implemented several policy initiatives at the domestic, bilateral and multilateral levels directed at fostering the conservation of biodiversity.

Australian Experience", in Milne, J., K. Deketelaere, L. Kreiser and H. Ashiabor (eds.), *Critical Issues in Environmental Taxation* (United Kingdom: Richmond Law & Tax, 2004), at 125-135.

5. These include, to name a few: (a) Antarctic Marine Living Resources Conservation Act 1981 (based on the Convention on the Conservation of Antarctic Marine Living Resources), (b) Wildlife Protection (Regulation of Exports and Imports) Act 1982 (based on the Convention on International Trade in Endangered Species of Wildlife Flora and Fauna), and (c) Environmental Protection and Biodiversity Conservation Act 1999 (based on the Convention on the World Cultural and Natural Heritage, Convention on the Conservation of Migratory Species of Wild Animals, and Ramsar Convention on Wetlands of International Importance).

6. Report of the World Commission on Environment and Development, *Our Common Future*, commonly referred to as the "Brundtland Report" (Oxford and New York: Oxford University Press, 1987), at 8.

7. *The National Strategy for Ecologically Sustainable Development* (Commonwealth of Australia, 1992), at 6.

2.2. From regulation to expenditure for implementing ESD

An extensive range of policy instruments has been implemented worldwide to protect the environment.⁸ In spite of the range of available alternatives, the regulation of most categories of activity which are potentially damaging to the environment has been effected through the traditional reliance on command and control regulation. While this regulatory approach, on its face, limits the demands on public expenditure, its attractiveness as a policy instrument appears to be on the decline. The cost of regulation is potentially very large and, where people have invested in the expectation that they will be allowed to continue with entrenched practices, there is typically a demand for compensation if the environmental rules change. These considerations have, inter alia, brought about a shift towards the income tax system as the principal instrument for implementing government policies on environmental protection.

The classical theory of income taxation in the Henry-Simons tradition requires that tax be paid on the net gains realized by a taxpayer during a period.⁹ A direct consequence of this approach is that the expenses associated with the recognition of gains must be subtracted from the gross amounts in order to determine the taxpayer's net income (gains). The non-recognition of expenditures therefore raises their after-tax cost to the taxpayer. When this is transposed to, for instance, expenditures on environmental protection, their increased after-tax cost can potentially deter some taxpayers at the margin either from committing themselves to such expenditures at all or from spending as much on environmental protection as they otherwise might if the costs were lower. Effectively therefore, if expenditures on environmental protection are accurately recognized by the tax system, this would be perceived as less costly to a business and could encourage more businesses to undertake such expenditures. This role of expenditures in changing human behaviour is premised on the view that the demand function for expenditures on environmental protection is inversely correlated to their price. It assumes that some environmental protection expenditures are discretionary in nature. Consequently, if the tax system recognizes a flow-through of these costs to the final consumers, this provides an impetus for taxpayers to incur such expenditures.

The need for greater public expenditure on environmental protection has also been driven by the fact that, as material living standards improve in the OECD countries, residents are becoming increasingly more concerned about quality of life issues and especially about the state of their natural environment. The Australian Bureau of Statistics, for instance, reports that in the last decade five of its six measures of natural capital have deteriorated.¹⁰ In these circumstances, governments have been further pressured to increase their efforts to protect the natural environment. Indeed, in Australia, the federal and state governments have agreed that it will be necessary to spend substantially more money to improve the flow and quality of water in the Murray-Darling basin.

The expenditure policies used to achieve the desired impact have a myriad of forms.¹¹ One of the ironies of subsidies is that subsidy support for one activity has counter-vailing effects on other activities. The challenges of valuing environmental externalities were outlined by the OECD in the following terms:

Economists have developed various methodologies ... to estimate the values of environmental benefits and costs that can be used in setting policy priorities and environmental standards. While in theory all values can be captured in the use of such methods, in practice it is exceedingly difficult to measure non-values, such as the intrinsic value of whole eco-systems. In addition, when dealing with environmental irreversibles (such as species extinction) and fundamental uncertainties (such as the extent of sea level rise from global warming) valuation is inherently problematic. Nonetheless, regulatory authorities are implicitly "valuing" resources whenever they prioritise funds to be spent on the protection of the environment or set of environmental standards.¹²

As a result, the deliberate incentives and disincentives to encourage environmental protection activities have resulted in distortions to the income tax system. This is evidenced by some inconsistent provisions in the income tax system which are highlighted in this article.

When one looks at the expenditure provisions dealing with environmental protection in Australia's income tax law (comprising the Income Tax Assessment Act 1936 (ITAA 1936) and the Income Tax Assessment Act 1997 (ITAA 1997)),¹³ two broad patterns are evident. The first is that there are specific provisions deliberately seeking to encourage environmental rehabilitation activities, and the second is that there are some provisions which might be seen as inconsistent with environmental protection. Examples include the provisions applicable to the forestry and primary production industries.¹⁴

3. IMPACT OF PARTICULAR FISCAL MEASURES ON BIODIVERSITY CONSERVATION

The discussion below examines the fiscal measures that have had a direct or indirect impact on the conservation of biodiversity. It reviews the effectiveness of these measures and assesses the extent to which some of them have generated externalities that have had a perverse impact on the

8. OECD, *Sustainable Development: Critical Issues* (Paris: OECD, 2001), at 127-153.

9. Simons, Henry C., *Personal Income Taxation: the Definition of Income as a Problem of Fiscal Policy* (Chicago: University of Chicago Press, 1938 (1980 reprint)), at 49-51.

10. Australian Bureau of Statistics, *Measuring Australia's Progress* (2002) (Cat. 1370.0), at 24-35.

11. Myers, N. and J. Kent, *Perverse Subsidies: How Tax Dollars Can Undercut the Environment and the Economy* (Winnipeg, Canada: International Institute for Sustainable Development, 1997), at 8.

12. *Sustainable Development: Critical Issues*, supra note 8, at 284.

13. All references in this article are to the ITAA 1936 or ITAA 1997 unless otherwise indicated.

14. Sec. 70-120 J ITAA 1997 allows a deduction to taxpayers in the timber industry for the cost of timber felled by the taxpayer during the year. Until 1983, Sec. 75A ITAA 1936 allowed taxpayers engaged in a primary production business to deduct the expenses for "the destruction and removal of timber, scrub or undergrowth indigenous to the land" and for the drainage of wetlands, ploughing, etc.

environment. The steps that have been taken to address some of the detrimental effects of these measures on biodiversity are also pointed out and critiqued. The analysis focuses on the impact of fiscal instruments in relation to activities in the following areas:

- environmental impact assessments;
- conservation covenants;
- water management;
- land rehabilitation; and
- the forestry sector.

3.1. Environmental impact assessments

Environmental assessment is an integral aspect of any strategy for implementing ESD principles. Such assessments are designed to ensure that environmental considerations receive equal weight in the decision-making process along with the social and economic advantages of a proposal. It is a statutory requirement that environmental assessments of projects be conducted, and all levels of government are expected to incorporate ESD principles into their decision-making processes. According to federal and state legislation, taxpayers who intend to embark on environmentally sensitive activities must comply with regulations requiring them to incur certain costs, such as the cost of preparing environmental impact assessments (EIAs) where the project might affect sensitive ecosystems or important sites.

The problem with such expenditures is that, because the cost of a study undertaken to determine the impact of a project on the environment precedes the commencement of income-production, the cost does not satisfy the temporal nexus requirement. Consequently, such costs are not deductible under the tax legislation. To overcome this, the legislation was amended to expressly allow a deduction for the EIA costs incurred on or after 12 March 1991 in relation to income-producing projects. The measures allowed a deduction for the capital expenditures incurred for the sole or dominant purpose of evaluating or reporting the actual or likely impact of income-producing activities on the environment; such expenditures could be written off over the lesser of the life of the project to which the study related and ten years (former Secs. 82B to 82BG ITAA 1936; Subdivision 400-A ITAA 1997 (now repealed)). If the project did not begin before the end of the year in which the expenditure was incurred, the full amount of the expenditure was deductible in that year of income. Deductions were allowed even when the project had ended and they could be taken against income from other sources, but the right to claim the deduction could not be transferred to purchasers or others.

The tax treatment of EIA expenditures was changed considerably in recent years¹⁵ in the wake of the changes recommended by the commission set up to review business taxation. As a result, EIA expenditures are now under the “uniform capital allowance” (UCA) system and their tax treatment has been radically transformed.

The UCA system (contained in Division 40 ITAA 1997) applies to capital expenditures on assets acquired/created on or after 1 July 2001. It consolidates into a single system

27 capital allowance regimes that were available for a range of assets and activities. It also provides a set of uniform rules for computing the decline in value of most depreciating assets. In addition, the UCA system introduced a special amortization regime for certain types of business-related capital expenditures that are not part of the cost of a depreciating asset and were previously not deductible (e.g. the costs of feasibility studies, site preparation and environmental assessments).¹⁶

The changes introduced a two-tier regime for writing off expenditures associated with EIAs. The first tier deals with EIA expenditures that qualify as a depreciable asset. The decline in value of such assets is written off over their effective life.¹⁷

The second tier, set out in Subdivision 40-I ITAA 1997, spells out the tax treatment of EIA expenditures that do not constitute part of the cost of a depreciating asset – designated as “project amounts”. Such amounts can be pooled and written off over the effective life of the project. Project amounts under Subdivision 40-I consist of two main categories of capital expenditures:

(1) mining capital expenditures (defined in Sec. 40-860 ITAA 1997) and transport capital expenditures (defined in Sec. 40-865 ITAA 1997) under Sec. 40-840(1) ITAA 1997; and

(2) project amounts under Sec. 40-840(2) ITAA 1997. Eligible expenditures in this category include, inter alia, amounts paid for:¹⁸

- site preparation for a depreciating asset (except for horticultural plants and grapevines, for draining swamp or low-lying land and for clearing land);
- environmental assessments of the project;
- feasibility studies for the project;
- information associated with the project; and
- ornamental trees or shrubs.

The legislation further specifies the requirements in order for the expenditures in these two categories to qualify as project amounts. Under the requirements, the expenditures in question must be directly connected with the project that the taxpayer carries on for a taxable purpose. In addition, the expenditures must not be deductible under any other provision of the tax law or form part of a depreciating asset held by the taxpayer.

The total of the allocated project amounts is known as the “pool value” (Sec. 40-830 ITAA 1997). The deduction (under Sec. 40-830 ITAA 1997) is calculated according to

15. *Tax Law Improvement Project: Exposure Draft No. 9*, March 1997 (Australian Government Publishing Service, 1997), at 105-118; Ralph, J., *Review of Business Taxation Report: A Tax System Redesigned – Final Report*, July 1999.

16. Specific types of business-related capital expenditures that were not previously deductible (e.g. the cost of raising equity, establishing or converting the business structure, and defending against takeovers) are now deductible under Sec. 40-880 ITAA 1997. An immediate deduction is also available for certain capital expenditures incurred in the primary production and mining sectors under Sec. 40-840(1) ITAA 1997.

17. Sec. 40-25 ITAA 1997 (deducting amounts for depreciable assets). Sec. 40-840(2)(a) excludes “project amounts” (see next paragraph) that do not form part of the cost of a depreciating asset.

18. Sec. 40-880(2) ITAA 1997. Mining capital expenditures and transport capital expenditures incurred by a taxpayer are treated as project amounts for purposes of this deduction if they satisfy the criteria in Sec. 40-840(1) ITAA 1997.

the following formula:

$$\frac{\text{pool value} \times 150\%}{\text{DV project pool life}}$$

The “DV project pool life” is the effective life of a project or the most recently recalculated effective life. The effective life of a project is determined by “estimating how long ... it will be from when the project starts to operate until it stops operating” (Sec. 40-845 ITAA 1997). While the Explanatory Memorandum to the Uniform Capital Allowance System (at 142, Para. 8.14) states that the effective life must be “recalculated each year, as it is freshly applied in the formula each year”, this requirement was not written into the law. It has been argued that, without recalculating the effective life each year, the tax deductibility is extended over a longer period and disadvantages the taxpayer.¹⁹

While the post-1997 EIA regime was introduced as an integral part of an overall attempt to simplify the tax legislation, the foregoing analysis demonstrates that, under the regime, the tax treatment of EIA costs is much more complex and cumbersome (pooling, recalculation of effective life, etc.). This in turn increases the compliance costs of taxpayers who have incurred EIA expenditures and would like to make use of the available deduction. These added costs could also serve as a disincentive for taxpayers wishing to embark on activities that could have a potentially damaging effect on the conservation of biodiversity.

Another difference between the previous EIA deduction and the post-1997 regime is that, under the former, the tax deduction could be claimed in the year the expenditure was incurred. Under the post-1997 regime, the deduction for EIA expenditure is deferred until the year the project starts to operate. This change in the timing is potentially disadvantageous for taxpayers if the year in which the expenditure is incurred precedes the year in which the project starts to operate.

The tax treatment of EIA costs incurred in other industries is different from that accorded to mining and quarrying activities. Sec. 40-730 ITAA 1997 provides that the costs of exploration or prospecting for minerals (including petroleum) or quarrying for minerals obtainable by mining or quarrying operations are deductible outright in the year in which they are incurred. Taxation Ruling TR 98/23: Income Tax: Mining, Exploration and Prospecting Expenditure considers the meaning of the term “exploration or prospecting” in the ITAA 1997 and states that it is an open-ended inclusive definition and is no longer exhaustively defined, but has the ability to take in comparable activities (Para. 22). Curiously, the ruling indicates that examples of activities that qualify as “exploration or prospecting” include: “... environmental impact studies incurred prior to any decision to commence mining or quarrying” (Para. 23).

The effect of this is that the tax concession for businesses engaged in mining activities is more generous than that available to other businesses since the EIA costs incurred by taxpayers involved in mining and related industries can be claimed as an outright deduction.

The differential treatment of EIA costs incurred in other industries when compared with businesses involved in mining as outlined above highlights the inconsistent treatment of such expenditures. While it could be argued that such treatment, on its face, does not foster tax neutrality, the special treatment conferred on mining and quarrying can be justified on the basis that the externalities of mining operations tend to leave a greater scar on the landscape. Thus, the special treatment encourages operators in the mining and quarrying sectors to undertake these precautionary measures to minimize the harm to the environment.

3.2. Conservation covenants

Several initiatives have been implemented at the national and international levels to address the threat posed by the loss of biodiversity around the world. The International Convention for Biological Diversity was the first treaty from the Rio Earth Summit which addressed this issue. The Convention proposed the creation of an adequate system of reserves and national parks for the protection and conservation of biological diversity as part of a commitment by the signatory countries to slow down the rates of species extinction and the degradation of ecosystems. Australia, like most countries around the world, has set aside large tracts of land and marine areas for the conservation of indigenous flora and fauna, the provision of habitat, and recreation, among many others.²⁰ While a large part of these parks and reserves is on public land, the problem has been that much of the endangered native flora and fauna is on private land. The significance of conservation covenants therefore is that they target activities on private lands.

Tax concessions have been extended to landowners to encourage them to enter into voluntary conservation covenants with public instrumentalities such as state/territory governments or local governments for the management and conservation of their lands. These covenants identify the actions required for the effective management and conservation of the flora and/or fauna on the relevant lands.

Landowners who enter into a conservation covenant after 30 June 2002 are eligible for a deduction for the decrease in the market value of the land which is attributable to entering into the covenant. The conditions for deductibility set out in the legislation include:

- the covenant must be perpetual (it does not matter if a state/territory minister has the power to rescind it);
- the covenant must restrict or prohibit certain activities on the land that could decrease its market value (e.g.

19. Mortimore, A., “Use of Taxation Policy in Encouraging Ecological Sustainable Development – The Australian Tax Treatment of Environmental Impact Assessment Expenditure”, at 13-16 (paper presented at the Fourth Annual Global Conference on Environmental Taxation Issues, Experience and Potential, Sydney, Australia, 5-7 June 2003).

20. Approximately 9.2% or 71,390,486 hectares of the Australian continent is gazetted as protected areas as of January 2001. This includes 50,650,860 hectares (6.6%) in IUCN-1 reserves and 20,191,011 hectares (2.6%) in IUCN reserves V-VII. *Australian Terrestrial Biodiversity Assessment 2002*, supra note 3, at 119.

- fencing off rare plants, collecting seeds or planting trees);
- the market value of the land must decrease by more than AUD 5,000 as a result of entering into the covenant; and
- the taxpayer must not receive any money, property or other material benefit for entering into the covenant.

Like all other gift-type deductions, the deduction cannot create a tax loss. If a loss is likely to occur, the taxpayer can avoid this by spreading the available deduction over a five-year period (in instalments chosen by the taxpayer).

Under the current tax treatment of conservation covenants, landholders who enter into such a covenant in return for a payment are potentially exposed to the capital gains tax (CGT) under Sec. 104-47 ITAA 1997 (CGT event D4). The CGT liability arises if the consideration received for entering into the covenant exceeds the apportioned acquisition costs relating to the part of the land apportioned to the covenant. The problem with this approach is that landholders will be willing to enter into a conservation covenant only if it is worth more to them than to continue operating on the land (e.g. farming).

Conservation covenants are an integral part of the regional forest agreement (RFA) process in which governments acquire tracts of old-growth forest and add the tracts to their conservation reserves. Under FRAs, private landowners are paid to conserve the existing forest cover on their land.

Conservation covenants are an example of the shift from command and control regulation to tax concessions mentioned earlier in this article. Prior to 2002, the preservation of the environmental value of land was based primarily on regulations which prohibited landholders from felling trees on their land.²¹ In other cases, the responsibility for maintaining the environmental value of land was initiated by individual landholders. Apart from giving landholders another option, conservation covenants provide an incentive for landholders to conserve land in perpetuity in order to maintain its environmental value for the community at large.

3.3. Water management and sustainability challenges

Water is a critical limiting factor for much of Australia's environment and economy since a large part of the country is classified as semi-arid or arid, with 80% of the continent receiving an annual rainfall of less than 600 millimetres. Sound management of Australia's water resources is therefore essential for maintaining community well-being and protecting biodiversity and ecological systems.

Since the European settlement, there has been an acceleration of the rate at which Australia's varied landscapes and freshwater ecosystems have been transformed. The development of water resources has altered the physical and biological characteristics of inland waterways and systems and brought about an overall decline in the health of river systems. These changes have resulted in the removal of riparian vegetation, the degradation of river banks, sedi-

mentation, the addition of pollutants and nutrients, the spread of exotic fish and aquatic weeds, and the loss of biodiversity. Excessive nutrient loads into waterways have contributed to severe algal bloom outbreaks, while irrigation and clearing for agriculture have worsened the salinity problems on land in inland waters. One indicator of the environmental pressure on Australia's rivers and streams is the proportion of surface water areas where the extraction of water is within 70% of sustainable yield. Sustainable yield identifies an upper limit to water extraction assessed over a set time period which, if exceeded, will impair the social, environmental and economic value of a water resource. In 2000, around three quarters of Australia's river basins had water diversions/extractions within 70% of sustainable yield. Most of the surface water areas that were above 70% of sustainable yield are located in the Murray-Darling Basin, an area showing clear signs of environmental stress.²²

A range of tax concessions has fostered practices that encourage primary production businesses to draw excessive quantities of this scarce resource. Subsidies in the agricultural sector for water use are apparent in water pricing policies, which are reflected in the different pricing regimes for water supplied to agriculture and for water supplied to households and industry. The cost of water used in commercial agriculture is treated like any other business input and is therefore deductible for tax purposes. The tax legislation provides additional concessions for extracting and conveying water for agricultural purposes.

Sec. 40-520 ITAA 1997 grants a deduction to taxpayers who incur capital expenditures on the construction, manufacture, installation or acquisition of a water facility for the purpose of conserving or conveying water for use in primary production. The deduction is spread in equal parts over a three-year period. An illustrative note to Sec. 40-520 clarifies the meaning of "water facility" by stating that it includes "a dam, tank stand, bore, well, irrigation channel, pipe, pump, water tower, and windmill". The expenses incurred in repairing such facilities qualify for an immediate deduction in the year they are incurred.

Part IX ITAA 1936 (Secs. 625 to 684) provided a special capital allowance deduction of 10% to encourage farmers to invest in particular assets designated as "drought mitigation property" to enable them to prepare for future droughts. Assets that qualified for this concession included "forage and water storage facilities, water conveying facilities, and minimum tillage equipment". This provision applied only to assets that were first used, or installed ready for use, on or after 23 March 1995 but before 1 July 2001 (the last year in which the deduction was available).

These subsidies for irrigation facilities fostered a reliance on inefficient irrigation technology and wastage of an increasingly scarce resource. Indeed, some of the environmental externalities have been quite significant; they are

21. Regulations providing for "tree preservation orders" have been enacted by local councils pursuant to powers conferred by Sec. 26 of the Environmental Planning and Assessment Act 1976.

22. *Australian Water Resources Assessment 2001* (Natural Heritage Trust, National Land and Water Resources Audit), at 75 (hereafter "NLWRA 2001").

discussed in the paragraphs that follow.

Inappropriate water management practices have exacerbated soil structure decline in many parts of the country and have led to water logging or the salinization of soil due to the excessive application of irrigation water. Some parts of the country are facing problems relating to maintaining high levels of water quality. Many areas are exposed to environmental and health problems relating to water pollution – contaminated drinking water (e.g. excess levels of nitrates, persistent organic pollutants, and heavy metals). The problem is most serious in South Australia. To tackle this problem, the South Australian government introduced the “River Murray levy” in October 2003. The levy applies at a flat rate of AUD 30 per annum for residential customers and AUD 135 per annum for non-residential customers.²³ The revenue raised by the levy is earmarked for major policy initiatives aimed at restoring environmental flows to the River Murray and to specific projects in South Australia, such as wetland restoration schemes and salt interception schemes.

Rivers supply much of Australia’s water for crop irrigation. Increased salinity in the groundwater and surface water has aggravated the irrigation salinity problem faced by many farmers.²⁴ Some of the environmental impact of increasing salinization in inland water systems has been reflected in the change in freshwater habitats and loss of biodiversity of aquatic life and fringing vegetation. In the 2001 report of the National Land and Water Resources Audit, nutrients and turbidity were identified as key water quality issues in the assessed basins.²⁵ Under the New South Wales government’s Hunter River Salinity Trading Scheme, market-based instruments have been successfully implemented to restore the water quality in the river. The scheme operates by monitoring water levels to discharge salt loads from the river by licence holders (primary producers and industry) in proportion to the credits they hold.

Another fallout from the concessions for drawing water for commercial irrigation has been the pressure put on groundwater resources. Long-term concerns arise from groundwater abstractions for irrigation; the growth of such practices has been partly responsible for water withdrawals that in some areas exceed those at which the aquifers are being recharged – clearly a practice that cannot be sustained indefinitely. Overdrawing groundwater resources can have various undesirable (and usually long-term) environmental consequences: subsidence, desertification, salinization, wetland destruction and build-up of heavy metals. In the Great Artesian Basin, an area which has been highly dependent on groundwater to meet its irrigation needs for commercial agriculture, concerns have been raised about the effect on native, hydrophilic flora of falling groundwater tables, particularly from the draining of pastures for agriculture.

3.4. Rehabilitation of degraded lands

The agricultural policies in most OECD countries provide for substantial subsidies. Although agriculture contributes to various pollution problems, most notably to the pollution of surface water and groundwater, it is often exempt

from the taxes and other measures that apply elsewhere to deal with these problems.

The environmental externalities arising from agriculture have been subject to a different regime than the externalities from other industries and households. This is particularly the case for water pollution resulting from the use of mineral fertilizers and animal manure, which leach into groundwater or run off into surface water. Generally, problems with such water pollution have been tackled by concentrating on point sources of nitrates and phosphates in industry or public sewage treatment works, where discharges can be measured directly. These efforts have reduced this type of water pollution by industry in many countries. In Australia, the discharge by industry of pollutants into the environment is regulated by the Environmental Protection Authority through a licensing regime combined with higher taxes and charges (based on environmental loads).

With respect to agriculture, however, regulations and taxes have not achieved a similar outcome as the environmental targets for agriculture have been less stringent than for other sectors. Agricultural inputs such as fertilizers and pesticides are either exempt from tax or eligible for concessions (e.g. deductions or rebates) when they are used in agriculture. When similar inputs are used by households, however, the full rigour of such taxes is implemented. For instance, agricultural businesses that are registered for the goods and services tax (GST) can claim a tax credit for the GST component of fertilizers and pesticides used in their business. In addition, the cost of purchasing such inputs is treated as a deductible business expense. This is in stark contrast with the experience of OECD countries such as Denmark, Finland, Germany, the Netherlands and Belgium, which address the water pollution problem through taxes and direct regulations on point sources of discharges of mineral fertilizers and animal manure.

Land use patterns in Australia have left an indelible scar on the environmental landscape. They have arguably been the prime reason for the continuing decline in the numbers of many native species and a significant contributory factor to land degradation by way of soil erosion and structural damage, changes in water availability and salinization. The introduction of a variety of different kinds of plants and animals in Australia either by accident or deliberately for economic or aesthetic reasons has had mixed results. While some of the introduced species have brought considerable benefits – e.g. they are used extensively in farming industries – they have also displaced or destroyed native species through habitat destruction, com-

23. The amounts of the levy are indexed annually based on movements in the consumer price index.

24. NLWRA 2001, *supra* note 22. Salinity has become a major water quality issue for 24 of the 74 assessed basins (32% of basins). The key areas are the south-west coast, the south-east coast and the southern Murray-Darling drainage divisions. Land clearing has been a key component of increasing salinity in catchments. High levels of salinity occur in catchments where a large proportion of land has been cleared. For example, 56% of the Frankland River Catchment has been cleared and has a high level of salinity, with total soluble salts (TSS) at 2,760 milligrams per litre (Government of Western Australia, 1998). The upper limit for drinking water quality is 800 EC units (less than TSS at 1,500 milligrams per litre).

25. NLWRA 2001, *supra* note 22.

petition for resources, predation or the introduction of parasites and diseases.

Further, the removal of deep-rooted native perennial plant species and their replacement with shallow annual crops and pastures have changed the hydrological cycle. Over time, this has brought the water table closer to the surface, bringing with it dissolved salts which then become concentrated at the soil surface in a process referred to as "dryland salinity". Australia has an estimated 2.5 million hectares of land affected by dryland salinity (representing 0.6% of agricultural land). An estimate of the area with a high potential to develop salinity is around 5.6 million hectares or 1.2% of agricultural land. By 2050, it is projected that this figure could rise to 17 million hectares.²⁶ These salt concentrations have a negative impact on a variety of social, ecological and economic processes.

These detrimental effects on the environment are the legacy of subsidies which were constructive at the time of their introduction but later became perverse due to inertia in the policymaking process. Much of the land degradation attributable to land clearing was fostered by tax concessions that encouraged this activity. Examples include the tax concessions for land clearing introduced to encourage agricultural development. These policies, however, resulted in overclearing and subsequently contributed to the degradation of natural resources. Consequently, the concessions were abolished in 1983.²⁷ In addition to the land clearing problem, fertilizer subsidies in the past encouraged the substitution of fertilizers for soil nutrients which might have been retained by better land husbandry. This may also have encouraged agricultural expansion into more marginal, erosion-prone lands and aggravated problems such as the contribution to soil acidity and the eutrophication of waterways. Fertilizer subsidies were abolished in 1988.

Apart from removing these detrimental subsidies, a range of strategies has been implemented in Australia in a bid to reverse land degradation and promote sustainable agriculture.

The impetus for these initiatives stemmed from a joint proposal submitted in 1989 by the National Farmer's Federation and the Australian Conservation Foundation to the federal government for a national land management programme. The proposal recommended that agricultural and pastoral lands be used within their capabilities to the year 2000 and that efforts be made to restore the sustainable use of those lands after that date. To encourage community participation in land rehabilitation activities, the proposal sought a major capital investment to support rural-based land management groups and also contained several other initiatives. These initiatives were adopted in the Prime Minister's Statement on the Environment of July 1989 and the announcement of the Decade of Landcare.²⁸

The Prime Minister's Statement on the Environment committed the federal government in consultation with stakeholder groups to a process of reviewing the tax arrangements for the prevention and treatment of soil degradation, with a view to determining whether the effectiveness of the arrangements could be improved.²⁹ The process culminated in the enactment of tax provisions offering a

range of incentives to promote better water and land management practices. The measures relating to water conservation initiatives were examined earlier in this article (for the relevant concessions, see 3.3.).

Secs. 40-630 to 40-675 ITAA 1997 provide an immediate deduction in the year the expenditure is incurred for capital expenditures designed to prevent land degradation. Under these provisions, both primary producers and taxpayers who derive business income from rural land are eligible for a deduction for the cost of landcare activities such as:

- eradicating or exterminating animal or plant pests from the land;
- destroying weed or plant growth detrimental to the land; and
- erecting fences to keep out livestock or vermin from areas affected by land degradation in order to prevent or limit further damage and assist in reclaiming the areas.

Other land rehabilitation activities that taxpayers may undertake to address the problems of salinization and soil structure decline which qualify for the deduction include capital expenditures on:

- (a) preventing or combating land degradation other than by the use of fences; the editors of the *2004 CCH Australian Master Tax Guide* note (in Para. 18-100) that the term "land degradation" includes not only soil erosion but also other effects detrimental to the land, such as decline in the soil fertility or structure, degradation of natural vegetation, deposits of eroded material and salinization;
- (b) erecting fences to separate different land classes for purposes of preventing land degradation in accordance with an approved land management plan;
- (c) constructing levee banks or similar improvements (whether for flood management, soil conservation, land reclamation or other purposes connected with the use of primary production land); and
- (d) constructing surface or sub-surface drainage works; this includes sinking drainage bores and laying surface or sub-surface piping in the course of constructing flood-water drainage works (Taxation Ruling IT 351, Para. 5), other than draining swamps or low-lying areas, to control salinity or assist in drainage control.

26. *Id.*

27. The overall trend in the annual rate of land clearing has been downward from 1,465,153 hectares in the period 1971-1980, when official data started to be collected. It dropped to 550,567 hectares and 337,350 hectares in the periods 1981-1990 and 1991-1995, respectively, and then rose again in the late 1990s (1996-1999) to 424,444 hectares. While very strong falls were recorded in the clearance rates in all eight states and territories, of this group Queensland consistently accounted for a substantial proportion of the areas subjected to land clearing, followed by New South Wales – a distant second. For instance, between 1971 and 1980, the area cleared in Queensland was 886,257 hectares and 428,151 hectares in New South Wales. In the late 1990s (1996-1999), Queensland accounted for 382,500 hectares and New South Wales for 30,000 hectares.

28. Hawke, R.J.L., *Our Country Our Future: Statement on the Environment* (Canberra: Australian Government Publishing, 1989).

29. *Id.* at 42.

To ensure the mutual exclusivity of the deduction for land-care measures and the three-year write-off for water facilities, the tax legislation expressly provides that the costs for the former must be incurred primarily and principally for the purpose stated (i.e. used in the primary production business).

3.5. Ecologically sustainable forest management

The challenges facing the sustainable management of forests have been a major public concern and an issue of contention between conservation groups and the forestry industry. In addressing these challenges, the central issue has been one of striking a balance – between recognizing that forests are valuable for a variety of reasons and that forestry industry development needs to be balanced with protecting other values, such as biological diversity, air and water quality, soil conservation, wildlife habitat and recreation.

In an effort to accommodate these divergent concerns, governments at the federal and state levels have pursued the objective of securing the future of both forests and the forestry industry with a view to fostering:

- an environmentally responsible and sustainable forestry industry;
- the conservation of biological diversity and viable, representative forest ecosystems; and
- the promotion of efficient, value-added forestry industries.

To encourage a sustainable management of the forestry industry, tax concessions, grants and other comprehensive fiscal measures have been provided that promote investment in afforestation and plantation programmes. These measures have operated within the broad context of (a) a framework for a consultative mechanism set up to facilitate a dialogue between all stakeholders and (b) a national forestry inventory for assessing the value of forests.

An outright deduction is available to primary producers who incur costs for planting or tending trees in a plantation or forest that is intended to be felled (Sec. 995-1 ITAA 1997). Interpretive rulings issued by the Australian Taxation Office also confirm that the costs of seedlings and trees to be used in an afforestation business are immediately deductible.³⁰ In the case of commercial wood production, investors in timber plantation managed investment schemes who incur certain prepaid costs in relation to such schemes are entitled to an immediate deduction for such costs by virtue of the express exceptions to the restrictions on the deductibility of prepaid costs (Sec. 82 KZMG ITAA 1936).

Federal grants have been allocated to fund the expedited establishment of hardwood plantations under the National Afforestation Program so as to reduce the forestry industry's reliance on native forests.³¹

A special deduction is also available for entering into a permanent conservation covenant over land with certain “deductible gift recipients”. Division 30 ITAA 1997 provides a deduction for gifts of land or property (valued at more than AUD 5,000) and donations of money (of AUD 2 or more). Division 30 sets out the entities that are

“deductible gift recipients” (DGRs), i.e. entities authorized to receive gifts that are tax deductible. Some DGRs are specifically listed in the ITAA 1997 (e.g. environmental organizations), while others fall into a specific category (e.g. public museums and art galleries).

The fiscal measures discussed above are complemented by other regulatory initiatives, such as:

- the protection of rainforests and old-growth forests through government intervention by listing them as being of World Heritage value; and
- government controls over forest management through the issue of woodchip export licences. The licences are issued only after projects have been subjected to an environmental impact assessment and the federal government is satisfied that the forests from which the trees have been logged will be managed on a sustainable yield basis and that the forest types will be adequately conserved.³²

The challenges of managing the forestry industry in a sustainable manner have been compounded by certain industry support expenditure measures which inadvertently contribute to deforestation. The tax concessions that are supportive of logging activities in national forests include:

- a deduction for the costs of acquiring land carrying trees or a right to fell trees on another's land where the amount paid includes the value of the trees (Sec. 70-120 ITAA 1997). Successive court decisions have held that the amounts paid by taxpayers to purchase timber-logging licences from vendors of sawmill businesses qualify for this deduction,³³
- a special deduction for capital expenditure incurred for constructing forest roads and timber mill buildings. Under the UCA system (discussed in 3.1.), a deduction is available for the decline in value of such assets; and
- a deduction for the costs incurred by primary production businesses for transporting trees (or parts of trees) felled in a plantation or forest directly to the place where they are first to be milled or processed or transporting them to the place from which they are to be transported to be milled or processed.

The resulting deforestation has contributed to widespread land degradation, degradation of inland water resources and marine ecosystems, loss of habitat for sylvan animals and plants, decline in the urban air quality and global climate change, and other environmental problems, all of which constitute a further subsidy (albeit unquantified) in the form of environmental externalities. The cost-benefit analysis of deforestation for commercial logging purposes is graphically illustrated by a US study which demonstrated that such activities have “... been to the detriment of still other prominent benefits from the forests, notably

30. Taxation Ruling TR 95/6: Income Tax: Primary Production and Forestry; and Taxation Ruling TR 2000/8: Income Tax: Investment Schemes.

31. The total sum of AUD 42.3 million was allocated to such projects under the Natural Heritage Trust Program from 1996-97 to 2001-02. Natural Heritage Trust Annual Report 2001-02, *Environmental Australia*, 2003.

32. Licences are issued on an annual, renewable basis, and continued approval is conditional on compliance with the licence conditions, which may vary. The conditions cover matters such as forest management, forest regeneration, and inspection of industry operations.

33. *FCT v. Monaro Sawmills Pty Ltd* and *FCT v. Marbut Gunnensen Industries Pty Ltd*, both reported in 82 ATC 4,182.

recreation, which despite the degradation of forest amenity, jumped from 560 million visits in 1980 to 860 million in 1996. These visits generated 2.6 million jobs and added almost US\$ 100 billion to the national economy, whereas logging added only 76,000 jobs and US\$ 3.5 billion".³⁴ While similar data is not readily available for Australia, it is arguable that the situation would be similar.

The externalities of the unbridled exploitation of forests through indiscriminate felling practices are so significant and extensive that there is a need to reconsider the implicit effects of the various concessions which encourage these practices. It goes without saying that as the forests disappear, so do the environmental goods and services they provide. The external costs of deforestation end up being borne by the present communities and future generations which are thus deprived of the benefits of the forests, meaning that the external costs are effectively subsidies to deforestation.

4. CONCLUDING OBSERVATIONS

This article has highlighted some of the complex dimensions of using fiscal instruments to foster the conservation of biodiversity.

The use of concessions to foster biodiversity conservation has produced mixed results in some cases due to the effect of tax provisions which are both consistent and inconsistent with environmental protection. This is hardly surprising as some of the concessions were granted in response to lobbying pressures from various industries for government assistance. Against this background, reform in this area presents tremendous socio-economic challenges because it does not necessarily follow in all cases that removing some of the concessions is the best way forward. For instance, it might be appropriate to subsidize inconsistent activities – as one group of taxpayers might need a subsidy to compete internationally (e.g. the concessions for logging and sawmills; for the perverse environmental impacts of these concessions, see 3.5.) or for non-economic reasons (e.g. the conservation of an endangered bird species) and, at the same time, the subsidy might support expenditure by any taxpayer on environmental protection. Further, citizens might want the government to offer a particular subsidy to taxpayers who form a target group and another subsidy to other taxpayers who undertake a target activity. Thus, it is arguable that the existence of substantial subsidies supporting incompatible uses is both rational and inevitable.

One of the ironies that has emerged from implementing the subsidies that were intended to foster human settlement on the continent has been marked by the environmental externalities they have generated. In some cases, these externalities have been attributable to the intervention failures arising from inertia in the policymaking process. Some of these have been tackled through subsidy reform by eliminating the detrimental environmental expenditure measures in question (such as the tax concessions for land clearing and the fertilizer subsidies mentioned in 3.4. and footnote 14).

In other cases, the externalities have been a legacy of market failures – arising from the failure of the markets to send the correct price signal to decision-makers. Such failures result in an inefficient use of resources and lower economic growth than would otherwise be the case and have an adverse environmental and social impact.³⁵ In the case of water management, this article has highlighted some of the responses made by governments in Australia to address the challenges, such as:

- encouraging the internalization of externalities by using markets and price signals such as environmental taxes and user fees. In such instances, the taxes or charges are earmarked to finance specific expenditures, the South Australia water levy being a case in point; and
- creating markets by establishing property rights (as in the federal government's efforts to create property rights for water or using tradable rights to control salinity levels in the Hunter River).

The case for the sustainable management of the environment is underscored by the uncertainty in our understanding of natural capital systems. Central to this issue are the concerns that environmental damage can be irreversible, affecting all future generations, and that not all amenities and services provided by the natural environment can be substituted with human or man-made capital.

These challenges emphasize the need to adopt a risk-averse approach to the use of natural capital, as set out by the precautionary principle. According to this principle, where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason to postpone measures to prevent environmental degradation. The implication of this principle is that public and private decisions should be guided by (a) a careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment and (b) an assessment of risk-weighted consequences of various options. Allowing a deduction for the expenses incurred for environmental impact assessments represents an integration of the precautionary principle into Australia's tax law.

Federal systems have inbuilt structural constraints which present conflicts in federal/state relations on issues of environmental management. To overcome these constraints, both levels of government have worked out cooperative arrangements to environmental regulation whenever possible. The federal government's role under cooperative federalism has been to encourage and coordinate the national policies on environmental issues which embrace strategies developed by the state/territory governments.³⁶ Pursuant to this, national strategies have been for-

34. Myers and Kent, *supra* note 11, at 171, citing Abramowitz, J.N. and A.T. Mattoon, "Reorienting the Forest Products Economy", in Brown, L.R. et al. (eds.), *State of the World, 1999* (New York: Norton, 1999), at 60-77.

35. OECD, *Market and Government Failures in Environmental Management* (Paris: OECD, 1992).

36. For a review of how these arrangements have worked in the United States in matters relating to environmental protection and a comparison with Australia's experience, see Battle, Jackson, "Environmental Law and Co-operative Federalism in the United States" 2 *Environmental and Planning Law Journal* 302 (1985).

mulated on a range of issues dealing with, among other things, biodiversity conservation.³⁷ The cooperative arrangements have therefore provided the broad framework for fostering biodiversity conservation in Australia.

On a final note, experience in the use of concessions has been problematic in some cases because of the externalities they generated. In Australia's context, therefore, a range of instruments (levies, tradable permits, grants,

direct regulation) has been applied to complement the role of concessions in fostering the conservation of biodiversity.

37. Examples include: the National Strategy for the Conservation of Australia's Biodiversity, the National Forests Policy, the National Greenhouse Strategy, the National Strategy for Ecologically Sustainable Development, and the National Wetlands Program.