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Application of environmental economics to sustainable management of the forests of South-East Australia

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Abstract. This paper is based on the work of the Resource Assessment Commission, which was required by the Prime Minister to inquire into uses of Australia's forest and timber resources. It begins with a brief discussion of concepts of sustainable resource management and the guiding principles of the Commission. A description is given of the study area, its environment and forest resources. Sources of conflict in resource management are identified. The paper then explains how benefit-cost analysis techniques were applied to assess resource management options. The analysis undertaken was based on the Krutilla-Fisher model and contingent valuation of the forest resource.

Introduction

This paper illustrates the application of environmental economics to the sustainable management of the native forests of south-east Australia. It is based on work by the Resource Assessment Commission (RAC) for the national Forest and Timber Inquiry, conducted from December 1989 to March 1992 at the request of the Prime Minister of Australia.

The author was a Special Commissioner on the Inquiry. The views expressed in this paper are entirely his own and do not represent any official statement by the Resource Assessment Commission or by participants in the Inquiry. The paper draws on the Final Report of the Inquiry (RAC 1992a), publications of the RAC Research Branch, consultancy reports prepared for the Inquiry, and other independent publications.

The native forests of south-east Australia were chosen by the Inquiry to demonstrate the application of benefit-cost analysis to forest management, assessing options for environmental conservation, wood production, recreation and other uses within the forest management area.

Guiding principles of the inquiry

The three Policy Principles in Schedule 1 to the Resource Assessment Commission Act require that:

1. There should be an integrated approach to conservation (including all environmental and ecological considerations) and development by taking both conservation (including all environmental and ecological considerations) and development aspects into account at an early stage.
2. Resource use decisions should seek to optimise the net benefits to the community from the nation's resources, having regard to the efficiency of resource use, environmental considerations, ecological integrity and sustainability, ecosystem integrity and sustainability of any development, and an equitable distribution of the return on resources.
3. Commonwealth decisions, policies and management regimes may provide for additional uses that are compatible with the primary purpose values for the area, recognising that in some cases both conservation (including all environmental and ecological considerations) and development interests can be accommodated concurrently or sequentially, and, in other cases, choices must be made between alternative uses or combinations of uses.

In more practical terms, these principles may be translated into the following questions:

- What should be sustained?
- At what level?
- For how long?
- Over which set of physical boundaries?
- For whose benefit?

As revealed in this paper, in the context of forest management in south-east Australia, it is not easy to derive unambiguous answers to these questions.

The south-east forest resource

The public forests of south-east Australia comprise the Eden Native Forest Management Area and the East Gippsland Forest Management Area, with an area of more than 2 million hectares (see Fig. 1 and Table 1). These areas are under public ownership and management. Additional forest areas are privately owned.

The region is noted for its natural attributes, with diverse native plant and animal species and areas of wilderness significance. The main forest groups, as defined in the RAC Survey of Australia's Forest Resource (RAC 1992b), are SE Wet Eucalypt with 55 forest types and 73 species; SE Ash (12 forest types and 54 tree species); and SE Coastal Eucalypt forest (51 forest types and 55 tree species).

Approximately 25% of the Eden Management Area and 30% of the Gippsland area are available for multiple use forestry, including wood production. The remaining land is allocated to Crown land, permanent reserves (national parks and fauna and flora reserves), and other reserved land (filter strips, wildlife corridors and visual retention areas).

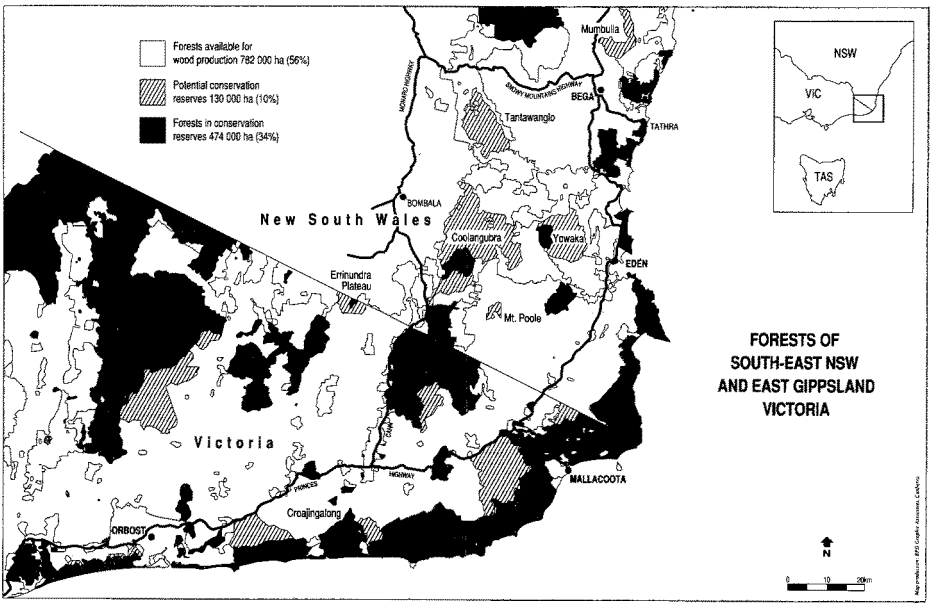

Fig. 1

Table 1. South-east forests: public land use ('000 hectares)

Region	Total area	Crown land	Permanent reserves	Other reserved land	Available for multiple use forestry
Eden	788	394	163	31	200
East Gippsland	1217	1048	422	265	361
Regional Total	2005	1442	585	296	561

Source: Streeting and Hamilton (1991)

General background

Wood production has occurred in the south-east region for more than a century. The timber industry has been one of the mainstays of the regional economy.

In early years, the main harvesting method was selective logging, which left much of the forest in a degraded state unsuitable for further economic production of sawlogs. The regenerative capacity of Australian forests depends greatly on the kind of harvesting regime and the forest type. Some forest types respond better to selective logging (for example, the wet eucalypt forests of the north coast of New South Wales) whereas others, such as the Ash forests in the montane areas of the south-east, regenerate more successfully with clear felling.

Woodchipping operations were introduced to the south-east in the 1970s, with large-scale clear felling of coastal forest areas. A large chip mill was constructed at Eden, with loading facilities to export chips to Japan. In the initial years, woodchip exports from the Eden mill were in the order of 600000 to 700000 tonnes per year, including 150000 tonnes from sawmill residues. Logs for chipping were obtained from public forests in the Eden Management Area, with smaller quantities from private forests in the region and from Victoria.

As viewed by the forest managers, the operations had a number of advantages:

First, they provided a new source of cash flow from the forests, from the sale of logs suitable only for chipping.

Second, cost coverage for roading and other infrastructure enabled economic retrieval of remaining sawlogs that otherwise would have remained unharvested: approximately 10% of the standing stock. This was important to sustain the local sawn timber industry.

Third, clear felling was seen to be a cost-effective method of regenerating forests in the region, for future use as woodchips and/or as a source of logs for sawn timber.

Sources of conflict

The south-east forest region has been a source of continued conflict since large-scale clear felling and wood-chipping operations commenced in the 1970s (Routley and Routley 1975). The scale of clear felling operations in the early 1970s, with coupe sizes up to 100 ha, had dramatic effects on the environment. The most obvious impacts were visual, with large forest areas being converted to bare ground.

Clear felling also had major effects on ecosystems in the region, greatly altering their structure and function. Other perceived impacts included depletion of nutrients from the forests, accelerated soil erosion from roads and logging sites, and increased risks of fires.

Reactions by the general community and by the scientific community led to major changes over the next two decades in land use and forest management practices in the region. Coupe sizes were reduced; logging sites were planned on a checkerboard pattern to produce a more diverse forest structure in any one area; wildlife corridors were created to permit migration by native mammals; streamside reserves were enlarged for improved catchment protection; better precautions were taken to prevent soil erosion and loss of nutrients from the forest ecosystems; and additional areas were set aside as flora reserves. Many areas, especially those that had been relatively undisturbed by logging, were allocated to National Parks.

Despite these measures, conflict continued. Conservation groups have expressed the wish to see all logging operations discontinued in Australian native forests and have also called for a ban on exports of hardwood chips. The timber industry has maintained its demands for logging to continue. Extremes have been reached on both sides at various stages. Demonstrations have occurred frequently on logging sites; and quite recently, logging contractors used their trucks to form a blockade of Parliament House in Canberra, as a protest against forest policies.

Land-use allocation has remained a difficult problem. Some of the forest areas in south-east Australia have been listed by the Commonwealth Government on the Register of the National Estate. Such forests have been assessed as having natural or cultural features of National Estate significance, especially those areas containing previously unlogged or old-growth forest. Inclusion of areas on the Register does not confer any special land-use status, nor does it necessarily preclude wood production. Many of the public forest areas in the south-east on the Register have been transfered to nature conservation reserves.

Nevertheless, there has been an ongoing policy dilemma over land use in the region. Controversy has continued over appropriate use of remaining forest areas that are on the Register of the National Estate and that are also available for logging, an area of approximately 130000 ha. These areas have special significance to conservation groups because they largely contain the remaining unreserved old-growth forests in the region. (Definition of what constitutes "old-growth" forest proved to be a difficult problem for the Inquiry. A full discussion of this matter is presented in Chapter 6 of the Final Report.)

These National Estate areas also represent the last source of sawlogs from native species in the region in the foreseeable future. One of the difficult policy decisions in relation to the south-east forests has been whether to continue wood production in these areas or allocate them to conservation reserves.

The capacity to maintain a sustained yield of sawlogs in future years has been a concern of the local timber industry. Forest management plans originally relied on cutting old-growth forests to supply sawlogs to local sawmills. The allocation of multiple-use forest land to conservation reserves has disrupted these plans and threatened shortages of sawlogs within the next two decades. Towards the middle of the next century, an ample supply of sawlogs will be available from the regrowth resource. This was confirmed by evidence submitted to the Inquiry and by forest simulation modelling conducted under a consultancy for the RAC Research Branch.

A more subtle issue has been to determine the kind of forest management regimes that should be practised within multiple use zones, having regard to ecological values and sustainable use of the resource. Increasing the risk of extinction of rare or threatened native species has been perceived as a problem, although the Inquiry received no evidence confirming that any plant or animal species had been made extinct by forestry operations. General consultancies were commissioned by the RAC to determine risks of extinction (Lindenmayer et al. 1991; Possingham and Noble 1991). Other issues in relation to harvesting regimes include the prospect of altering forest structure by intensive management such as thinning operations and short rotations to produce high yields of pulplogs from the forests.

Resource wastage resulting from certain government policies has been a controversial aspect of forest management practices. In the Gippsland area of south-east Australia, the use of native forests for woodchips was subsequently prohibited by the Victorian Government, although clear felling was permitted for the harvesting of sawlogs. In evidence submitted to the Inquiry, it was stated that approximately one million tonnes of timber was being left on the forest floor as a result of this decision. Some of this material is now being used for low-grade sawn timber.

Economic considerations have played a major role in the controversy over the south-east forests. The export of woodchips to a parent company in Japan has raised questions about the economic benefits to Australia of the forest operations. Initial equity in the mill was held by a Japanese paper-making company and by Australian interests. Later, however, full equity was gained by the parent company, shared with a Japanese trading company. The structure of these operations led to accusations of transfer pricing and of subsidisation of woodchip exports by Australian taxpayers. These matters were extensively investigated for the entire Australian woodchip industry by the RAC Research Branch (Streeting and Imber 1991). An audit of the accounts of woodchip companies was also conducted. Both practices were found to be unproven.

Another economic issue has been the fact that woodchips are being exported for papermaking in Japan rather than contributing to value-adding Australian production. Australia has traditionally run a major trade deficit in wood and wood products. In 1990–91 imports of forest products were $ 1928 million, of which pulp and paper products accounted for $ 1290 million and sawn timber $ 396 million. Exports were $ 596 million, with woodchips comprising $ 392 million and pulp and paper products $ 160 million.

For some years, various proposals have been made to establish world-scale hardwood pulp or paper-making mills in Australia. Such proposals have raised strong controversy from both economic and environmental perspectives.

Management options assessed by RAC

The policy and management options assessed by the RAC in relation to the south-east forests consisted of the following:

1. No logging of multiple use public forests on the Register of the National Estate.
2. Intensive silviculture.
3. Establishment of a bleached eucalypt kraft paper mill.

Benefit-cost analysis was applied to each of these options. Regional impact modelling was also conducted to assess the broader effects on income and employment within the region.

Limitations of space prevent a description in this paper of the assessments carried out for options (2) and (3). The details can be found in relevant publications of the RAC (RAC 1992a; Streeting and Hamilton 1991). The remainder of the paper considers the critical issue of land-use decisions regarding multiple-use areas on the Register of the National Estate, with a focus on the environmental economic evaluations that were undertaken.

Approach to analysis

For the particular forest areas under consideration, wood production and the preservation of old-growth forests can be regarded as mutually exclusive alter-

natives. Total preservation necessarily precludes wood production, whereas wood production would destroy the special ecological characteristics of the forest (particularly the old-growth areas) for a very long period of time, perhaps irreversibly. This dilemma in resource use is familiar to environmental economists, dating back to the work of Krutilla and Fisher (1975) who evaluated a proposed hydro power development on the Hell's Canyon reach of the Snake River in the US Pacific North-West.

From an economic perspective, the best use of the resource is that which yields the highest net present value to the community. There were basically two ways this evaluation could be undertaken. Both were carried out by the Inquiry.

(i) An attempt can be made to estimate the value that the community places on each of the two options in future years. For the preservation option, explicit values are estimated for environmental preservation benefits. Recreation values of the forest areas can be estimated using the travel cost method (Sinden and Worrell 1979), and existence values can be estimated by means of the contingent valuation technique (Mitchell and Carson 1989). Projections can then be made of future values, based on population growth and trends in community preferences. As a separate exercise, the projected benefits can be estimated for continued logging.

For each option, the future costs are subtracted from the projected benefits, yielding time streams of net benefits. These net benefits are discounted to present values to obtain estimates of the net present value of each of the options. The option with the highest NPV is the preferred option in terms of community economic wellbeing.

(ii) The second approach acknowledges that it may be difficult to obtain reliable estimates of projected community values for preservation of the natural environment, such as forest areas on the Register of the National Estate. The evaluation model that can be used under these circumstances relies on the concept of "threshold values". This approach was developed by Krutilla and Fisher for the Hell's Canyon case.

To apply the threshold value model, the first step entails estimating the net present value of the development option: in the case of the south-east forests, the NPV of logging the multiple-use areas listed on the Register of the National Estate.

The next step builds on the observation that as the population expands and real incomes increase, people reveal a proportionally greater preference for the preservation of natural environments. This trend is evident in expenditure patterns for outdoor recreation, membership of conservation groups, ownership of recreation vehicles and equipment, and purchases of environmental books, films and other materials. This step results in an estimate of the projected rate of growth of environmental benefits, even though the absolute level may not be known.

The final step involves a comparison of the NPV of the development option (logging) with the preservation option, to calculate the capital sum (the threshold value) required to make the preservation option as economically attractive as the development option. With an estimated growth rate for future environmental benefits, it is also possible to calculate the initial year's payment needed to switch from the development option to the preservation option. This value can be

calculated as a total payment or as a per capita payment for the relevant population, such as the population of New South Wales and Victoria.

The information derived from the threshold value model does not provide an explicit value for the environment, but it does indicate to policymakers the minimum price the community must be expected to pay to justify preservation of the forest areas under consideration.

Estimating preservation values

Direct estimation of the preservation values of multiple use forest areas on the Register of the National Estate was carried out by means of a community questionnaire (RAC 1992a Ch. 16; RAC 1992a Vol. 2B Appendix U). The design, implementation and analysis of the questionnaire were undertaken by Dr. Jeff Bennett, Consultant to the Inquiry, and Marc Carter from the Secretariat Staff.

To keep research costs within reasonable levels, a mailed questionnaire was used. The questionnaire was designed as a contingent valuation study together with a travel cost study. Normally, travel cost questionnaires are administered at specific sites, but because of the difficulties and cost of sampling in this instance, a combined questionnaire was distributed.

A random sample of 5000 was drawn from electoral divisions in New South Wales, Victoria and Australian Capital Territory. A 50% response rate was recorded, sufficient to obtain statistically reliable results. The high response rate reflects the importance of forest-related issues in the Australian community. It is also possible that respondents were more than usually compliant because each questionnaire was prefaced by a letter from the Chairperson (Mr. Justice Stewart) explaining the national significance of the study being undertaken. There was no evidence of sampling bias in the responses received.

The public good defined in the CV was the fraction of the multiple use National Estate areas that might be placed in conservation reserves (100%, 50% and 10%). Focus groups were used to design the questionnaire (Reark Research 1992). An attempt to define the good in terms of the degree of disturbance and silvicultural intensity was abandoned because people simply did not understand the different management regimes and the possible effects on forest structure and the environment. The most meaningful choice that could be tested was "logging" or "no-logging" (for a specified percentage of area) within the National Estate areas.

A dichotomous choice model was used for the CV. Respondents were asked whether they would be prepared to pay a certain price to allocate a predetermined percentage of the forest area to conservation reserves. Different subsamples were drawn, each specifying the fraction of forest area to be preserved. The payment vehicle was the amount that would have to be paid in the form of higher taxes, government charges and costs of wood-based products purchased by each household resulting from the cessation of logging. Data were gathered on environmental attitudes and household characteristics as part of the survey.

A cumulative logistic probability model, as specified by Pindyck and Rubinfeld (1991), was fitted to the data, of the form:

$$P_i = f(Z_i) = f(B_1 + B_2 \mathrm{WTP}_i) = 1/(1+e^{-Z_i})$$

where P_i is the probability that the preservation option will be rejected by an individual, given the stated cost of the preservation option, WTP_i.

The function was fitted first to each subsample using WTP as the only explanatory variable. The results for the subsample specifying the allocation of 100% of the National Estate area to conservation reserves were as follows:

$$\underset{\quad (0.72)\quad (-2.47)}{Z_i = 0.087 - 0.002\ \mathrm{WTP}_i} \qquad \chi^2 = 6.25\ (1\ \mathrm{dof})\ .$$

These results indicated that "willingness to pay" had only a small effect on the choice of respondents between logging and perservation, although the level of statistical significance was high. Values for *t*-statistics are given in brackets. Results were also calculated for chi-squared.

To improve its explanatory power, other variables (income and age) were added to the equation. The equations of best fit for each of the subsamples (identified by the percentage of National Estate area that would be allocated to conservation reserves) were as follows:

100%

$$\underset{\quad (-0.9)\quad\ (-2.1)\quad\ \ (2.12)\quad\ \ (-4.25)}{Z_i = -1.18 - 0.002\ \mathrm{WTP}_i + 0.25\ \mathrm{LOGINC}_i - 0.03\ \mathrm{AGE}_i} \qquad \underset{(3\ \mathrm{dof})}{\chi^2 = 28.72}$$

50%

$$\underset{\quad (0.1)\quad\ (-3.5)\quad\ \ (1.1)\quad\ \ (-3.4)}{Z_i = 1.15 - 0.002\ \mathrm{WTP}_i + 0.13\ \mathrm{LOGINC}_i - 0.02\ \mathrm{AGE}_i} \qquad \underset{(3\ \mathrm{dof})}{\chi^2 = 25.9}$$

10%

$$\underset{\quad (-1.2)\quad\ (-0.75)\quad\ \ (2.5)\quad\ \ (-4.1)}{Z_i = -1.52 - 0.001\ \mathrm{WTP}_i + 0.29\ \mathrm{LOGINC}_i - 0.03\ \mathrm{AGE}_i} \qquad \underset{(3\ \mathrm{dof})}{\chi^2 = 28.0}$$

where Z_i and WTP_i are as previously defined, LOGINC_i is the log of income and AGE_i is age. The results indicated that income and age were more important determinants of responses than the cost of each option.

An unexpected result of the study was that the willingness to pay was inversely related to the area allocated to reserves; the smaller the fraction of National Estate forest area allocated, the higher was the willingness to pay. Several explanations have been offered for this result (RAC 1992a Vol. 2B Appendix U; Carter 1992; Blamey and Common 1993).

The first explanation is that the willingness to pay is dependent more on demographic factors such as age and income rather than price, and people will vote for preservation regardless of cost. Second, due to the hypothetical nature of the CV question, people may simply have voted for preservation on the assumption that the price would not actually have to be paid. Third, it is possible

that respondents indicated their marginal willingness to pay for forest preservation rather than their total willingness to pay. Theoretically, however, CV is expected to reveal the total willingness to pay. Fourth, people may have perceived the "good" in the CV as being the rarity or scarcity of National Estate forests rather than the absolute size of the area. Blamey and Common (1993) have explored the possibilities of a "geographical embedding effect" and "citizen values" being the reasons for the observed effect. Whatever the interpretation, the CV revealed significant community value for forest preservation for the particular areas under consideration.

The median willingness to pay to prevent logging in the designated areas was estimated at $ 43.5 per household or $ 22 per person per year. The willingness to pay increased with household income, supporting the Krutilla-Fisher hypothesis. This value was not extrapolated to the whole population, as it was a median rather than average value. It indicated that 50% of the population would be prepared to pay $ 22 to preserve the National Estate areas.

The travel cost study was conducted for separate subsamples within the questionnaire, differentiated by the fraction of forest area preserved. The standard travel cost method was used (Sinden and Worrell 1979). Visitation rates from different residential zones in New South Wales, Victoria and the ACT were regressed against the cost of travel to obtain a "whole experience" demand curve for recreational use of the National Estate forests in multiple use areas. Forest workers were excluded from the sample.

The "whole experience" travel cost study indicated that the visitation rate from the areas sampled was 106000 visitors per year. The average expenditure per visitor was $ 33.35 per year. Extrapolating this amount to the total population of New South Wales, Victoria and the ACT, the total expenditure on visits to the National Estate forests in the south-east was estimated to be $ 3.6 million per year.

An "on-site experience" demand curve was constructed by simulating entrance fees in the travel cost equation, calculating visitation rates from each zone and summing across all zones for each simulated fee. The economic value of the forest areas was then found by calculating the area under the demand curve. This value was estimated at $ 950000 per year. The implicit "willingness to pay" of each visitor was $ 8.90 per year.

Application of the threshold value model

The threshold model was applied by Streeting and Hamilton (1991). Estimates were first made of the net benefits of wood production in National Estate forest in multiple use zones. In fact, the estimation focused on measurement of the economic costs of ceasing logging. The benefits of logging may be interpreted as these costs avoided. Some economists (Knetsch 1990) would contest this assumption of symmetry in applying the model.

The analysis commenced with estimates of the standing stock of old-growth and re-growth forest, growth rates of standing stock, the projected output of logs including the mix of pulplogs and sawlogs, prices of wood and costs of forest management. The present value of projected output was estimated to be $ 30.3 million for sawlogs and $ 15.2 million for pulplogs, using a 7% discount rate.

Other benefits of wood production included an estimated $ 3.1 million in present value terms, for labour that would otherwise have been unemployed in the region were it not for ongoing logging in the National Estate areas.

The present value of costs of bush operations for the projected output was estimated at $ 29.3 million, and the present value of associated costs in sawmills and the chip mill was $ 8.3 million.

The net present value of wood production in the National Estate areas in multiple use zones was thus calculated to be $ 11 million. To justify preservation of the National Estate areas, a threshold value of $ 11 million, as a capital sum, would have to be paid by the community. This figure can be translated into an annual payment to perpetuity of $ 0.77 million by applying the 7% discount rate, to warrant allocation of the areas to conservation reserves.

If these costs are averaged among the total adult population of New South Wales and Victoria, a per person lump sum of $ 1.55 or an ongoing annual payment of $ 0.11 would be needed to reach the threshold value justifying preservation.

The above estimates are based on static values, income, community preferences and population size. An attempt was also made to estimate the threshold value, allowing for increasing community values of natural environments as postulated by Krutilla and Fisher. The projected growth rate for real income assumed for this part of the analysis was 3.5% compound per annum. On this basis, the initial year's threshold value for preservation was calculated to be $ 479000 or 7 cents for each adult resident of New South Wales and Victoria.

Up to an additional 2 percentage points could be attributed to a shift in preferences towards environmentally based activities and natural environments. This would boost the growth rate of environmental benefits to 5.5% per year, requiring a threshold value of 5 cents per adult person in New South Wales and Victoria to justify preservation.

Estimates were also made for costs of adjustment assistance for labour displaced by a possible cessation of logging in the National Estate areas. These costs would amount to $ 32 million as a lump-sum payment or $ 2.24 million as an ongoing annual payment. These amounts could be considered as additional benefits of continued logging, in the form of costs avoided.

Interpretation of results

The results of the economic studies undertaken for the Forest and Timber Inquiry on the south-east forests suggest that the community places considerable use and existence value on multiple use forests in south-east Australia on the Register of the National Estate. It would appear that the scarcer such areas become, the more highly they will be valued by the community. The results of these studies were part of the evidence considered by the Inquiry, leading it to the recommendation that the preservation of old-growth areas should be given high priority in forest management plans, based on community perceptions and values.

The threshold value model demonstrated that the costs to the community of preserving these areas would be modest. However, regional economic impacts and

the costs of adjustment assistance could be substantial. It is of course a matter of political judgment to decide whether these amounts represent a reasonable cost to impose on the community to support the preservation option.

Advantages of environmental economics

The assessment methods applied by the RAC to the south-east forests offer a number of advantages for policymakers bearing management responsibilities for public native forests.

Management options are placed in a decision framework within which all the effects, both favourable and unfavourable, can be assessed in a rigorous manner. The criteria on which the options are based are clearly stated, together with the underlying assumptions.

Environmental economics offers a practical means of integrating scientific knowledge, economic analysis and natural resource management. A sound economic analysis can be performed only if a reliable and comprehensive scientific study has first been performed. Environmental impact assessment, social impact assessment and natural resource assessment combine logically with environmental economics as a means of assessing tradeoffs and socially preferred solutions.

Despite assertions to the contrary, the application of economics to problems of environmental and natural resource management does not necessarily tilt the results in favour of development options. Explicit recognition is given to the goals of sustainable resource use and the conservation ethic. Ultimately, it is the community that must decide which particular uses of its natural resources are in its best long-term interests. Environmental economics is merely a tool to help decisionmakers understand what the community really wants.

National strategies for forest use

Resolution of forest issues has been addressed as a problem of national significance in Australia. A National Forest Policy Statement has been jointly developed by the Commonwealth, all States (except Tasmania, which has its own Forests and Forest Industry Strategy) and Territories of Australia through the Australian Forestry Council and the Australian and New Zealand Environment and Conservation Council in consultation with other relevant government agencies, the Australian Local Government Association, unions, industry representatives, conservation organisations and the general community (Commonwealth of Australia 1992).

The Statement was developed in conjunction with the Ecologically Sustainable Development National Strategy and the National Greenhouse Response Strategy. It draws on three major reports on forest issues: those of the Ecologically Sustainable Development Working Group on Forest Use (1991); the National Plantations Advisory Committee (1991); and the RAC Forest and Timber Inquiry (1992a).

The approaches and findings of the RAC on the south-east forests will hopefully play a contributory role in the efforts to achieve improved management of the national forest estate.

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