(viii) The Forestry Science degree should continue to have a strong management focus. It is important that foresters continue to be educated to be doers rather than observers, monitors and criticisers.

Conclusion

Forestry education is all about alternative approaches to forestry. It should encourage an open mind, never blindly accepting and always questioning. We are not trying to produce cooks who can follow recipes but rather those with the flair and creativity to make the recipes.

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The New Zealand Forest Accord: A step backward in participatory forest management

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Abstract

This contribution to the debate on the New Zealand Institute of Forestry's need to sign the 1991 New Zealand Forest Accord reflects a long-held view that decisions related to forestry should be made with a clear understanding on a full range of functions any forest should serve and an equally full participatory deliberative process in the priorities, compromises and trade-offs that all such possible functions should be accorded in deciding what is best to be done in any one set of circumstances. The Forest Accord appears to exclude a large number of rightful stakeholders in the decision-making process and to focus operationally on only plantation forestry concerns, though the real issue is to enhance the quantity and quality nationally of all, including indigenous, forests.

The opinion offered here is that New Zealand should rather address the wider context of all kinds of forestry in New Zealand in line with the Resource Management Act, the UNCED Principles emanating from Rio and the Montreal Process, to which the New Zealand Government is a signatory. The Institute should reject an agreement which serves the interests of only some relevant groups, which excludes relevant participatory deliberation on decisions about resources and which does not consider a holistic range of forest functions, all types of forest and the national as opposed to only the local picture. The preoccupation in New Zealand with primacy of single uses, strict zonation of resource classification and ecological precedence over social, economic and cultural well-being has hampered conservation in the past and is continuing to do so in terms of how some people interpret the Accord. Indications are given here of earlier attempts to encourage the study of New Zealand resource problems using real multiple-objective planning, and also of how recent technological developments have made use of these techniques much more readily applicable. Unless recognition is made of the need (i) to effect compromises and trade-offs; (ii) to make decision-making participatory and transparent; and (iii) to ensure that outcomes are accountable, the conservation of resources by owners of property rights and the funding of it by these owners and the taxpayer will never be properly achieved.

Introduction

This paper attempts to clarify the main reasons why the Institute should not support the 1991 New Zealand Forest Accord, which appears to serve interests of only some relevant decision-makers and also a far too narrow forestry focus. The arguments developed in a contribution by Whyte & Daellenbach (1987) at the New Zealand Institute of Forestry AGM in Greymouth that year are further analysed in the light of subsequent New Zealand legislation, global initiatives on sustainability, New Zealand's international commitments, together with individual agreements such as the Forest Accord and the Institute's National Policy Statement on Forestry.

The 1987 contribution mentioned above was made because the main reason for disestablishing the New Zealand Forest Service and separating so-called commercial from so-called conservation interests arose from the long-held belief that a single organisation could not serve and administer multiple conflicting objectives. That viewpoint, which is totally rejected here for well-documented technical reasons, is being perpetuated by self-serving agreements like the Forest Accord in preference to the more holistic requirements of the Resource Management Act (1991 and its 1993 amendments) and global initiatives such as the Montreal Process, to which the New Zealand Government is a signatory.

In the 1980s there was an intensive campaign to "lock-up" the native forests of New Zealand and take State forest from

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principally the Forest Service and the Departments of Lands and Survey to put into the newly established Department of Conservation. The environmental movement convinced Treasury and politicians that the implication was that no major funding would be needed to look after the forest, as it would be self-sustaining and run on ecological purity. Media reports and commentary at the time were full of it and anyone with a short memory should have no difficulty in amassing countless published statements to that effect from many newspaper clippings that various people like myself have retained. The need to manage environmental problems was lost on too many of those responsible for funding, planning, budgeting, spending and controlling activities that are necessary to conserve forest values. This can be illustrated by way of example with the explosion in possum numbers from around 1986, a trend which is hard to quantify because of the lack of funding for monitoring, controlling (as opposed to researching) and reporting trends in populations of this pest and various others.

There were members of the original Department of Conservation who recognised that the management problems lay more in the indigenous than in the plantation forests. Its first Director-General, for example, Mr K. Piddington, delivered a lecture at the School of Forestry on his vision of conservation as a wise land use and not just preservation, together with the need to fund these from resource development. He was roundly disabused by the environmental lobby for such heresy. Within about a year, Mr Piddington resigned and took up a post in the Environment Division of the World Bank. In some ways, he was quickly proved right, because DOC, to its credit, developed strategies for gathering revenue (other than timber production, of course) that now amounts to at least one-third of its total annual budget. Is it any wonder that the Department of Conservation has never had a hope of coping with conservation management problems, including the indigenous forest deterioration that is the perception of several with a long familiarity of forest condition, including those responsible for various forest reservations in the 1970s and 1980s (see, for example, Lucas & Bassett, 1995)?

Sustainable Management

New Zealand enacted legislation, the Resource Management Act (1991), which encompassed elements from more than 60 other Acts. Its purpose is *"to promote the sustainable management of natural resources"*. Sustainable management is defined in Section 5(2) as follows:

> *"Managing the use, development and protection of natural and physical resources in a way or at a rate which enables people and communities to provide for their social, economic and cultural well-being, and for their health and safety, while:*
> *(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonable foreseeable needs of future generations;*
> *(b) safeguarding the life-supporting capacity of air, water, soil and ecosystems; and*
> *(c) avoiding, remedying or mitigating any adverse effects on the environment".*

It is important to note that this umbrella Act seeks to provide a balance in managing natural resources among the needs of people and communities with the ecological values in (a), (b) and (c) above. But most environmental groups follow a precept that pure ecological values in (a), (b) and (c) should take precedence over the pursuit of communal well-being in implementing activities in the sustainable management of resources.

To promote this ideology appears to be why these environmental groups have seen fit to ignore the holistic views of the

RMA, the Forests Act (1949 and as amended on July 1, 1993), the general Rio Declaration on Environment of 1992, the accompanying Principles/Elements and Chapter 11 of Agenda 21, the 1992 UN Conference on Environment and Development and the Santiago Declaration of 1995 that established agreed criteria and indicators for sustainable management of temperate and boreal forests under the Montreal Process, to which New Zealand is a signatory. But, because the New Zealand Forest Accord and its follow-up agreement, called "Principles for Commercial Plantation Forest Management in New Zealand" signed in 1995 (see NZ Forestry, February 1996 issue, pp 46-48), have a narrow focus and because they both appear to contravene the spirit and intent of participatory forest management, an essential element that underpins the four other agreements, one could well question whether global and other New Zealand initiatives on sustainability have any relevance to the signatories of the Accord and adherents of its follow-up Principles.

Consider also the underlying philosophy of the Forests Amendment Act 1993 which is *"to promote the sustainable management of indigenous forests"* where sustainable forest management is defined as *"the management of an area of indigenous forest land in a way that maintains the ability of the forest growing on that land to continue to provide a full range of products and amenities in perpetuity while retaining the forest's natural values"*. The Act's express purpose is *"to promote the long-term sustainability of indigenous forests by regulating their management for the production of timber and the maintenance of their natural values"*.

Contrast this with the intransigent views of the Conservation Director, Royal Forest and Bird Protection Society (Smith, 1993), who decreed that half the area of 50,000 ha on the East Coast is *"covered in closed canopy kanuka, much of it over four metres tall, that the forest industry agreed to exclude from clearance when they signed the New Zealand Forest Accord in 1990. Lengthy negotiations between Tasman, Ngati Porou and conservation signatories to the Forest Accord failed to reach any agreement on the proposed clearance of kanuka. The Forest and Bird Protection Society publicly withdrew from negotiations and precipitated Tasman's withdrawal from the project in March [1993]"*.

Not all environmentalists agreed with the standover tactics. In this regard, Smith singled out the Maruia Society's G. Salmon who had criticised *"extremist elements"* for the collapse of the project. Salmon, in an oral presentation at the 14th Commonwealth Forestry Conference in Kuala Lumpur in September 1993, hailed this collapse initially as a success for the Accord, but then subsequently in a published form, Salmon acknowledged that *"A fundamental difficulty of the Accord is that it does not necessarily reflect the interests of the landowners"*. Salmon also went on to contradict some of Smith's description of the East Coast resource and indicated that negotiations might continue to proceed along different lines. It is interesting to consider that the new proposed partners come from the Republic of Korea, which, like New Zealand, is a signatory to the Montreal Process. That is surely a positive aspect that can be used to advantage to provide environmental safeguards as prerequisites to proceeding with the new partner. Smith also blamed the Government for the failure of the talks, because it would not uphold the Accord and was reverting to subsidisation of afforestation rather than preservation of kanuka and conservation of soil and water values. But there had been further developments since the Accord (which the Government did not sign) from which the New Zealand Government had moved on and had signed. The broader purposes of the RMA (1991) and the Forests Amendment Act (1993) have already been outlined. Moreover, the Rio Declaration and the UNCED Principles/Elements of 1992, this country's report to and the outcomes of the 14th Commonwealth Conference in 1993 and the Montreal Process of 1995, to each of which the New Zealand Government is a signatory, all actively encourage participatory forestry, as itemised below.

The Rio Declaration on Environment and Development:

- Principle 3: *"The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations."*
- Principle 5: *"All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world."*
- Principle 22: *"Indigenous people and their communities, and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development."*

Others too are relevant:

Non-Legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all types of forests:

- Principle/Element 2(b): *"Forest resources and forest lands should be sustainably managed to meet the social, economic, ecological, cultural and spiritual human needs of present and future generations. These needs are for forest products and services, such as wood and wood products, water, food, fodder, medicine, fuel, shelter, employment, recreation, habitats for wildlife, landscape diversity, carbon sinks and reservoirs, and for other forest products. Appropriate measures should be taken to protect forests against harmful effects of pollution, including airborne pollution, fires, pests and diseases in order to maintain their full multiple value."*
- Principle/Element 2(d): *"Governments should promote and provide opportunities for the participation of interested parties, including local communities and indigenous people, industries, labour, non-governmental organisations and individuals, forest dwellers and women, in the development, implementation and planning of national forest policies."*
- Principle/Element 6(c): *"Decisions taken on the management, conservation and sustainable development of forest resources should benefit, to the extent practicable, from a comprehensive assessment of economic and non-economic values of forest goods and services and of the environmental costs and benefits. The development and improvement of methodologies for such evaluations should be promoted."*

There are several other Principles/Elements that are very relevant to the issues addressed here, but enough examples have been given to contradict environmentalists' views that ecological values have supremacy, that signatories to the Accord should be able to dictate what can and cannot be implemented in the forest, that there need be no accountability of the ecological values involved, that only some parts of the national forest resource need to be considered, that funding for environment should come from a bottomless public purse and that negotiation allows one to walk away from discussions on resource decision-making without trying well-known dialogue procedures. Such intransigence just cannot be accepted if what the rest of the world (and quite a few New Zealanders) have worked out should apply since the Accord was signed.

The Accord can be regarded as a formative step in this whole evolutionary process of reaching a global consensus on sustainability. New Zealand can ill afford to play a lone role in promoting a much narrower ideology and also one that is at clear odds against the desired global trends. From a personal philosophy viewpoint, the Accord represents one that is the antithesis of the definition of sustainable management used in my teaching for about the last 20 years, one that developed out of many discussions with a colleague, Dr A. Leslie.

"Maintaining the supply of as many benefits, goods and services at as high a joint level of each as can be reasonably supplied in perpetuity, without permanent loss of current resource management options":

which definition recognises that the quality of various forest functions depends on leaving, on the one hand, the forest more or less intact, while, on the other, part of the forest has to be removed when production from it (be it wood, fruit, bark, medicinal plant or whatever else) involves consumption on- or off-site (see Whyte, 1994).

Multiple-objective Planning

Smith (1993) still subscribes to the view that *"mixed objectives of the Forest Service, Departments of Lands and Survey ... resulted in poor economic and environmental outcomes" and also the need for identifying "which of these objectives has primacy"*. The whole thrust of recent global initiatives has been to promote a multiple function approach that does not represent this predominant use or primacy view to which the Accord adheres. Ironically, it was the environmental lobby in the 1970s and 1980s that vehemently opposed the centralised decision-making of the Forest Service on behalf of the public and other vested interests who had made submissions on resource management, and now the signatories to the Accord wish to replace that bureaucracy with their own and without genuinely involving stakeholders (e.g. landowners, communities and the public) in the decision-making process. The "lock-up" mentality that the environmental lobby voiced loudly to promote the dissolution of the Forest Service was quickly taken up by Treasury to mean that no money was needed to look after indigenous forests, as they would look after themselves with ecological purity. Now, of course, as graphic illustrations of indigenous forest decline since 1987 have shown, the environmental lobby wants huge injections of public funds without resource or financial accountability, both of which are essential keystones to management.

But the management ethic for forests, in which making compromises and trade-offs are vital elements in striving for a balanced deployment of forest resources to serve the multiplicity of their functions to the fullest possible extent, while accounting clearly and transparently for the decisions made, is clearly absent from the vocabulary of environmentalists and the Accord. It is not the multiplicity of objectives *per se*, however, that prevents conflict being resolved. That was exactly what the criticism of the Forest Service approach was all about in the presentation by Whyte & Daellenbach (1987). What needs to be restated here is that the Accord repeats these errors.

Three main reasons why the management of State multiple-use forests in New Zealand was inappropriate were identified, using Hanmer Forest Park by way of example:

- zoning of land-use allocations without explaining the rationale;
- decisions made on behalf of interested parties and not jointly;
- no proper accountability for use of resources.

The Park Advisory Committee and the Forest Service, as was done in various forests throughout the country, called for public submissions and prepared a draft plan for further comment before finalising it. The forest was divided into three main zones (protection, production and recreation, the primary uses) and secondaries were allowed within each of these three. But, the reasons for the allocations were obscure, because *"zoning is the identification of State Forest land according to the predominant management practices to be implemented on it and is derived from the assessment of its intrinsic values and proper decisions as to the preferred use(s), in accordance with policy"* (NZ Forest Service, 1977). That deficiency is repeated in the Forest Accord, in which the first objective given is: *"to define those areas where it is inappropriate to establish plantation forestry"*. The implication is that the Accord policy and its signatories dictate the decisions, while stakeholders and the public are virtually excluded. Moreover, the policy constraints become the primary objective, which is the antithesis of balanced multiple-objective planning.

The second reason above also centres on non-participation. Any best compromise decision, by which no one interested party, on the one hand, can expect to achieve full individual satisfaction, but through which rational trade-offs can be negotiated in the light of environmental and financial costs and returns in a transparent, participatory way, is what is being advocated in all the global initiatives. But some Forest Accord signatories simply walk away from negotiations, if they don't get their own selfish ends met, based on intrinsic values, rather than those representing balanced use. All that implementation of the Accord produces in this way is bickering and confrontation which adversely affect the quality of the forest environment, as alluded to earlier.

The third of the above reasons is where the Forest Accord falls down even more badly. The whole point of the Montreal Process is to identify, measure, analyse and report criteria and indicators about the sustainable management of forest resources. While the Forest Service did document information about recreational user statistics and timber removals, it did not report periodic trends for each of the several other main forest functions and, of course, no indications of the amount of expenditure allocated to different uses of the whole area were given. Is it any wonder that Treasury officials, politicians, stakeholders and the public paid little heed to pleas for a fair share of scarce regional and national resources allocations? But that is also what the Forest Accord represents. It does not concern itself with catering for accurate portrayal of *"heritage values"*, *"forest area maintenance and enhancement"* and so on, nor what they are intended to mean nor what they cost. Without resource and financial accountability, the taxpayer is not going to want to pour unlimited funds into a bottomless pit to preserve esoteric, intrinsic resource values. But, in a balanced-use approach, perhaps the funding can be shared to good effect.

Multiple-objective planning methodologies and practices

It is not intended here to describe in anything but the broadest terms the principles of multiple-objective planning techniques. The literature over the last 30 years is full of it, including textbook examples in Daellenbach *et al.* (1983) and Dykstra (1984), review articles by Tarp & Helles (1995), local forestry applications, such as Aulia (1996), Ogweno (1995), Whyte (1994 & 1996) and so on. In the USA, the Bureau of Land Management and Forest Service adopted these techniques for land-use planning (e.g. Bell, 1976), while managers of soil and water resources have been practising them for even longer (e.g. Cohon, 1978).

There are various formulations that are applicable, but one that has received most attention in these situations is goal programming. In summary, each of any number of objectives is solved individually. Their optimal values are inserted in right-

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hand-side parameters of constraints which contain slack variables representing deviations from the right-hand side. These deviations can be given weights or penalties to discourage departures from the optimum. The problem then becomes one of solving a simple linear programme that minimises these departures in the form of weighted deviations, which negotiators around a table can analyse rationally and agree to accept.

Since the explanation given by Whyte & Daellenbach in 1987, major technological improvements in the execution of this methodology have materialised: for example, software packages and their ability to interface with spreadsheets and report-writers familiar to resource managers, GIS and GPS to assist with data collection in the field and conversion to digitised information in mathematical models, transparency of coefficients and other representations in the models to allow parties to screen and alter the basic data, interactive solutions to the models to facilitate discussion around a negotiating table in a true participatory fashion, and associated documentation of environmental, financial and other output indices of accountability. Fuller explanations can be sought from the references above, but most important in attempting to implement the approach is the need to be concerned with measuring outputs in terms of their environmental and not just financial values, with which many economic models are obsessed. Whether it be health, education, welfare or physical resource allocations, there needs to be a statement of outputs in units relevant to the nature of the problem, ones that are achieved under a range of cost structures and returns. This is exactly what these MODM techniques provide. But the Forest Accord wants to hide behind imponderable values which they regard as priceless and that view will never get us down the road of improving the quantity and quality of our forests as a whole.

Conclusions

- The New Zealand Forest Accord signed by forest industry and so-called conservation groups in August 1991 focuses on a new centralised bureaucracy of decision-making that excludes realistic dialogue with other more important stakeholders, namely rural communities, proprietary rights holders and the New Zealand public.
- These self-serving moves that drive this philosophy represent a trend that flies in the face of the more holistic-looking Resource Management Act, the Institute's National Policy Statement on Forestry and of various global initiatives, including the UNCED Principles of 1992 and the Montreal Process Accord (Santiago (1995)), to both of which latter the New Zealand Government is a signatory.
- The centralised decision-making of the Forest Service that took it upon itself prior to 1987 to collate submissions from a wide range of New Zealand public opinion has been replaced by another centralised decision-making group consisting of private forest industry and environmental groups, despite the latter groups having expressed such strong feelings against the Forest Service's usurpation (in their view) of public decision-making – an ironic turn of events.
- Excluding major relevant groups of other people in the deliberation on resource decisions is likely to promote confrontation and be counter-productive in resolving conflict in resource decision-making.
- Conservation, consequently, is being endangered by the very people who profess to espouse the ethic most strongly, though one must always cast doubt anyway on whether or not the opinion of urban elites should have precedence over impoverished and now disenfranchised rural communities.
- Much of the problem centres on a viewpoint long entrenched in New Zealand that predominant use and zonation for primacy of single uses within a mosaic can reflect multiple-use functions that forests service, when in reality ways have to be found of effecting compromises and trade-offs in order to reduce conflict in using resources without prejudicing abilities to service multiple functions in the future.
- Another associated major difficulty lies in the lack of recognition that robust methodology has in fact been available for over 30 years to cope with multiple-objective decision-making where there are competing ends.
- The use of these techniques and their adaptation to New Zealand situations was outlined in a formal presentation at the 1987 New Zealand Institute of Forestry AGM in Greymouth, but received only mixed support.
- Since 1987, major technological improvements have made this whole approach much more viable: computer software packages, interfacing with spreadsheets and report-writers, GIS and GPS are all developments that have greatly enhanced the transparency of the process, its interactive capability and its documentation of financial and other output accountability.
- An approach like this within the terms of the RMA will be needed to guide rural communities in the rational use of proprietary rights, market place forces and ecological values in a balanced holistic way, so that accountability can be improved.
- The taxpayer needs to be informed of the true costs of preserving heritage, biodiversity, soil and water, recreational, ecological, aesthetic and other such values, otherwise the arguments over the extent of the public purse contributions will continue and funding mechanisms will be as elusive to secure as ever.

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