

COMMENT CHANGE

After 68 years the New Zealand Forest Service, originally the State Forest Service, has gone. What did it achieve during these years? How did it evolve and how did its roles change? Why was it disbanded? How well will the new organizations perform? Were the changes a forward step?

These and many similar questions are on our minds these days and each of us will have her or his opinions. It is probably too soon to answer some of them partly because many of us are too closely involved. However, it is important to try both to document the changes and attempt to make judgements so we can learn from them, and make adjustments to our thinking. Also foresters and historians of the future will need this background information.

In this issue there is a range of papers which focus on the past performance of the New Zealand Forest Service. They do not cover all aspects, although the journal intends to extend the coverage in later issues. There are also opinion pieces which it is hoped will stimulate thinking around these questions and about the future. As in past issues, there is further material recording some of the changes.

In my opinion foresters and others involved with land management or industries based on primary produce need to learn to be much more critical of their actions. We need to be more outspoken, to call for a halt to bad practices, criticize poor organization structures (especially during this period of change in Government and Industry) and to question what has generally been considered 'correct' in the past. This does not necessarily mean throwing away old concepts, but rather re-examining their applicability. We need to be more open-minded, to be ready to change, and to be innovative. We must also continue to be sensitive to the needs and wishes of society while retaining our professional integrity. To do this we must develop our communication skills.

I believe the Institute of Foresters can be a catalyst and an important focus for this change in attitudes. It can act as a forum for discussion and action at the local and national level. The re-examination of the multiple-use concept at this year's A.G.M. is an excellent beginning. The Institute's long existence, its stability within the changing scene, is important in assisting members to make the transitions more readily. However, to be fully effective it requires members to be involved. We are fortunate in encompassing a wide range of expertise with people coming from many backgrounds.

This journal can also be a useful medium for criticism, new ideas and discussion. It has been pleasing, for example, to see the debate continuing on discounting methods and decision making. This was sparked off by the article by J. Fitzsimons a year ago. The editorial policy is to try to cover the widest range of forestry related issues and to promote debate.

Finally, I would argue that we should all welcome an on-going, in-depth review of forestry-related activities. It will not only

keep us on our toes but make for an interesting, vigorous, sector to be involved with.

**Don Mead,
EDITOR**

CORRECTION

In the comment on the dangers of user pay research (Vol. 31, 4) it was suggested that the cost of the Timberbelts video was \$250. This is now being advertised at \$165 incl. GST.

Structure of the Forest Service and its economic performance

The Forest Service was primarily an advocate for wood production and its production goal generally took precedence over its secondary environment protection goal. Consequently the Maruia Declaration, supported by 341,000 signatories in 1976, called for the splitting up of the Forest Service and the establishment of a Nature Conservancy with a clear and undivided responsibility to protect most publicly owned native forests. The problem for forest conservationists was to achieve greater public accountability to popular environmental goals. The solution was seen as a new department of State to function as a protector of natural lands and advocate of nature conservation.

In practice the Forest Service resembled a one-party state and presented bureaucratically integrating economic, social and environmental goals as "balanced use" forestry. It was impossible to achieve adequate accountability for any one of these goals because:

- the goals were mutually conflicting
- the structure of the department promoted internal resolution of these conflicts by individual managers
- the outcome was backed by the collective ideology of forest managers and promoted by the institutional power of the whole structure.
- this ideology, rather than society's agreed objectives, came to dominate the resolution of conflicts in forest resource management.

By conferring multiple objectives on management, the departmental structure could be, and was, used to shield managers against accountability to any particular

objective. For example, forest proposed by conservationists for reserves was claimed to be needed for production for economic and social reasons, whilst the fulfilment of environmental and social goals was said to preclude the most economic production of wood. Such conflicts were internalized and usually resolved in favour of timber management, variously presented as an economic, social or environmental desideratum.

As part of the Government's "opening of the books" exercise, Treasury (1984) repeated earlier dissatisfaction with the level of economic accountability practised by the Forest Service and proposed that it shed essentially non-commercial environmental and social activities and concentrate on becoming an efficient commercial enterprise.

To develop the potential of collaboration between conservationists and economists, the Forest Service's economic performance was examined in some detail. The paper summarized below was prepared for the public seminar "Native Forests — The Next Steps", held in Victoria University, Wellington on August 3, 1985. This comment has benefited from the criticisms of forest economists and Forest Service staff.

The economic analyses referred to are from the national point of view, and dollars are expressed in terms of their March 1984 value.

Growing costs for plantations

The justification for the second planting boom of pines, begun in the 1960s, was to capitalize on our relatively low growing costs to increase overseas earnings and to broaden our export base (Wije-Wardana, 1983). The

predicted rates of return on capital invested in forestry commonly exceed 10% (e.g. Fenton, 1972; Whiteside & Sutton, 1983) and this has been the minimum rate required for public sector projects since 1971 (lowered to 6% for forestry projects in 1986). However comparison of the net returns from the Forest Service's stumpage sales of \$6-7/m³ for the 1980-83 period, a typical period, with growing cost estimates, showed this return rate on invested capital was not being realized.

The Forest Service estimated that the growing cost of sawlogs varied from \$33 to \$45/m³ for 30 year rotations, with annual interest charges of 10% (Kirkland 1984a). But, performance-based calculations, using the Forest Service's method of calculation (Kirkland, 1983), showed that the State's national average growing cost for the 1980-83 period was \$82/m³. Estimates prepared by Nelson Conservancy (1985) showed that 30 year rotation pruned sawlogs would on average cost \$123/m³.

The rate of return on capital for the Forest Service's stumpage sales over the 1980-83 period was about 2%, assuming a low growing cost of \$34/m³. Compared with the 10% rate of return requirement, this represents an opportunity cost of \$2.25 billion for the 17.7 million m³ of standing trees sold by the Forest Service over this four-year period.

Given 1984 export log values and continuation of the performance-based growing costs (\$82/m³) the average return on investment in forestry would be about 4% for 30 year rotations. The longer rotations normally used would depress this rate of return.

Over-optimistic planning forecasts

The Forest Service's H. Levack and C. Gilchrist detailed five alternative national exotic planting rate scenarios for the 1981-2010 period, as a background paper to the 1981 New Zealand Forestry Conference. The authors' outlook was very optimistic: "Because so much money has already been sunk into New Zealand exotic forests and because new planting is generally still a good investment, the forestry sector is in a very healthy state" and "A large positive cash flow is expected for all scenarios."

The authors predicted an annual net revenue of \$535 million for the 1981 to 1985 period under their "continuation" scenario which equalled the planting rate during this period. However, the "New Zealand Census of Forestry and Logging 1983-1984" (Department of Statistics, 1985) recorded a net loss for this year of \$79 million, \$614 less than predicted by Levack and Gilchrist. The Department of Statistics' (1981) earlier survey of the 1979-1980 year recorded a net loss of \$32.5 million, a result which could have tempered the authors' predictions.

The Forest Service produced nearly one-half of the nation's wood for the year ended March 31, 1985 and recorded net losses

of \$147 or \$565 millions, using Kirkland's (1984a) low growing cost estimate, at 7% and 10% annual interest charges, respectively. Similar net losses occurred for the 1981 to 1984 years.

Misleading accounts

The Director-General of Forests, Mr Andy Kirkland (1984b), wrote: "In 1978 the Controller and Auditor-General found with considerable justification that the financial affairs of departments were mediocre and lacked positive management. Accountability for resources used was inadequate. That clearly was and is true of the Forest Service. We are doing our best to effect improvements." In fact since 1981, the accounting method has been more misleading than any used previously.

Changes were made to the Forest Service's accounting methods in 1974 and 1981. With each change a progressively higher proportion of the production forestry costs were capitalized, so that from 1981 the annual accounts showed, for the first time, an operating surplus that resulted partly from capitalization of more than 50% of total production costs.

When challenged in 1986 the Forest Service defended its phoney operating surplus for exotic production of \$46 million for the year ended December 31, 1984. This was based on an average historical growing cost of \$1.3/m³ for approximately 4.6 million m³ of roundwood produced at an average stumpage value of \$11.23 (Director-General, 1985). Whereas using Kirkland's (1984a) \$34/m³ growing cost estimate (which incorporates an annual 10% interest charge) the \$46 million surplus becomes a \$616 million deficit (or a \$198 million deficit using a 7% interest charge).

Forest Service's accounts were prepared on a variable historical cost basis and accordingly the average growing cost over the 1981-85 period is stated as \$1.7/m³. This figure makes no allowance for inflation over the average 46-year growing period and there is no interest charge on the capital tied up for this time. It is a misleading and meaningless figure calculated on a basis which means the reported growing cost decreases with increasing inflation rates and rotation lengths.

The Forest Service's past performance

The total net expenditure on production forestry by the State from 1920 to 1984 is about \$2.0 billion (\$1.9 billion since 1950). Accepting the Forest Service's 1984 estimate of the net present value of the State's exotic forestry assets as \$2.7 billion (Director-General 1984), this represents an average annual rate of return of about 2% on capital employed in production forestry.

That rate of return is below the historic interest rates selected by critics of this paper to represent the true cost of capital. (Hunter, 1985; Horgan 1985). The return from investing the public money at these historic interest rates instead of in forestry, would

have been around \$5.0 billion, or \$2.3 billion more than the estimated worth of the State's exotic forestry assets.

The confusion of economic and social goals which led to the underpricing of wood (Forest Service 1985) and the basing of planting targets largely on land availability contributed to this inefficient use of capital. On the other hand, State forestry has enjoyed several commercial advantages acting to increase its rate of return. Revenue from the depletion of native forests has been credited to the exotic production performance (without this revenue the average annual rate of return from 1920 to 1984 is around 1%); most land used for afforestation has been acquired virtually free of charge; and there have been no interest charges on capital. In light of these substantial commercial advantages the actual performance of State forestry seems particularly deplorable.

Conclusions

This paper quantifies the Forest Service's inefficient use of capital. It also shows how the Forest Service has understated its growing costs, exaggerated the profitability of exotic forestry and concealed its lack of accountability with misleading financial accounts.

Society's failure to obtain accountability to economic or environmental goals in forestry was attributable to the Forest Service's management structure. Managers had contradictory goals and the current reorganization of the department's structure to separate these will establish the structural conditions for achieving greater accountability and effectiveness in pursuit of each goal.

The return on capital used for all production forestry and for exotic production forestry since 1920 is calculated as about 2% and 1%, respectively. This result is based on the Forest Service's estimate of the net present value of the State's exotic forestry assets, of \$2.7 billion at March 1984. The equivalent value at today's money values is about \$4.5 billion. However, the Chairman of the Forestry Corporation Board, Mr Alan Gibbs, considers that the real commercial value of these assets is no more than around \$1.0 billion in 1986 dollars (Munroe, 1986). If the assets are transferred at much less than \$4.5 billion then there will have been a negative actual return on the public's investment in forestry, and the overall opportunity cost of the Forest Service's forestry investments will exceed the \$2.3 billion calculated in this paper.

Other conclusions which may be drawn from this analysis of the inefficient use of capital by the Forest Service are:

- 1) The State should not have led the second pine planting boom but left exotic forestry to the private sector.
- 2) New Zealand's forest industry is vulnerable to charges of being an unfair competitor on world markets because the State has undercharged for the wood sold

by the Forest Service (Maxwell & Baines, 1985).

- 3) It was a mistake to liquidate the bulk of indigenous production forest since 1920 and replace it with exotic plantations.

P.S. Grant,
Native Forests Action Council,
Box 756, Nelson

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Structure of the Forest Service and its economic performance — a reply

As the Forest Service no longer exists a discussion about its structure and economic performance may appear to be somewhat sterile and irrelevant. However a comment which purports to quantify the Forest Service's inefficient use of capital, show that the Forest Service understated its growing costs, exaggerated the profitability of exotic forestry, and concealed its lack of accountability with misleading accounts, is worthy of at least a few moments' consideration. Even if the Forest Service is no longer with us, the knowledge that a structure such as that possessed by it leads inextricably to such problems would be well worth possessing.

STRUCTURE

What was the Forest Service structure? What evidence is there that this structure caused the Forest Service to act badly, producing a notably poorer economic performance than that of other agents in the New Zealand economy? After reading Dr Grant I still don't know answers to either of these questions nor even if the economic performance was poorer than that of other agents.

Advocacy rather than reasoned argument has been used to 'prove' the various points — in what must in the final analysis be a metaphysical discussion.

Even were one to accept Dr Grant's thesis, it is less than completely fair to give full credit for all the problems to the Forest Service alone. Throughout its whole existence the Forest Service's actions were governed by an Act of Parliament. There was Ministerial and Parliamentary oversight, and presumably acceptance of the fact that the Service had conflicting goals and Treasury, as the Government's economic advisers, failed to convince Government that allocating funds to this organization was inefficient, for successive Governments continued to fund the organization for some 70 years. Thus Government, Treasury, and the people of New Zealand in general must share in any blame — if blame there is.

GROWING COSTS

Does the fact that achieved prices for past crops are lower than estimated growing costs for new crops, which in turn are about half the costs resulting from performance-based calculations, demonstrate that the Forest Service understated its growing costs? I think not. Past reasons for

growing wood and the prices achieved for this wood when harvested are not necessarily relevant to the future. Material which will be harvested in the future has been planted for a number of reasons ranging from:

"providing for the domestic market while ensuring a small but increasing exportable surplus" (1969 Forestry Development Conference), through:

"attempting to ensure forestry would contribute 20-25% of total export earnings by the year 2000" (1974-75 Development Conference), to:

"achieve the rounding out of afforestation activity . . . to produce forest resources able to sustain internationally competitive processing facilities. . . " (1981 Forestry Conference).

As well some land has been planted not for economic reasons.

"Of the 262,000 hectares planted over the last 15 years 53,000 hectares or 18% have been undertaken with funds appropriated for special employment programmes. Such areas have been . . . located to suit employment creation rather than commercial needs". (Report of the Establishment Board of the Proposed New Forestry Corporation.)

and much silviculture has also been similarly for social reasons.

"He (Mr Kirkland) said that much of the pruning in the past had been done under Government-subsidized work schemes, and was not justified by normal commercial criteria". (NZ Herald 1.4.1987)

Performance-based costings which fail to recognize and attribute these social costs appropriately will overstate the cost of growing wood. I believe this is what has happened with performance-based cost measures quoted by Dr Grant. Finally we have the estimated growing costs. Consistently these have been economic in character and have invariably shown as stated by Fenton (1972) that:

1. Interest rate is the dominant variable for economic evaluation of a given afforestation project; and
2. costs of production can be reduced by restructuring forest enterprises to give first priority to the tree crop.