

**PROTECTION OF THE ENVIRONMENT:
THE INDUSTRIAL DILEMMA WITH PARTICULAR
REFERENCE TO THE UTILISATION OF THE
SOUTH ISLAND BEECH FORESTS**

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1. *Introduction*

In western economies the viability of an enterprise is gauged by the amount left over after all costs have been deducted. This amount must be sufficient not only to maintain the industry, and possibly support growth, but also to pay dividends to investors which sustain their interest. Virtually all industries involve environmental costs; where these are met they become an element in establishing the magnitude of dividends and hence the ability of the industry to remain viable. Where the minimisation of the environmental impact of the industry involves no cost, or where the impact is related to the use of a primary resource, particularly non-renewable, on which the industry relies, then it is likely that the industry will demonstrate environmental responsibility. Where the impact is not of this kind and restorative expenditure by the industry is involved, then responsibility is likely to be limited to what dividends will allow and the affected society, which may (but not necessarily) include consumers of the industry's products, demands.

In the Northern Hemisphere environmental costs, rather than being met when they have been incurred, have compounded at an alarming rate. Repaying this debt is proving to be a sobering experience; stemming the accumulation of further debt even more so. In Great Britain and the United States environmental laws recently imposed proved too severe for industry's acceptance and have been waived or relaxed. Society as a whole must share the environmental costs of those industries it has in the past condoned, and in whose benefits it has supposedly shared. It is a bitter pill to swallow which does little to alleviate the pain of a several-decade binge. In the light of the present world energy crisis it is interesting to note that 90% of the growth in power generation of the U.S.A. over the past thirty years has been due to higher per capita consumption and only 10% to population growth.

In New Zealand there have been strong criticisms of successive governments for their failure to provide incentives for industrialisation and many claim that we have relied too heavily on primary production. Such claimants would currently cite our large overseas deficit which reflects depressed prices for our agricultural products. Our deficit

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may be large but it is temporary, and compared with other developed nations with whom we share a very high standard of living, environmental deterioration has been minor. To many, however, it has already been too great and there is a growing awareness of the possible consequences. But this is a conflict which society has not yet resolved and this is reflected in our apparent schizophrenia in attitudes to work and leisure. Society makes a sacrifice of individuals and the environment to generate affluence and with this comes a freedom of access to those things lacking in the work situation. However the realisation is dawning; the sacrifices made despoil the objects of that liberation. These are the conflicts which the Forest Service with its proposals for beech forest utilisation has had difficulty resolving to society's satisfaction.

2. *The Beech Forest Proposals*

The two remaining areas of the South Island where large scale utilisation of native forests continues are Westland and Western Southland. Both have a long history of forest exploitation and many cutover areas remain as essentially waste land. They also share the problems of depopulation for lack of development and employment opportunities. The beech forest proposals are directed towards a more productive use of the land resource in general and the remaining production native forest in particular. The proposals envisage an increase in industrial processing which will give impetus to regional development.

The proposals have generated considerable controversy at all levels, not least within the Forest Service itself. For an issue as important as this such controversy must be regarded as healthy and an expression of the democracy we claim to uphold. Had the scheme been proposed some ten years earlier it would doubtless have been praised for the worthiness of its objectives rather than, as now, criticised for the omissions of its intentions. The management division of the Forest Service found itself regarded in a new role which, for political reasons, it had formerly positively avoided: that of the industrialist. The Forest Service, as a government agency in a free enterprise system, has always been regarded as a provider for the industry of that system. The expression of environmental concern prior to the beech proposals had tended to centre on processing industries, and the broadening of concern to include basic resources coincided with the publication of proposals. This broadening of concern may also have reflected a loss of confidence in the government to afford the degree of protection desired. Formerly one might have expected environmental criticism to await the acceptance of specific utilisation proposals by the government, and the identification of the 'exploitive industry'. This is yet to come and when it does the economic aspects of the scheme, to date implied in part but not quantified, will become clearer. Economic considerations are largely outside the realm of environmentalists' concern, and rightly so, but in contrast are a basic consideration in the proposals.

Although the Forest Service is responsible to the people of New Zealand for the management of their forests this responsibility is directed through the government. Governments tend to be elected on the basis of good social objectives and thrown out for their failures in

fiscal policies. A satisfactory performance on both counts would seem to be virtually unattainable but the utilisation of the beech forests, particularly on the West Coast of the South Island, appeared to offer the essence of success. The lagging economy of the Coast would be revitalised and overseas funds would be generated. The economic infrastructure and the social conditions of the region would be improved. More specifically the development would resolve many of the immediate forest management problems which are acute.

The utilisation of native forest already supports an industry which is vital to the West Coast people. The forests are being utilised primarily for rimu (*Dacrydium cupressinum*) but also for non-defective logs of red beech (*Nothofagus fusca*) and silver beech (*Nothofagus menziesii*) which grow in mixture with it and in pure stands. Hard and mountain beeches (*Nothofagus truncata*) and (*Nothofagus solandri* var *cliffortioides*) form a virtually non-marketable element. The economics of the industry, particularly as related to the marketability of its products, makes the removal of only the prime logs possible and does not allow restoration of the forest. If markets for the wood left behind and the sawmill wastes of the wood removed could be found, then the utilisation process, and hopefully the economics of that process, would allow restoration. Basically the removal of a greater part of the forest canopy and logging waste would create a situation where regeneration of the selected species (seed trees being left) would become possible and the process could be repeated in perpetuity. Such would constitute 'beech management'.

From as early as 1926 the efficacy of such management has been propounded. In that year a report by the eminent botanist Leonard Cockayne on the beech forests of New Zealand was published and expressed confident optimism.¹ Subsequent experience has confirmed Cockayne's findings, at least in trial areas and in some logged areas where conditions have been favourable. But economics have precluded large scale action. What then has changed?

The technological developments in the timber utilisation industry now make it possible to use low quality wood for reconstitution to products such as particle board and paper. Such technology is expensive and demands large volumes of wood to justify itself in the present market structure. The wood 'waste' associated with the established operations is not sufficient to capitalise on such technology. The rate of cutting could be accelerated to generate the volume of low quality wood required and new markets developed for the extra sawlogs, but the growth cycle of the beech over the area potentially available would be longer than the cutting cycle so that the volume required to supply a large scale industry could not be sustained. The Forest Service's solution to this problem was a proposal to replace a part of the area with exotic species which require a growing cycle of only 30 years as against 100 years plus for beech. Exotic species would also be used to supplement beech regeneration where this was insufficient to constitute a crop in beech management areas. The proposal to replace beech has been the contentious issue.

New Zealand's native forests have been reduced to less than one-third of their area at the time of European settlement, and the pro-

¹ Leonard Cockayne, *Monograph on the N.Z. Beech Forests* (Wellington, Government Printer, 1926).

posals would reduce this still further by some 200,000 acres on the West Coast. To many this is unacceptable. Pure exotic forest would ultimately constitute up to 40% of the production area and 'beech management with possible supplementary species' 28%. The total production area of lowland forest, including all forms of management, would include 597,000 acres, or approximately 7% of the total indigenous forest area of the South Island.

A further criticism of the proposals has been the scale implied, but the Forest Service has emphasised that although the wood volumes available are sufficient to sustain a major industrial plant, there is no commitment to maximum scale and all proposals will be considered, the maximum volumes being quoted to attract the widest possible range of options.

From the time the proposals were made public in 1971 until they were adopted in a slightly modified form by the government in 1974 with the invitation to industry to submit proposals, debate over the environmental implications has not ceased. Many issues have been aired by both groups and individuals. The most comprehensive single critique is given by Graham Searle.² As a full time (dare I say it?) "professional conservationist", Searle finds much to criticise. His evaluation and interpretation of the facts, which are in themselves essentially correct, leads him to conclude that there are inadequate guarantees for the environmental protection desired. As an Englishman with some considerable experience of environmental problems in Europe, he errs heavily on the side of pessimism in dealing with the problems to be resolved whereas the Forest Service is optimistic that solutions will be found as the scheme evolves. Searle's basic purpose is to provide an alternative interpretation of the facts and provoke debate. At times his predictions are highly emotive. Having questioned the wisdom of removing further native forests his criticism centres on the scale of the West Coast scheme, both in terms of its areas and the possibility of a large centralised plant. While giving the Forest Service credit for its successes on a small scale, Searle does not regard these as sufficient to conclude that results will be the same on a large scale, questioning whether the areas of success are representative. He makes some dire predictions as to the outcome of certain practices which all must accept as possibilities, no matter how remote. They are elements of risk, the magnitude of which depends on one's point of view.

A person such as Searle makes an invaluable contribution to a critical environmental issue in being completely independent and able to evaluate the issues from a contrary point of view which, although emotional to some extent, is not influenced in its perspective by an association with a particular vested or parochial interest. Such groups, while making a valuable contribution in the expression of views on particular facets of schemes, do not offer the layman the comprehensive picture he requires; such a picture the Forest Service attempted to provide in the publication of *Beech Forests*³ which offers an excellent outline of their intentions. The reaction to this was interesting. It certainly sold the idea of beech management, but in so doing reinforced people's reservations about losing any of it as perpetual forest. There

2 Graham Searle, *Rush to Destruction* (Wellington, A.H. & A.W. Reed, 1975).

3 A. Kirkland, *Beech Forests* (N.Z. Forest Service, 1973).

is no doubt that the coloured photographs of exotics placed them a poor second to similar photographs of beech. The purely emotional response to the proposals was reinforced—to some people the proposition that natural forest should not be replaced seems quite irrational, while to others it is perfectly justifiable.

At the 1974 Forestry Development Conference a new indigenous forest policy was proposed for areas under the control of the Forest Service.⁴ Essentially this policy precludes logging in indigenous forest where this would irreversibly destroy the forest structure. The exception would be where Government, seeking to achieve national and regional goals, requires the land the forests occupy, other land being unavailable. The need to revise marketing policies for indigenous timbers to ensure that their special values are recognised was also discussed.

A Forest Service end use survey estimated that for the year ended 31 March 1973, 26% of all house framing used in New Zealand was indigenous and comprised 23% of the total indigenous cut. A high proportion of this has only minor defects and could be used for manufacturing purposes.⁵ In many of the current uses where quality exceeds the utility required, exotic timbers could very adequately be substituted.

But tradition dies hard and there is a tendency on the part of both producers and consumers to regard the timbers on the basis of a past abundance which depressed their value and made them available to end uses not always befitting their often high quality. True quality continues to be equated with the European hardwoods, explained at least in part by their limited availability and well-understood workability, neither situation applying for our native timbers. But in the short period of 100 years the native timbers have reached the point where supply has become limited, the supply of imported timbers for which they might be substitutes even more so.

It seems not unrealistic to hope therefore, that in the not too distant future the true market value of indigenous timbers will be recognised, their values will increase accordingly, and as a result logging practices which can ensure the next crop will be made economically feasible.

In spite of criticisms to the contrary, it is fair to say that the Forest Service has been reasonably open on the beech forest proposals and responsive to suggestions made by specialist bodies and the public at large. Their harshest critic, Searle, spent the majority of his time either in the Forest Service's Head Office library or in the field with its officers. But the Forest Service is not simply a service department; in many facets of its operations it is charged by government with the responsibility of showing a satisfactory return on the taxpayer's money. This sets limits on what can be done and introduces a bias. Foresters are traditionally botanists and silviculturalists, or as more recently defined, resource managers. Economics has always been a consideration in forest management but until the advent of the 'growth economy' it was regarded as a consequential outcome of

4 M. J. Conway, "A Proposed Policy for Indigenous State Forest" (1975) *N.Z. Journal of Forestry* 20: 16, 27.

5 T. A. Foley, "Utility of Indigenous Wood" (1975) *N.Z. Journal of Forestry* 20: 45.

providing an essential need rather than as an objective in itself. It is difficult enough to make economic sense of a relatively predictable exotic monoculture; far more so a complex indigenous mixture which requires economic predictions over a time span three times as long. The financial returns to the forests from the indigenous timber market structure as it exists do not make perpetual management of the forests a viable proposition in conventional economic terms. This problem has irked foresters for more than half a century; the beech forest proposals offered an opportunity to break the deadlock.

Conclusions

I have attempted to identify some of the conflicts and problems in this issue which have, as indeed they should, generated so much discussion. In view of the controversy the issue has generated it is far from clear what line the Government will take on the industrial phase. While the maximum scale remains a possibility this would seem unlikely to be adopted in the light of public concern.

Environmental cost as related to the resource is but one of many factors for the industrialist to consider. There are the problems of providing large capital sums for the initial construction and the servicing of this capital over the construction period which, for a large industry, could be several years. During this period costs and product values on world markets change, and these variables must be incorporated in the initial economic evaluation of viability. Not least, there are the environmental costs of the plant itself to be considered. Regardless of whether the industry buys its raw material at the plant and leaves the Forest Service responsible for the supply or undertakes this itself under Forest Service supervision, the economics of the industry will dictate the working standards. While the Forest Service's environmental safeguards may be perfectly adequate in planning, their realisation in practice will depend on industry's ability to pay. While a large industry may in theory be more efficient and hence better able to guarantee the degree of protection desired, it is more vulnerable in the money market by virtue of the large capital investment.

One wonders, in retrospect, if the effort thus far expended might have been better directed towards improvement of the marketing situation, and an investigation of the possible establishment of a number of remanufacturing plants. The diversification of existing industry is more likely, by virtue of its representation, to provide a social condition which is sympathetic to the needs of the West Coast than is a large central unit where representatives and interests lie outside the region, and whose scale completely alters the character of a limited area while compounding the problems of the remainder. The West Coast does not need immediate large scale employment for its people but rather the provision of jobs over the long term for people who presently drift away for lack of job opportunities. And if subsidies are necessary, then why not? New Zealanders have demonstrated a desire to see this heritage protected and in a society where profit is inherent in resource use that same society must pay the cost if both the profit and the resource are to be preserved. But any subsidy should be clearly defined in these terms and not expressed in a way which is degrading to the people vitally dependent on the industry, as a subsidy to inefficiency. The practices of existing industry are based essentially on what society has been prepared to pay for its products, sales being based on a residual stumpage. The return to the forest

is derived by subtracting the costs of production from the market value. If the return to the forest is to be increased then either the market pays more or society as a whole subsidises the industry. To preserve forests for spiritual values has a cost in our system.

Regardless of the outcome, the beech forests proposals have greatly advanced our knowledge and understanding of both the native forests and the problems of their management. More important, their relationship to the people who live with them and New Zealanders as a whole, has been more clearly defined.

Supplementary General References:

- Government Approval of West Coast and Southland Beech Forest Utilisation Proposals* (N.Z. Forest Service, 1973).
C. G. R. Chavasse, *Forests, Soils and Land Forms of Westland* (N.Z. Forest Service Information Series No. 43).