REPLY TO: SOME COMMENTS ON FOREST PLANNING AND THE FORESTRY DEVELOPMENT PLAN FOR OTAGO

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These notes are in reply to R. K. Grant's comment (p. 126 of this issue) on the "Forestry Development Plan for Otago Planning District" published by the N.Z. Forest Service in 1974. The plan presents a case for an afforestation scheme for Otago of 3240 hectares/year, evaluated in relation to log exports or integrated sawmilling and mechanical pulping. It favours State involvement in forest growing being primarily with the long-term aim of processing for export rather than log export. Mr Grant criticises points in the Otago plan which support processing for export, but does not level objections at the planting rate recommended. However, the objective of the Otago plan was not to support a domestic processing industry in Otago, but to show that the proposed planting is justified.

EMPLOYMENT MULTIPLIER

A multiplier of 2.0 was used in the Otago plan to derive the total regional population associated with the proposed forestry development, in addition to the numbers directly employed by forest industries. Mr Grant suggests 1.5 would be more realistic, although the references he cites are not compatible with the Otago situation. Reilly (1974) explains that his value of 1.55 is based on a rural area 200 km north of Brisbane and is low (in comparison with a figure of 2.1 presented for a study by Kaiser and Dutrow (1971) for the southern United States) because of the area's small economy and consequent large leakages. Similarly Greig's multiplier of 1.45-1.75 relates to "a large project on a sub-region" (p. 31) with "... leakages ... likely to be relatively large" (p. 32). Furthermore, Greig's calculation relates to the level of employment in a pulpmill after its construction whereas the Otago calculation included construction period. Finally, the figure of 1.1-1.4 for New Zealand used in an earlier paper by Grant (1976) is based on the

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employment effects of the pulp and paper industry in Kawerau township. Here again there would be a large leakage to surrounding districts.

In choosing an indirect employment ratio for a region it is necessary to assess the extent to which the effect will occur within the region. One like Otago, with well developed industry and commerce, can expect much greater indirect employment from forestry development than a region without these advantages. Also a regional employment multiplier such as used in the Otago plan would be much higher than a local employment multiplier such as that for Kawerau township.

Published official statistics on national employment tend to affirm the higher multiplier of the Otago plan. The Monthly Abstract of Statistics shows that for 1973-75 about 37% of the New Zealand labour force was employed in "prime" employment categories — industrial; hunting, fishing; forestry; mining, quarrying; manufacturing. This implies a national employment multiplier of 2.7. Since the manufacturing category includes a substantial proportion of employment in servicing industries — e.g., colour television manufacturing, motor vehicle repair — the national multiplier could well be as high as 4.

The multiplier of 2.0 used in the Otago plan to derive the numbers of dependants is also probably conservative. The 1971 census shows 39.1% of New Zealand's population to be engaged in the labour force — a multiplier of 2.6. This suggests the multiplier of 2.0 used in the Otago plan is an underestimate.

MIGRATION PATTERNS AND THEIR IMPLICATIONS FOR INDUSTRIAL DEVELOPMENT

Migration Patterns

Mr Grant incorrectly states that the Otago plan implies that: "for every 25 jobs not created in the Balclutha area the local population will decline by 100 with 80 people going to Auckland and 20 going to the Hamilton, Bay of Plenty, Hawke's Bay areas". What the plan actually says is: "The pattern of internal migration is such that for each net loss of 100 people from the Otago region Auckland, South Auckland-Bay of Plenty and Hawke's Bay will gain directly or indirectly an additional 80, 16 an 4 people respectively". The suggestion is not that migrants from Otago will necessarily move directly to the areas named but that the overall net effect of population loss from slow-growth regions is population gain in the Auckland region.
Although Mr Grant states that no evidence is presented to support the migratory process described above and that "other migratory patterns appear equally plausible", the pattern described was in fact largely based on Department of Statistics projections of population up to 1981 and the Ministry of Works and Development publication *Population Forecasts 1971-1991*. The latter forecasts allow for certain assumed trends and known developments and assess future populations. At the time the plan was prepared these were the only authoritative sources of projected migratory patterns for New Zealand.

**Implications for Industrial Development**

Mr Grant over-simplifies an Otago plan assumption regarding industry development to "People moving north to work would work in domestic manufacturing industries which require more protection from imports than pulp manufacture", whereas the plan actually says:

The type of industry that will develop in Auckland, South Auckland, Bay of Plenty and Hawke's Bay to absorb the influx of population in the period under consideration is likely to have a similar industrial structure or market orientation to that which exists at present, that is, the industry's production will be for the domestic market with a small percentage for export.

In the main the industry will require protection [and] in the New Zealand economy there is a fundamental difference between production for the domestic market and production for export.

**On the other hand**

Industry proposed for Otago will be totally export-orientated and will be forced to compete internationally.

If the Otago development takes place, it will reduce the necessity for having as much protective domestic industry to provide employment.

Mr Grant goes on to claim that New Zealand will have little trouble in absorbing resources in export-orientated industries. "There will probably, for example, be sufficient wood resources for more wood processing plants than the country would have the resources to establish." He appears to be overlooking the fact that the projected increase in labour force up to 2001 (1971 base) is about 700 000 to 800 000 or about 60 to 70% of the present labour force assuming medium fertility and zero to 5000 net annual immigration per year. Obviously forestry, even on an extremely large scale, would need only a small percentage of the total projected increased labour force. For Mr Grant's point to be valid it would be necessary
for industry in New Zealand to change from large-scale dependence on the domestic market for absorption of its output to large-scale dependence on the export market. Mr Grant's suggestion that by the turn of the century New Zealand will no longer be dependent on protected industry to employ a substantial proportion of the labour force is highly unlikely.

EFFECTIVE RATE OF PROTECTION

Mr Grant then proceeds to criticise the method used in the plan to measure domestic industry protection (the effective rate of protection) and the 30 to 60% level of protection used. He mentions the problem of exchange rate adjustments, referring to Balassa (1971, p. 24) who states there:

rates of nominal and effective protection are calculated at the existing exchange rate and need to be adjusted for the difference between this rate and the exchange rate that would be obtained in a free trade situation.

However, Balassa also says (p. 8):

the degree of discrimination against export activities is understated since export activities are penalised by the low (over-valued) exchange rate.

Since, in the Otago plan, the effective rate of protection estimate of protected industry was used to calculate the extent to which a hypothetical integrated export forest processing industry was being penalised, no adjustment is necessary. Hence, the reason why Balassa goes on to say (p. 9):

as we contrast domestic value added obtainable in import substitution and in exporting, no adjustment is made for over-valuation as compared to the hypothetical free trade situation.

He has earlier explained that it is necessary to adjust for the over-valued exchange rate only when making international comparisons (p. 8):

... international comparisons need to be made by adjusting for the extent of over-valuation of their currencies as compared to the hypothetical free trade situation.

Mr Grant also states "at the free trade equilibrium exchange rate estimated by Scobie and Johnson it is unlikely that New Zealand industry would require protection". The Scobie and Johnson study (1974) stated "the New Zealand dollar is over-valued by 30.1%". For New Zealand to have reached the free trade situation (i.e., with an effective rate of protection of
zero) it would have been necessary for New Zealand to have devalued by 30.1\% at that time. A devaluation of this amount would have resulted in increased gross export receipts for any export industry of 30.1\% and no increase for domestic orientated production. In effect this means that the export receipts of the proposed Otago development would increase by this amount and the profitability of the enterprise would increase enormously.

The Scobie and Johnson study supports the Otago plan's thesis, and is simply a different way of explaining the effective rate of protection concept used.

The 30 to 60\% effective rate of protection range used in the Otago plan was conservative compared with the rates arrived at by different studies — e.g., the 73\% given in Elkan's (1972) report.

OTHER CONSIDERATIONS

Export Incentive Allowance

Mr Grant claims that no allowance is made in the Otago plan for export incentives, which are available for manufactured products, but not log exports. Although not referred to in the plan, export incentives were fully allowed for. This partly explains the low effective rate of protection range used.

Electricity

The writers concede that the true cost to the nation of a processing plant's electricity was not fully taken into account in the Otago plan. This is because the "energy crisis" had just emerged at the time the Otago study was undertaken and its effects on electricity generation costs were not fully apparent. The Shirtcliffe and Johnson study referred to by Mr Grant had not been published at the time the Otago study took place.

However, taking the full cost of electricity into account would not have altered the results of the study. Moreover, other factors (such as the projected real increase in pulp prices) would more than offset the increased marginal cost of electricity.

Transport

Mr Grant has incorrectly interpreted the Otago plan assumption on transport costs. As this has no bearing on his criticism of the Otago plan analysis it is not further discussed here. Details of transport costs assumption and calculations can be found in Appendix 14 of the Otago plan.
NATIONAL PLANNING

The writers have long been aware of the need for national as well as regional planning. Priorities in regional and national planning have much in common with the proverbial "chicken and egg" situation. It has been apparent from the early 1960s (Williams, 1965) and from later planning undertaken in indicative Development Plans, Regional Management Plans, and National Planning Models, that there is a need to relate regional proposals and policies through an inter-regional and national planning framework. In practice it is being sought to advance regional and national planning together.

CONCLUSION

The calculations made in support of afforestation based on an integrated industry in Otago are held to be both valid and conservatively estimated. Forestry in Otago is in the national interest. A log export scheme (with national benefits added) could not hope to compare (at this point in time) with processing for export in the way envisaged.

ACKNOWLEDGEMENTS

The authors acknowledge assistance from R. W. M. Williams and D. J. Dowthwaite.

REFERENCES