

MULTIPLE-USE FORESTRY—WHO PAYS?

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Theoretically, the answer to the question: "Multiple-use forestry—who pays," should be quite a simple one. In as much as multiple-use forestry confers different benefits on different people, then clearly these beneficiaries should pay for what they receive. In practice, the situation is far more complex and there is no simple answer. There are three reasons for this. First, many of the benefits which forests confer, particularly those connected with social and amenity values, are imponderable and cannot be quantified. Secondly, even when they can, it is generally difficult, and sometimes impossible, to place a monetary value on them. Thirdly, New Zealanders have traditionally received secondary or off-site forest benefits for nothing and they expect this state of affairs to continue.

Before elaborating on these points, it is perhaps as well to clear the air by defining precisely how I interpret the title of this paper. I take multiple-use forestry to include dual-purpose forestry, and I take forestry in this context to mean the management of all forest land irrespective of tenure. For obvious reasons, dual- and multiple-use forestry will more frequently be the concern of the State rather than of the private sector. However, the latter cannot help but be involved, perhaps to a small degree at present, but I believe to an increasingly greater degree in the future. Indeed, it is this rapidly growing trend for all forests to fulfil a variety of socially, ecologically, and economically desirable functions, rather than to be mere cellulose factories, which makes the whole subject so important. This point was stressed strongly by J. C. Westoby in the emphatic and stimulating comments about forestry and tourism he made during the course of his public address in Rotorua in October 1969.

The theoretical answer already suggested — that the user should pay — is simple to apply for forests which are predominantly devoted to the production of wood as the raw material for industry. The benefits in the form of usable wood are measurable and susceptible to accurate valuation in monetary terms. But there is an important qualification — though the wood-user should certainly pay for what he gets, he should pay *only* for what he gets. In as much as stumpages are related to growing or management costs, the wood-user should not be expected to pay for anything but the production forestry components of these. This point was made clearly in several of the papers produced for the Forestry Development Conference in February 1969. Thus, in its report the Forest Industries Working Party stated: "In assessing what costs are to be recovered, it is important to separate out the costs of providing wood for commercial purposes from those of providing other benefits such as protection, scenic and recreational values, permanent roading, etc., for which indus-

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try should not be required to pay". The Forest Service statement on stumpages expressed the same thing more briefly. It said: "Industry should not be expected to pay the costs involved in the provision of secondary or indirect forest benefits."

J. C. Westoby, in another address delivered in Australia, elaborated on the theme further, and it is significant that he found it necessary to devote so much time to it. I can do no better than quote him:

There are a whole host of other forest-created or forest-derived values for which goals must be set in any coherent forest policy; watershed values, benefits conferred on agriculture, socio-economic support for the rural communities, wildlife, recreation and amenity values. That part of forestry which aims at creating these values, whose main characteristic is that their benefits accrue neither to the wood-grower nor the wood-user, but to the community at large, I term social forestry, as distinct from production forestry. These values taken together represent a community service, the need for which, and the demand for which, are rising in some countries even faster than the demand for wood. Moreover these are values which cannot be imported; they can only be provided by domestic forests. They are a community service no less essential than education or basic health services. It follows that they should be publicly financed. . . .

Mr Westoby's answer is that, in these cases, the community pays. He did not spell out the point, although I am sure it is implicit in his thinking: these services should be publicly financed only in as much as extra money has been spent to produce them. I will return to this point later.

In a further passage Mr Westoby goes on to say:

To my mind, this very real distinction between production forestry and social forestry needs much greater attention. What is happening today in a number of the industrialised countries is that the rising costs of social forestry are starting to bear more and more heavily on the account for production forestry. The wood-growers are having to absorb costs that should properly be borne by the community, and sometimes the wood-users are having to pay wood prices higher than they should in order to keep the wood-growers in business. This state of affairs does not make for a healthy forestry industry.

It will be noted that Mr Westoby has here introduced another thought, that the wood-grower, as well as the wood-user, should not be penalized by the costs of social forestry. As far as the interests of the wood-user are concerned and despite these quoted opinions from the Forestry Development Conference, from the Forest Service, and from Mr Westoby, it must be stressed that there is an obverse side to the coin. It is that, although forest industries should be expected to pay only the actual costs of producing cellulose, they should still pay the full costs, and they should not ask for lower stumpages because of some imponderable and indirect benefits which may arise entirely incidental to the main object

of management of the forest concerned — that is, the production of usable wood. There is a suggestion that some sectors of industry in New Zealand are trying to argue otherwise. Thus, another paragraph of the Forest Industries Working Party report states: "Other indirect benefits include the provision of considerable employment in areas outside the main centres, the use of otherwise idle land, the protection against floods and erosion accorded by forestry to farms and urban centres, the creation of scenic and recreational values and so on. Considerations of this kind should obviously be heeded in Government policy on afforestation and on stumpages for the produce of State Forests". It is my contention that they should not be heeded when they are incidental and when their provision has not involved any extra cost. The point is well made in an editorial note in the *N.Z. Journal of Forestry*, Vol. 14, No. 2, 1969, which says, in respect to what might be termed "fringe forest benefits": "However, no forester would consider incorporating charges for these benefits as part of the growing costs of wood and it is wholly misleading to imply, as representatives of the forest industries have done, that upset stumpage should be discontinued because of such imponderable benefits from forestry generally. Any case for seeking to reduce stumpages on these grounds should be substantiated."

To recapitulate, we have now reached three conclusions, first, the community rather than the forest owner or the buyer of stumpage should pay for social forestry benefits when these have involved extra expenditure. Secondly, the wood-user should not get his wood cheaper because of indirect or other benefits which have arisen entirely incidental to the business of wood production. Thirdly, where possible, the individual or group user rather than the community at large should pay for benefits which are specific rather than general, and which can be quantified.

Let us now examine the last conclusion and consider some actual cases. A simple one that comes to mind is the use of forests for grazing by domestic animals, a practice more common in some other countries than in New Zealand, but one of growing importance here. The established custom in many countries is for the grazier to pay on a straightforward agistment basis although in principle there is no objection to payment by area grazed rather than by the number of stock depastured. Indeed, this latter method is the one that has been used both by the public and the private sector in the central North Island of New Zealand where recently the indigenous understorey in maturing exotic forests has proved to be a useful fodder for cattle, particularly in times of drought. It is also the method normally used by the State when it administers non-forest grazing land, generally either open mountain tops above the bush line, or land purchased for afforestation and leased for grazing until such time as it is required for planting. But whichever the method, the position is uncomplicated; the benefits are direct and measurable and the beneficiary pays.

A comparable and likewise uncomplicated case is the harvest from forests of the produce from feral fur-bearing animals. Again, the revenue to the forest owners can be derived either from trapping or hunting licences over a given area of forest or alternatively on the basis of the number of skins or other animal products recovered. In the days when opossums were considered to be legitimate forest-dwelling animals in New Zealand and implicitly if not explicitly were managed on a sustained yield basis, the New Zealand Forest Service charged a licence fee for the exclusive use of opossum trapping blocks. It is of some interest to note that today the alternative method is also in use in New Zealand and that some forest owners are levying a toll on opossum trappers (and for that matter on deer shooters) on a per-animal basis. It is irrelevant here whether or not this practice is in the best interests of the forests; the point to make is that once more the benefit is measurable and the beneficiary pays directly.

A less simple case but one where benefits should also be measurable is that of dual-purpose sand-dune forestry. It is an example of the point mentioned in the opening paragraph — that New Zealanders traditionally expect to get, and in fact often do get, forest-derived benefits without any payment. In as much as the work of sand stabilization and forest establishment is carried out primarily to protect otherwise vulnerable inland farms, then it would not be unreasonable for the farmer to pay for the costs of the protection given him. Indeed, there would be some logic in rating for this work, with Government subsidies on the rates collected, just as is done in catchment board schemes where farmers downstream are rated to pay part of the costs of upstream soil conservation measures. This suggestion would probably not commend itself to the farmers on the coastal Manawatu and other similar areas of unstable land. The matter is complicated by the fact that the foredune protection work also protects and makes possible the narrow zone of production forests between the sea coast and the inland farms. Thus, if it were practicable to enforce the user-pay principle in this situation, the payment would have to be shared between the two users, the forest owners and the farmers. The fact that at the moment one user, the farmer, contributes nothing is itself a strong argument in favour of widening the production forest zone. There are, of course, other arguments for doing this.

The next category to be considered is that of dual-purpose production/protection forestry, a category which is of particular importance to the Gisborne district, and which as yet is best exemplified by Mangatu Forest. The main reasons for establishing Mangatu and other forests behind the "Blue Line"* are concerned with land stabilization and river control; timber production, though important, is secondary. The difficulties here are threefold. First, we cannot yet prophesy

*See Report of the Technical Committee of Enquiry into Problems of the Poverty Bay-East Coast District, 1967.

how effective the protective forest cover will be; secondly, even if we could, we do not know how to put a precise monetary value on the downstream benefits conferred; and thirdly, it is not yet possible to assess what proportion of the forest area planted will yield produce of commercial value. Thus, until the forests have been grown and harvested and until the off-site benefits have been proven, been measured and been evaluated, we shall not really know what proportion of the total costs should be attributed to the protection function, and what should be a legitimate charge against the production forests. The Forest Service has had to make an estimate of this proportion for the purposes of internal accounting but subsequent events may prove it to be inaccurate.

Even if we could separate out precisely the cost components of protection and production forestry in the East Coast forests, we should still be left with the complication that the forests are not ideally located in relation to markets. They are being established because it appears to be the best way to rehabilitate the deteriorating country behind the "Blue Line" and to protect the pastoral foreland; but the East Coast would not be the first priority for any agency which had a free choice in the investment of money for production forestry. Thus the forest owner, in this case the State, cannot reasonably expect to recover in full even the net growing costs — that is, those allocated to production forestry only. As elsewhere, stumpages will doubtless be determined in part or in whole by other criteria, such as the value of the raw material to forest industries or the normal operations of the laws of supply and demand; but in as much as growing costs are or should be an important criterion in determining stumpages, the East Coast situation provides a clear-cut example where it cannot equitably be considered the only one.

The East Coast, of course, is not alone in this respect. There could well be other examples where for one reason or another the Government decides to grow production forests in localities which are geographically far from ideal. There are continual pressures for this to happen; the pressures are generally to do with the provision of employment, perhaps to off-set the effects of closing down a mine, perhaps to provide employment opportunities for Maoris where there are none available locally, or perhaps just generally to bolster up a regional economy, as in the case of the West Coast of the South Island. In all such postulated instances, there would be a social and political element in the decision about forest location, and economic considerations would in part be ignored. Since social and political values cannot be quantified, it is impossible to calculate the true or net costs of forest production. Thus here again the growing cost approach should not be the only or the major criterion in setting stumpages.

Nor is the East Coast alone in being an example of dual-purpose production/protection forestry. The other main examples are forests established in the headwaters of river catchments in order to help stabilize soils, to prevent aggradation of rivers, to regulate stream flow, and to ameliorate the effects of flooding. These forests will often have a production

value also, as they commonly have in the mountain forests of Europe. In future this type of dual-purpose forest will almost certainly occupy a much larger place in New Zealand's forest economy and in its land use practices; New Zealand's land base is so limited that we shall be unable to afford not to utilize protection forests, although adequate safeguards will, of course, be necessary. As with the Mangatu situation, the difficulties will be to determine in advance what percentage of the total wood volume grown can be economically and safely harvested and, of more importance because this problem will solve itself in time, what value to place on the purely protective functions of the forests. Once again we cannot give accurate forecasts of future water regimes or future river profiles, or of the financial effects of these on lowland communities and farms. Nevertheless, the concept of rating for off-site or downstream benefits could be more readily applicable here, although some formula would have to be evolved to recompense ratepayers, in part or in whole, for their contributions should the forests prove to be better commercial propositions than expected, whilst at the same time successfully fulfilling their protection functions. Conversely, there should be a similar provision for off-site beneficiaries to pay more should the forests prove to be uneconomic either through lower productivity than envisaged, or through subsequent constraints on harvesting the production achieved. I cannot suggest how these two things can best be done, but I pose them as two of the many questions to which answers will have to be found before the major problem of "multiple-use forestry — who pays?" can be resolved.

We now come to the important question of the provision of water as one of the many multiple uses of forests, and this is the example that I had most in mind in remarking earlier that New Zealanders expected to get off-site benefits free. New Zealand is generally adequately supplied and sometimes even lavishly over-supplied with water resources. Furthermore, with some notable exceptions both in time and in place, this water by world standards is generally clear, sediment-free, and unpolluted. We are lucky in both the quantity and quality of our water. In the past we have taken our luck for granted. More recently there has been a far greater realization of the dangers of industrial and agricultural pollution. There is also a far greater realization of the effects of undesirable land-use practices on the frequency and severity of flooding and on the degree of sedimentation in rivers even during periods of normal flow.

I believe that there has been a much lesser appreciation of the role which a protective forest cover plays in conserving, regulating and purifying water, and that there has been a quite inadequate realization that this role is deserving of monetary recompense. After all, water emerging from a forest catchment can be measured, and it is thus one major forest-derived benefit which can be quantified. Other countries have not found it impossible to derive a satisfactory formula for placing a unit value on water. I do not see why this action

should not be taken in New Zealand. I see no reason why the N.Z. Electricity Department, and hence the consumer of electricity, should not contribute to the costs of maintaining hydro-electric catchments in a healthy state. At the moment these costs are concerned mainly with protection against fire and with the control of noxious animals. But in the future other positive management practices will almost certainly prove to be necessary, and they should be paid for.

Likewise, I see no reason why there should not be a unit charge on water coming out of a deliberately managed domestic water supply catchment. There is all the more justification for a charge here in those cases where there is a restriction imposed on other uses of the forest, particularly for recreation. The user here should pay not only for what he gets, but also for what he prevents other people from getting. And finally, in this context, in as much as there have been costs incurred in managing the supplying catchments, I find it difficult to see why water drawn off for industrial or irrigation purposes should not be paid for. I prophesy that in the future forest-derived water of high quality will be a commodity which will no longer be free.

As usual, of course, there will be the complication that water may be only one of the benefits conferred by true multiple-use forests. Because it is one that can be quantified, it should not be expected to bear the whole cost of management. Just what proportion it should equitably bear is yet one more question which demands further thought and research and to which I certainly cannot give the answer here, but the proposition that it should bear some cost is to my mind unanswerable.

Lastly there is the "growth and glamour" sector of multiple-use forestry — recreation. Here is a usage which in its active rather than its passive form can be quantified and for which monetary value can be derived, not by calculating the worth to an individual to enter a forest (which would be difficult), but by testing the market to see what he is prepared to pay. But here, once again, New Zealanders have always received their forest benefits free or nearly so, and will certainly expect to have the same privileges in the future.

Generations of New Zealanders have roamed over and through the forested hill and mountain country of both islands (often technically illegally) and it has never occurred to a forest administration to make any entry charge other than that connected with the costs of administering a permit system. I hope that it never will. The ready availability of its native forests for human usage and recreation is one of New Zealand's great social assets, and it would be a pity to do anything to lessen this availability. Currently there is no danger of this happening on any form of State-owned forest land; rather the trend is towards the reverse. By this I mean that in National Parks, Scenic Reserves, and indigenous State Forests, whether gazetted Forest Parks or not, by the construction of access roads to the periphery, and the provision inside of tracks, huts, bridges and the like, the forests are being made increasingly more accessible and available to the

picnicker, the trampler, the hunter, the fisherman, the botanist, the bird watcher, the rock hound, the rock climber, the orienteer, and all the other members of the community who in one way or other like to spend their leisure time in an indigenous forest environment. The community is paying for the costs of this more ready availability and my contention is that this is as it should be. But it does behove any forest administration to see that all sections of the community who wish to use the forests for recreation are adequately catered for; provided, and it is an important proviso, that their demands are consistent with the scenic, scientific, wilderness, and other values which make the forest a recreational asset in the first place.

To be fair, one exception to the "recreational-user does not pay" principle should be that of domestic water supply catchments when they are open to the public. If the community concerned has to pay for water purification which would be unnecessary if human beings were kept out of the supplying catchments, then in equity it should not have to bear the whole cost. I cannot suggest how this difficulty could be resolved.

Entirely different considerations obtain for concessions granted in forest areas; here, of course, the concessionaires should pay a fee, preferably on the basis of a set percentage of gross earnings. Likewise, the leasing of land within forests for exclusive use should always be paid for, even if the payment is only a token one. Generally, such use is the erection and maintenance of huts, lodges, and other buildings by tramping clubs, youth clubs, churches and other organizations and associations such as the Royal Forest and Bird Protection Society.

Until recently, exotic forests have been little used for recreational purposes, except by resident staff and labour. The past policy of most forest owners, public and private, has been to discourage rather than to encourage public usage. The situation is now changing rapidly, particularly in respect to those parts of State forests which have been legally proclaimed "Recreational Areas", under the Forests Amendment Act 1968. It has been a great surprise to most people, and also I think a great pleasure, to realize just how much the public has appreciated the opportunity to enter and to enjoy the scenically beautiful portions of some of our older forests such as Whakarewarewa, Hanmer and Dusky. Since they have been gazetted as Recreational Areas, entry is without permit and is free. One wonders whether it will be possible to maintain this state of affairs — whether in fact the costs of managing exotic forests for recreational use will be so great that the legislation will have to be amended to permit entry charges to be made. My own purely personal view is that this would be undesirable, even if the recent claim is true that Whakarewarewa Forest could earn more money as a deliberately managed tourist and recreational forest than as a production one. I cannot speak for private forest owners in this context, or even suggest what their approach should be, but I suspect

that it may be similar, at least in the case of large forest-owning industries whose attitude in this matter can, I think, be fairly described as "enlightened self-interest". Every forest owner has a need to establish and maintain good public relations and there are no better ways of doing this than by helping rather than hindering the recreational use of forests they administer. There is evidence of this enlightened attitude amongst several large companies in New Zealand, and for many years past it has been the attitude of most large private forest owners in North America.

This leads me to one of the two final points I should like to make. It is that if I have been concerned more with public than with private forests it is partly because this is inevitable, but it certainly does not mean that I do not realize the importance to the private owners of the question "multiple-use forestry — who pays?" In some cases the guiding principles will be the same and in others they are different.

My final point is that, in attempting to simplify the issues, I have dealt almost entirely with the problem of so-called dual-purpose as distinct from multi-purpose forestry. Obviously the more legitimate usages there are in a forest the more complicated become the problems of deciding how they should be paid for. The principles are probably not very difficult but the problems of applying them and getting equity between different users are obviously compounded many times. My closing suggestion is that here is a rich field of research and study waiting to be explored, and one in which, as in other things, New Zealand's experience and solutions could be of great interest and significance to many other countries.