

Future Challenges of Forest Policy Analysis

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This is a discussion paper on certain trends in forestry, and society as a whole, which may constitute a major challenge for forest policy analysis in the future. Developed and developing countries are treated separately. In developed countries, one of the problems requiring policy analysis is the rising opportunity cost of forestry and the consequent weakening interest in commercial forestry among nonindustrial private forest owners. In developing countries, the most acute problem is the depletion of forests. While looking at the relative merits of the remedial means actually applied or suggested, major guidelines are needed for a proper balance between commercial timber production and forestry for rural development. Evaluation of past forestry projects is also desirable.

Additional keywords: forest policy, goal setting, rural forestry, social forestry, development strategies

Introduction

Increasing public expenditure rather than free market economy in the sense of a *laissez-faire* doctrine tends to be reality. As a result, taxpayers are becoming almost as much interested in the outcome of this expenditure as the taxation authorities are in taxable income. In forestry, public intervention may increase in the future.

Apart from regular auditing, traditionally mainly concerned with the registration, legitimacy and appropriateness of periodic income and spending, little was done in the past to improve the effectiveness of public expenditure. In forestry, where the output corresponding to each input is difficult to measure and value, a number of standards were developed to represent "good forestry practices", which were adopted instead of more

relevant indicators of policy effectiveness.

Having been introduced mainly in the 1960's the idea of policy evaluation went through an experimental stage in the 1970's and 1980's. There is enough evidence that policy analysis will develop permanent institutions.

A retrospect

Needs for forest policy programs in different parts of the world have called for some degree of forest policy analysis. Though not always conceptually orthodox in the Tinbergenian sense, these analyses contain certain interesting aspects, both practical and theoretical.

Two major problems stand out in connection with policy analysis as far as its practical applications are concerned. One is the question: How much timber should we produce now and in the future? The other is: How can the forest owners and other interested parties be made to provide the production inputs and to sell the desired quantities of timber? And yet another question in the southern hemisphere is: How can we halt the deforestation with all its consequences?

The first of these questions is relevant to both public and private forest ownership. The second is essential where private nonindustrial forest owners need guidance towards the set national goals. This problem is virtually nonexistent where public ownership enables centralized decisions. The third question repeats the universal worry about man's future environment in the tropics. The most easily traceable empirical examples of forest policy analysis are from the United States' Forest Service, FAO and Finland, without forgetting others (Timber Resources . . . 1958; European Timber . . . 1953; Forestry and . . . 1970; Metsä 2000 . . . 1985). While the theoretical models employed in different studies reflect differences in the economies concerned, they also contain certain common features. They deal essentially with production goal analysis; assume implicitly perfect competition; and perform the analysis in a static manner, yet trying to account for certain dynamic elements.

In a free-market economy a production goal is determined from the market for forest products. We may set the limits of the market in a variety of ways, ranging from domestic timber requirements to exports which exhaust our production capacity. At the same time we may set different constraints to supply. The ultimate aim in both extremes is to arrive at some degree of competitive long run equilibrium of demand and supply. The empirical difficulties in developing a dynamic approach are known, and it may have been the formal theoretical elegance that largely satisfied the great minds of the day.

In recent years, considerable theoretical interest in various aspects of forest policy has been shown. Local forestry conditions are reflected in forest policy studies also at the theoretical level. Thus, in countries with predominantly public forest ownership, applica-

tions of optimum production control are sought. In such conditions it may be natural to look for optimal decision tools knowing that a production decision can be made by a centralized agency. Yet, with large aggregate management units, decision making is complicated by factors difficult to account for by optimal decision tools.

In countries with private forest ownership, the major forest policy problem is how to affect the behaviour of forest owners in a manner desirable for the achievement of an aggregate forest production goal. Optimum control theory may be of interest here also, but its realism and relevance are necessarily limited by the decision making situation which includes a large number of individuals and tends to change during the long production period.

The experience in Finland is that it is rather easy in the national programming of forestry to agree on a long run production goal which has been derived from programming the national economy as a whole and thus approximates a general equilibrium approach. Setting a short run production goal and agreeing on effective policy means is much more difficult.

Present and future forestry problems

Conceptual remarks

It is common in every-day phraseology to talk about past mistakes in forest policy. However, it is hardly possible to speak about mistakes unless there were explicit goals -- fixed or flexible -- which we failed to reach. Obviously, one dissatisfied with past achievements of forest policy has in mind subconscious goals which were not met.

It may be desirable to recall that by policy we mean deliberate variation of means in order to achieve certain aims. Forest policy is likely to fail more often than forestry for the simple reason that with very ambitious goals even good policy means are bound to fail. However, we can also speak about failures to

set goals, which in fact means that there is no forest policy.

It is desirable to set a goal for several reasons: As far as goalsetting is based on an economic analysis, (1) it lends itself to produce information which enables a better understanding of the economic basis of forestry, it enables (2) the selection of policy means, (3) the scaling of activities and (4) an ex post evaluation of the outcome (policy effectiveness). Goal setting should not, however, be taken as imperative so as to produce goals without a comprehensive analysis, because a policy can hardly be better than a goal.

Given appropriate goals, good forest policy is characterized by means which maximize the attainment of the set goals, i.e. the policy is highly effective.

On goalsetting in developed countries

It is difficult to say anything universally applicable regarding the setting of a production goal in developed countries. Every national economy is different as far as its dependence on or relationship to forestry is concerned. Hence, the national economies are different also as to the possibilities of affecting them by forestry production. Conversely, forest policies in different countries are influenced by the national economy as a whole.

Finland is perhaps among the rare examples which have created their affluence through forestry and the forest industries. It is not necessarily an example of successful forest policy except within a limited time period and a certain policy sector. The long run timber supply was assigned an ambitious goal at the beginning of the 1960's. The biological growth goal was in the main reached, but the market supply of timber did not develop in the way assumed. The total removal remained at the base period level. The increased industrial processing of wood became possible as the majority of fuelwood was released from its use as fuel and raw wood imports increased.

The implicit assumption underlying Finn-

ish forest policy has been that nonindustrial private forest owners sell the same percentage of their growing stock or growth regardless of changes in them; or changes in their income and property; and in spite of changes in social values. Someone has commented on the situation by saying that it was believed that people behave in the same way as trees.

Actually, increased industrial processing of timber initiated a rapid expansion of the national economy. This expansion created more, and probably increasingly profitable, investment opportunities elsewhere in the economy. As a result the opportunity cost of forestry rose and the social values changed – all this to the detriment of reaching the set removal goal.

By the same analogy it is easy to imagine what would happen in Finnish forestry if the growing stock were decreased drastically: invested elsewhere in the national economy the funds obtained would raise the opportunity cost of forestry to the extent that the management effort would turn away from forestry. In nonindustrial private forestry this kind of change tends to be continuous or permanent unless special policy means are adopted to counteract its effect.

Not only affluence obtained by liquidation of growing stock or by increased growth and utilization can, with a constant forest policy, make nonindustrial private forestry an uninteresting venture. The same is likely to be done by whatever affluence which we try to increase.

Although the increasing affluence causes problems mainly in nonindustrial private forestry, it does not leave the publicly owned forests untouched either. The rising opportunity cost is a relevant decision criterion there also, even if it finds its way through different channels. Its influence on public forestry may depend also on whether the government forest service is organized as an independent forestry enterprise, or as an agency which accounts for its revenue to the treasury and obtains the appropriations for its expenditure from the same treasury. In the former case forestry professionals are likely to have more influence on management decisions. In the latter case politicians have more power in forestry and may be interested in using it increasingly to finance the many welfare services characteristic of expanding

affluence in society and less to forestry where increased inputs are required.

All the above-mentioned problems tend to accompany rising income in society if forest policy and other economic policies remain constant. Traditionally there is little analytical effort to view the consequences of alternative policies. However, policy analysis is widely found a desirable tool to help decision makers, although its favour varies among the directly interested parties. Policy science in forestry has taken its first steps and policy analysis benefits from the widening range of behavioral studies. This is encouraging as it shows that we are beginning to understand certain long term problems in timber production. This understanding is necessary in order to have the wisdom of initiating more forest policy analyses in the future. By those analyses we should be able to discover the means to counteract the long term influences which tend to block forestry inputs and timber sales.

One of the policy means to this end which deserves more analysis is forest taxation. Its fiscal aspect has been traditionally emphasized, but its possibilities in guiding forestry should be more closely analyzed, even if the topic sometimes tends to be politically taboo.

Even the best efforts of forest policy analysis and adoption of policy means are subject to human delays, failures and intrigues. As history shows, depletion of the growing stock to the point of deforestation is possible unless there are certain institutional stop gaps, like legislation, which prohibits devastation, and compulsory regeneration. We are, therefore, back to "good forestry practices", certain policy measures which are meant to guarantee some degree of sustained yield and a smooth production over time. It is increased production, in both short and long run, in developed countries, that mainly requires more active policy means and analysis for their discovery.

Problems in developing countries

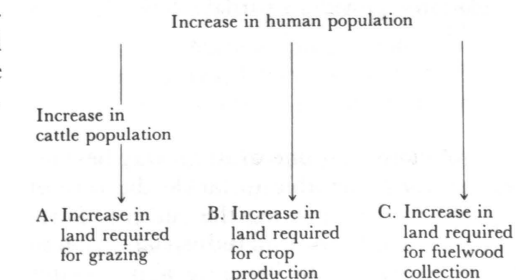
Broadly speaking, the forestry problems in the northern hemisphere are due to industrialization, modernization, urbanization: to affluence and the means to maintain it. They

manifest themselves in lack of interest in forestry as an economic pursuit, on the one hand, and in dangers threatening the forestry ecosystem, on the other.

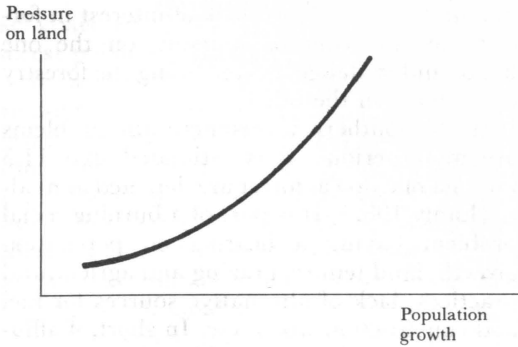
In the southern hemisphere, the problems are more serious: it is estimated that 11.3 mill. ha of tropical forest are depleted annually (Lanly 1982). It is part of a burning social problem having a bearing on population growth, land tenure, grazing and agricultural practices, lack of alternative sources for fuel and construction wood, etc. In short, if affluence causes a forestry problem in the northern hemisphere, it is caused by poverty in the southern hemisphere. The consequences of deforestation are not confined to forestry. Even more serious is the environmental degradation caused by floods, erosion and desertification.

It is not realistic to try to resolve all the social problems by forest policy, not at least in isolation from the more fundamental issues. There must be other means like birth control to tackle the roots of the problem. Foresters are, however, an important link in abolishing undesirable forestry practices and in rehabilitating deforested areas.

The population increase in the tropics is the underlying factor creating problems in land use. By a simple schematic presentation it can be shown that an increasing human population tends to have a multiplicative effect on the amount of land required for its subsistence. We then, of course, refer to past experience and assume that no massive imports of fertilizers and/or change in technology can produce rapid relief.



Consequently, the pressure on land required to satisfy human wants is an exponential function of population growth:



In addition, the land area required for food production is increased progressively by the fact that more and more marginal lands are needed to expand the agricultural area.

The first question arising from this observation is whether a problem like this can ever be resolved by a re-organization of land use in the problem areas. The amount of land is often too small at the moment, let alone in the future which seems still worse. Being somewhat less ambitious, given certain conditions, we can reasonably expect that

- (1) birth control brings relief to A, B and C, above;
- (2) more intensive agriculture relieves the need for agricultural land (which need not expand linearly with population increase) (B);
- (3) establishment of fuelwood plantations reduces the need to expand the area required for fuelwood collection (C);
- (4) more organized grazing reduces pressure on pastures;
- (5) combination of agriculture and forestry, agroforestry, provides a partial solution for A, B and C.

It is obvious that one must go way beyond forest policy to be able to tackle the core of the problem. Recognizing the current efforts to shift the emphasis from industrialization to rural development in bringing about better living standards it may still be desirable to ask the following questions:

- (1) Is it a desirable objective to keep people dependent on land if a population increase causes a multiple increase in the pressure on land?
- (2) Is it not equally desirable to develop industrial occupations and provide people with a possibility to detach themselves from land?
- (3) Is industrialization not conducive to a more rapid rise in living standards and thus to decreasing birth rate?
- (4) Is the rising income and standard of living not likely to substitute other fuels for fuelwood and thus to reduce pressure on wood collection areas?
- (5) Is the rising income based on industrialization not inclined to introduce more rational and intensive agriculture and other land use?

Although these questions go beyond the ordinary project-level thinking they must be asked, because it seems that forestry alone can do little to resolve the wood shortage and environmental degradation problem. From the standpoint of forest policy analysis it means that comprehensive economic and social analyses are needed to help the goal setting in forestry. These analyses should elucidate the relative weight to be given to industrial vs. rural and social aspects in goal setting.

Apart from the above-mentioned long run forest policy problem, there is a need for evaluations of forestry projects actually implemented. It is by learning from success and failure we can improve the future policies.

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