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Forest policies and national development

Forest policies need to be formulated rationally, as an intrinsic part of national development plans. Land should be allocated to forestry on the basis of forestry's capability to contribute to the improvement of living standards. Foresters need not fear that if such criteria are employed they will come out second best. On the contrary, forests, forestry and forest industries are intrinsically well suited to the solution of many of the problems of underdevelopment and to the amelioration of many of the discomforts of industrialization.

An article reflecting FAO's increasing concern with the role of supportive forestry policies in national development – and recognizing the need to take into account other sectors and changing conditions, including socio-economic, demographic and technological changes.

K.F.S. King

It appears that in the past forest policies were often formulated in the belief that the forests were the most important factor in forest policy formulation. Indeed, sometimes the forests were considered to be the only important factor.

It is therefore not surprising that an investigation of those forest policies which are extant reveals that there is a terrible and alarming similarity among them. This similarity exists no matter whether the forests of the country under investigation are moist tropical evergreen or temperate coniferous, no matter whether the nation is well developed technologically or extremely underdeveloped, no matter whether it is well forested or possesses only a modest area of tree cover, no matter whether there is severe and endemic unemployment or relatively high employment in the country, no matter

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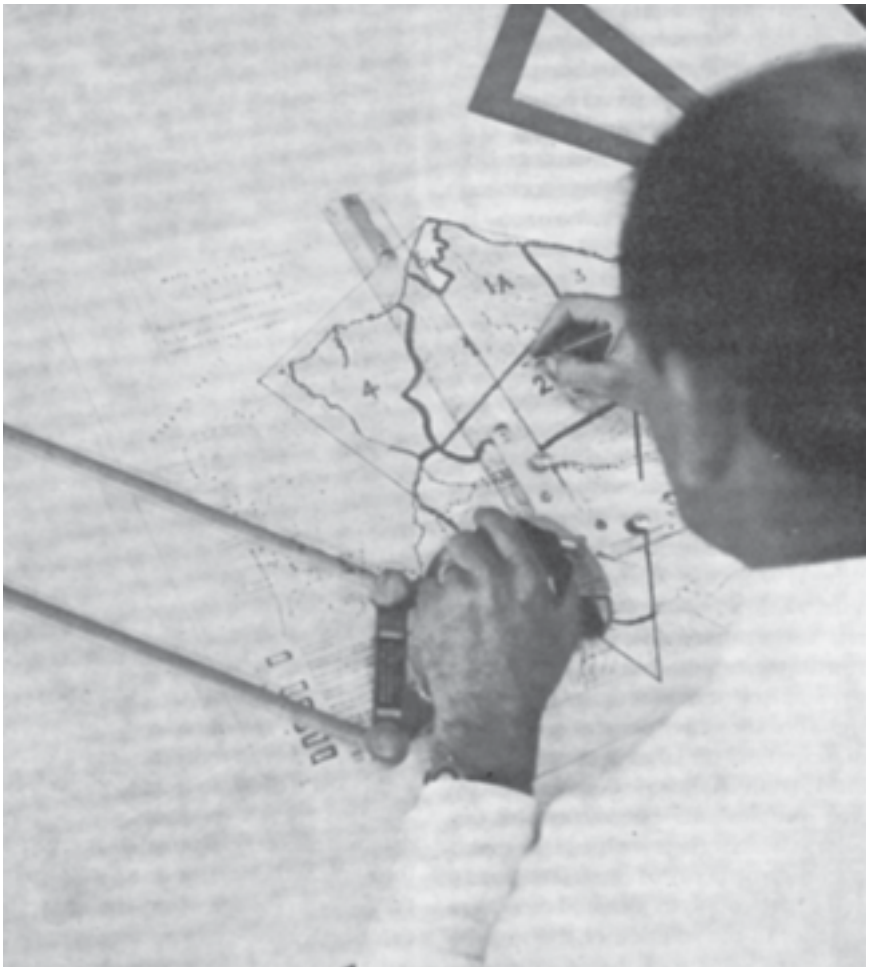


PREPARING A MAP FOR USE IN AN AERIAL SURVEY
fitting into the picture

whether there are serious balance of payments difficulties or favourable payments balances, no matter whether the economy is dependent on the production of one or two commodities or whether it is well diversified.

It should also not be surprising that although governments enunciate these policies and pay lip service to them, they seldom ever appear to take them seriously, and rarely implement them.

It is the thesis of this paper that forest policies should not be formulated *in vacuo*; that they should be an integral part of the socioeconomic development of any nation; that the forests and trees are not the only considerations, but that an almost all-embracing amalgam of factors should be taken into acount when attempts are made to formulate forest policies. A subsidiary but no less important thesis is that because forest policies are dependent on the political and economic philosophies of nations, and on a wide range of changing socioeconomic conditions, they cannot be treated as if they were, like the laws of the Medes and Persians, immutable. They should be subject to periodic review, and should be changed as new conditions, new technology and new philosophies warrant. It is not only the strategy of development and implementation which should change with time. Circumstances might necessitate that the policy itself be altered.

It has already been pointed out (King, 1972) that "the rapid increase in the world's population, the new concern for economic development and growth, the rapid advances in technology and science, the recent predilection for the environment, and the emancipation of large sections of the world from political domination by alien peoples are but a few of the factors which have helped to make anachronistic many of the sacred tenets of the past, and to demand new approaches to the solution of the world's problems." Some of the so-called sacrosanct principles of forest policy have been seriously questioned by Zivnuska (1966), King (1968), Nautiyal and Smith (1968) and Muthoo (1970). Accordingly, new methodologies for forest policy formulation must be employed. Before these are examined, however, it may be pertinent to restate the characteristics of forestry, forests and forest industries in order to provide a background of relevant information.

The range and scope of the art and science of forestry cannot be adequately described in a paper of this sort. It is important, however, to outline a few salient characteristics in order to demonstrate the systemic nature of forestry activities, and to emphasize that even though forestry may be described as a system, the system is not and cannot be considered closed. The practice of forestry is often inextricably linked with other national and international systems, and cannot be meaningfully examined without reference to them.

FORESTRY WORKERS IN SOMALIA
plenty to do

A forester establishes, maintains, tends and/or regenerates a forest not because the individual trees, or the forests as a unit, are in themselves, and without reference to their products and services, of intrinsic value. Indeed, it is possible that the existence of trees and forests may be considered a "disbenefit" and an obstacle to other types of economic and social development. It is the value ascribed by society to forest products and services which provides the rationale for forestry activity. It follows, therefore, that the management of forest resources cannot be examined in isolation. It must be related to the benefits which it is expected will be derived from such management. More important, provision must be made, wherever possible, for the establishment of those further stages of development which will ensure that the raw material, so carefully nurtured and tended, be utilized.

For example, if logs are to be exported, roads must be constructed to the ports of export. If they are to be processed, processing facilities must be planned for and established. If the forests are to be managed for their recreational or aesthetic values, provision must be made for ensuring that these values are enjoyed by people.

Westoby (1962) has described some other characteristics which are relevant to the formulation of forest policies. He has pointed out that:

— Forests are capable of yielding commodities which may differ considerably both in their properties and in the uses to which they may be put.

— It is possible to choose the form in which forest output is harvested, and to vary the volume and time of harvesting within reasonably wide limits.

— It is possible to renew the forest resources after use.

— The duration between regeneration and harvest may vary from short periods of about three years to periods of over a century.

— Forest industries vary between the very simple and the very complex, demanding varying intensities of capital and labour, and varying levels of skill.

— Forest industries possess high forward and backward linkages.

— There is hardly a country, whatever its stage of economic development, and whatever the state of its resource base, in which forestry and forest industries may not be appropriate activities.

There are other attributes of forestry and forest industries which are seldom given the attention and prominence they deserve in the literature of the profession. The fact that forests and forest industries are generally located in the rural areas often reduces migration to the towns. This leads not only to a reduction in unemployment in urban areas, but also to a more equitable distribution of economic activity in a given country or region. Another and perhaps more important attribute in these days of increasing unemployment is that forestry generally provides more employment opportunities for each unit of capital employed than is possible in most other sectors of the economy. Moreover, the system of agri-silviculture (or *taungya* or *shamba*) which has been practised by foresters in many parts of the world for more than a century, if nationally and scientifically pursued, offers exciting symbiotic possibilities for the development of both forestry and agriculture to meet the increasing demands for food and for homogeneous supplies of wood.

In addition to these benefits, forests perform valuable services for the community. They regulate and purify water supplies, they reduce erosion in areas under and adjacent to them, they assist in the maintenance and improvement of soil conditions, they protect crops and animals from the harmful effects of wind, they provide recreational facilities for the community, and food and shelter for wildlife. The forest ecosystem also absorbs heat and noise, and acts as a climatic buffer in many areas of the world. Most important, the forestry and forest industries sector offers the basis for an integrated system of rural development in which agriculture and forestry can be developed to their fullest potential.

Those responsible for advising on the formulation of forest policies are therefore in possession of a great body of evidence which indicates that the forests can assist mankind in several ways: they can play an important role in the attack on economic underdevelopment, and they can improve mankind's quality of life in nonmaterial ways. They can be of benefit to the industrialized, often polluted, developed countries, and they can assist the developing countries to achieve higher rates of economic growth and lower levels of unemployment.

Forestry's benefits

However, it would be inadvisable to list all the recognized benefits of forestry as policy objectives in any policy statement — for two main reasons.

First, many of the benefits can only be fully attained if certain disadvantages are considered to be acceptable. For example, the *maximization* of timber production from some forests might lead to a reduction in their recreational potential, an increase in erosion and siltation, and a diminution of their potential to purify water and control its release. This is not to deny that by the adoption of particular management systems some degree of success in the attainment of multiple benefits might be achieved. If all that is required is some level of benefit from the various uses, then it may even be possible, through the use of indifference curve analysis, and by applying the principles of joint-production theory, to calculate the correct mix of managerial and other inputs in order to achieve a desired mix of output (Gregory, 1955). Another potentially useful approach to the quantitative assessment of the degree of compatibility among a number of uses has been developed around the concept of multidimensional "conflict functions" (O'Brien and Roy, 1971). What is being asserted here is that it is often impossible to maximize the output of more than one product or service at the same time. Nevertheless: "Multiple use allows for the provision of many community requirements within the one management and operational framework, and, for many situations, community benefits in relation to costs are more readily maximized under this system of management than would be the case if single primary uses were identified and allocated for management by different authorities. It is a method of management which can efficiently respond to changing emphases in community requirements" (Australian Forestry Council, 1974).

Not in isolation

Second, man does not live by forestry alone. The benefits which might accrue from the possession of forests, the practice of forestry, and the establishment and management of forest industries must be weighed against those benefits which might flow from other forms of economic activity. The forestry subsector must be judged within the context of the socioeconomic life of the community. It should not be examined in isolation.

It is desirable that before a forest policy is formulated the following information be collected:

1. Data on those factors which influence land productivity, e.g., climate, topographic relief and soil characteristics.
2. Data on present population and its distribution (by location and age classes).
3. Data on current labour force and its deployment.
4. Trends in population and labour force growth.
5. Per caput income.
6. Consumption trends of the various land-produced commodities.
7. Supply possibilities, e.g., areas, volume and types of forests, forest productivity (from natural and artificial forests), productivity of other crops, etc.
8. The cost/benefit ratios of various land uses.
9. The gestation periods of alternative crops (their time-pattern scales).
10. The labour-absorptive capacity of the various possible activities and their influence on population stabilization.

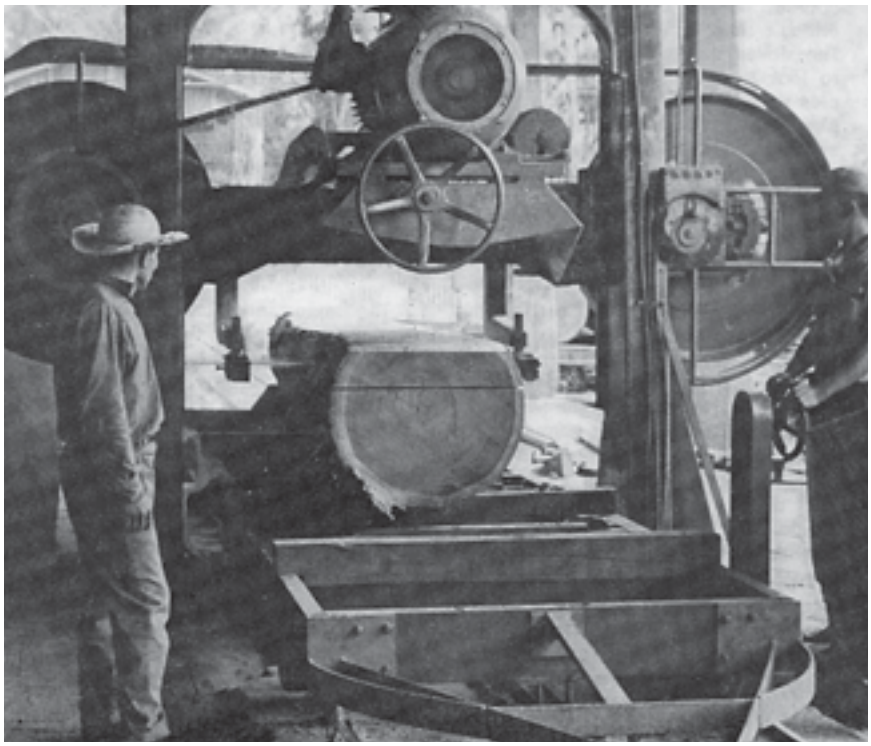
11. The possibility of using the products of the land for industrialization.
12. The possible contribution of the various types of land uses to the balance of payments.
13. The linkage indices of the range of crops.

If it is at all feasible, a land-capacity classification of the country for which the forest policy is being formulated should be made, and a land-use plan drawn up. Land is a scarce resource in many countries, as is capital. It is therefore desirable that the total picture be studied, and all the options ascertained.

It is not being suggested that forest policy formulation should await the preparation of a land-use plan. If the required information is not available, and it will not be readily forthcoming, then policy formulation should be undertaken using what information exists. However, the degree of sophistication of the policy should bear a direct relationship to the amount of general, nonforestry information on which it is based. A policy formulated on the basis of relatively little information should be skeletal in the extreme. Conversely, it should be possible to enunciate a more refined and all-embracing policy if all the extra-forestry information requested is available, for then forestry will have been placed in its proper perspective and the interrelationships of various types of land use taken into account.

After the often conflicting demands for land and other scarce resources are examined and reconciled, more detailed attention should be directed to the forestry subsector itself. Because the factors which indicate what proportion of a nation's resources should be devoted to forestry and forest industries are controlled by the present and future supply of, and demand for, those goods and services which forests bestow, the following exercises should be considered basic to forest policy formulation, and to the integration of forest policies with national economic policies (King, 1972):

— Evaluation of the existing forest resources, including nonwood products and services.
— Estimation of forest resource potential, including nonwood products and services.
— Estimation of present and potential yields from existing and future forest.
— Assessment of the demand for forest products.
— Assessment of the demand for forest services.
— Surveys of the feasibility of establishing various types of forests and forest industries.
— Studies of the economics of location of forests and forest industries.



A BAND SAW AT A COOPERATIVE SAWMILL IN PARAGUAY
do it yourself

These studies would indicate the extent of the area of a nation's land which should be devoted to forestry, and for how long production from those areas should be maintained.

The methodologies for evaluating the extent of the forest resource, estimating yields, assessing the demand for forest products, and studying the feasibility of establishing forests and forest industries are well developed. However, methods of forecasting the demand for the various services which forests provide are not as advanced, although they are being rapidly refined and improved.

Protective policies

In forecasting the demand for the protective services of the forests, more than usual care must be taken to link the development of a protection policy with other aspects of the overall national development policy. In addition to data on population, population trends, and on present and future income, information must be obtained covering plans to develop the agricultural sector, the location of present and planned agricultural projects, and the current and future water needs of the community.

Self-sufficiency

It must not be assumed that a national policy of self-sufficiency and economic isolation in wood and wood products is always desirable. Indeed, it is often untenable. Moreover, even if a self-sufficiency policy were considered

desirable, the demands of other sectors of the nation's economy might render it unrealistic.

If there were no communication between countries, if each nation were an island entire unto itself, if national resources were not scarce, and if no nation possessed comparative advantages over others in the production of particular commodities, then to be self-sufficient would perhaps be a necessity. Resources are scarce, however, and because of differences in climate, soil, technology, and so on, comparative advantages are enjoyed by one nation over another. It therefore follows that other things being equal it is economically better for each country to specialize in the production of those goods and services for which it is best equipped.

Conflicting demands

The problem of how much of a nation's land should be devoted to forestry cannot therefore be considered solved merely by estimating future demand, assessing physical yields, and from these calculating the desired area. After these requirements have been ascertained, conflicting demands from other land users and competing demands for capital and labour from other sectors of the economy must be reconciled. As shown earlier, this reconciliation might best be effected by the analysis of the relative profitability, different time-pattern scales, contribution to the balance of payments, labour-absorptive capacity and the possibility of industrialization of the various land uses.

The forest policy-maker now has two broad sets of data. On the one hand, he has the estimate of total requirements of wood and wood products and of forest services, and an estimate of the area of land needed to supply these requirements; on the other, he has an estimate of the amount of resources which the economy can afford, or considers desirable, to allocate to forestry. If the latter permits the implementation of the former, he has no problems; if it does not, he must adjust his first, self-sufficient estimate to meet the restrictions and constraints of the economy as a whole. The area which can finally be dedicated to forestry is determined, therefore, not only by the needs of the forestry sector, but also by the needs and resources of the overall economy. No fixed proportion or fixed area of land must be devoted to forestry, or to any other form of land use for that matter. The physical and socioeconomic circumstances of a country must be the deciding factors in resource allocation.

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