

Policy Analysis and Integrated Land Use

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Land use problems are very often a serious obstacle to forestry development in several countries of both the developed and the developing world. To overcome these problems an integrated land use policy is needed for designing and implementing innovative programs aimed at the integrated development of forestry with other land uses and the social, cultural, political, ecological and economic environment involved. Policy analysis can assist in the success of such programs by identifying the people's needs and concerns, by gathering information about land capacity, land tenure and the traditional production systems, by testing alternative policies and by evaluating the programs after their implementation so that the necessary readjustments are made.

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Introduction

For a forestry development program to be successful in meeting the society's needs it has to be based on a genuine policy on land use. This is because such a policy can harmonize the various uses of natural resources and environment with society's desires so that a continuous flow of goods and services to people over time is secured (Timmons 1972).

On the other hand, if forestry is considered as a land use essential to community development, particularly in the developing countries (Arnold 1981), it can not be isolated from other land uses. Therefore, forest policy should be firmly integrated in the general social and economic development and overall policies of a society (Järveläinen 1984).

To formulate effective policies on land use, however, adequate and reliable information is needed, which will also improve the quality of decisionmaking. Such an information can

be provided by policy analysis (Järveläinen 1984). In this paper, the role of policy analysis for the development of integrated land use programs is discussed after a brief overview of the major land use problems that such programs can solve both in developed and developing countries.

Integrated land use

Traditionally, forestry has been considered as a distinct land use capable of producing only wood and wood products. This narrow function of forestry is no longer accepted. It is widely realized nowadays that forest lands can provide a variety of other goods and services to mankind, including food in the form of tubers, fruits and leaves, forage for domestic and wild animals, water, fish and

wildlife, minerals, outdoor recreation and environment, income and employment. All these products and services are essential to both urban and especially to rural communities which also depend on other land activities, such as crop agriculture and grazing, to secure supplementary or additional products. This means that forestry must be viewed as part of the rural development and solutions to forestry development require an integrated approach (FAO 1980).

Rural development, however, is not the only reason that justifies the integrated approach to land use. The environmental problems that threaten the very existence of the forests in the developed countries as well as the degradation of forest resources due to their irrational use in the developing countries have shown that forests are interrelated and interdependent with the other land uses. Consequently, if they are to be saved and used properly to the benefit of the society, the holistic approach should be adopted. This views the forest areas as part of a wider system consisting of closely interwoven networks of multiple land use patterns (Naveh 1984) and functioning in an ecologically sound manner (Stein 1984).

Forestry development, therefore, requires a multisector approach to land use, that is, an integrated land use policy. Such a policy would mean the use of a land area of part of it simultaneously or sequentially to achieve several different objectives, while securing that the interactions between the different uses result in sustained and increasing production of goods and services (Huguet 1978).

The integrated approach to land use is the only solution to the land use conflicts and problems in both the developed and the developing countries.

Developed countries

A widespread land use problem in Europe is the badly fractured land ownerships, both private and public (Davis 1973). In these ownerships, forestry and agriculture are largely segregated with agriculture being the dominant land use. Quite a few recent studies

(Anonymous 1983), however, indicate the need of integration of forestry and agriculture so that the income of the farmer is increased. This is especially true with the agricultural lands marginal to intensive cropping which can yield higher income to the land owner if they are converted to forestry (Bulfin 1983, Fodgaard 1983).

Another problem in some European countries is the large amount of mountainous agricultural lands which have been abandoned in the last few decades due to migration of the rural people to the cities (Robertson 1977, Francenschetti and Pettenella 1983). For the development of these regions, Brun and Larriere (1983) propose the organization of regional systems along the property rights where forestry and agriculture will be integrated with the social factor.

In countries and areas where grazing by domestic animals in an important land use, the integration of forestry and grazing is considered necessary to fight rural depopulation and increase land productivity (Nougarede 1983, Bartolome 1984, Filius and Mutsaers 1984). For the Mediterranean region, in particular, rational grazing may improve the forest productivity, prevent the forest wildfires, assist in multiple use management of forest lands and extend the feeding period of animals into the critical summer months (Liacos 1980, de Montgolfier 1983, Talamucci et al. 1984).

Integration of forestry, agriculture and grazing, however, cannot be beneficial if it is not ecologically sound. According to Devillez (1983) a good agro-sylvo-pastoral system requires keeping the productive potential of each part which should be employed with the best energy ratio. In addition, integrated land use means that the environmental aspects are taking into account, too. For example, in the land management planning implemented by the U.S. Forest Service, an environmental statement reviewed by the public is prepared for each management unit, to give a comprehensive assessment of the social, economic and environmental impacts in relation to alternative land use methods (Joyce 1981).

Developing countries

In developing countries, the land use problems are quite different. There, the unprecedented rise of the population has brought a high pressure on natural resources in order to secure food for people already living in a state of abject poverty. Forests are cleared at an alarming rate, to be converted to agricultural lands in the tropics or to grazing lands in the arid and semi-arid regions.

Forestry development in these countries can not be accomplished without an integrated approach to land use. This is because protection of the existing forests, or release of land to forestry, would require concurrent improvements in the productivity of arable lands or in the organization of grazing in rangelands. Integrated land use may be realized by intercropping trees and crops, allocating forest land rationally between trees and crops, improving the non-food benefits of forests (ex. wood industries), planting trees on road sides, river banks and other unused areas, improving the productivity of arable lands, planting multiple use species, combining trees with grazing and introducing additional sources of income, such as beekeeping (FAO 1980).

Agroforestry has been widely advocated in the last few years as a successful solution to land use problems both in the tropics and in the arid and semi-arid areas (Lundgren 1981, Baumer 1984). Under this system trees are deliberately grown with agricultural crops and/or animals on the same piece of land to ensure maximum production. Since agroforestry is found in most traditional farming systems, it is well adapted to the social, ecological and economic conditions of the developing countries.

The role of policy analysis

The question that arises now is what role can policy analysis play in the development of effective forest policies and programs on land use. According to Ellefson (1984) "policy analysis in the forestry context is the explanation of causes and consequences of policy

options which can ultimately be generalized to forestry programs at large; it involves a political process which begins with individual concerns, moves to formulation and implementation of policies to address problems and ends with post-program evaluation and subsequent adjustments".

Identifying people's concerns

Since integrated land use programs are bound to serve people, individual or aggregate concerns must seriously be taken into account. These concerns are not the same in all societies and certainly are different in the developed and in the developing world.

In affluent countries, there is an increased demand for outdoor recreation due to industrialization and to the consequent deterioration of the urban environment coupled with high real incomes per capita. In the U.S.A., for example, outdoor recreation is a land use of growing importance because of the combined influences of more people, higher real incomes per capita, improved transportation, increased leisure and changing life styles (Clawson 1972). Therefore, forestry land use programs in these countries which do not meet the demand of people for recreation are likely to fail.

In the developing countries, on the other hand, particularly where local economy is based on subsistence farming, food is the main concern of the people and, consequently, the primary factor determining land use. It follows that securing food to those people must be the dominant objective of the rural development programs (FAO 1978) and forest policy will be successful if it gives precedence to food over wood.

In general, identifying the concerns of the people to be served by the integrated land use programs is essential in formulating effective forest policies.

Collecting information about the land base

Another role of policy analysis is to provide information about the land base. Such information may be technical, social, economic or even political and it can assist in developing successful programs on land use.

Land capacity. One major obstacle in making comprehensive land use planning is the lack of information regarding land capability in several countries, especially in the developing world. Land capacity is a technical element referring to the inherent capacity of land to produce without major improvement such as fertilization, irrigation, etc. Nevertheless, socio-economic values need to be assigned to alternative land uses so that the final or decided land use map is produced which will promote the optimal land use (Nakos 1984). It is evident that the knowledge of land characteristics and land suitability for various uses can facilitate the setting of boundaries between them, such as between areas which can support cropping and areas which need to be devoted to forestry and thus resolve the conflicts between agriculture and forestry, especially in marginal lands. The same is true for other land uses such as grazing, recreation, or mining. The role of policy analysis would be to promote integrated land resource survey programs and determine the socio-economic criteria for deciding optimal land use to the benefit of both the land resource and the people involved.

Land tenure. Another problem of considerable importance in developing successful integrated land use programs is that of land tenure. Knowledge of land tenure patterns is the key to understanding the size and nature of the land resource available. Very often, the formal or legal land rules do not coincide with the customary rules of the local people; or the practices of the local populations are contrary to the legal prescriptions of the forest authorities (Cerneja 1981). Also, there is usually a discrepancy between the land owner and the land user. For example, in Greece land may be state owned but the right of grazing or collecting fuelwood may belong to the local people (Papastavrou 1984). Failure to understand these peculiarities in land tenure may create a distrust between foresters and local people which very likely will lead to misdesigned or unsuccessful development projects.

Associated with land tenure are the property rights; these are very prominent in several developed countries. Sometimes the individual property rights may not comply with the social needs. In this case, a restructuring of land rights in favor of groups rather than individuals may be necessary to meet emerging needs (Castle and Retting 1972).

Traditional production systems. Still another problem that policy analysis should illustrate is the nature, structure and function of the traditional production systems. It will be a failure if modern technologies are introduced in land use programs without being integrated with the traditional systems and making full use of the local knowledge, experience, wisdom and customs of the people (FAO 1980).

Testing alternative policies

Once the people's concerns are identified and the land base information becomes available, policy analysis should proceed to formulation and implementation of alternative policies to address land use problems so that the best solution is found. This is a very important process because the integrated land use programs to be carried out in a country or in a region need to be adapted to the local technical, social, cultural, political and economic conditions and at the same time meet the policy goal with the lowest cost or the highest benefit possible.

To test alternative policy programs on land use reliable information and rigorous methodologies are needed. Unfortunately, adequate and reliable information is not always available, especially in the developing countries. However, the policy analyst should use any information which will assist him in testing alternative policies. As far as the methodologies are concerned, Järveläinen (1984) distinguishes two: the normative method which is based on the evaluation of costs and benefits expected from the policy programs to be applied and the analytical method which involves the construction of econometric models analyzing the causal relationship between policy means and policy goal.

Post-program evaluation

The final role of policy analysis is the evaluation of the land use program after its implementation. This evaluation is necessary for two reasons: The first is to check whether the policy program was implemented as it was planned and whether the policy goal set in the beginning was met. The second reason is to collect information in order to make subsequent adjustments to the forest policy on integrated land use. Such information is especially important in the developing countries where policy research and experience on forestry development are often limited or lacking completely. In developed countries, also, where there is a continuous change of the attitude of people towards land due to the constant change of their numbers, incomes and life styles (Clawson 1972), policy formation must keep up with these changes by frequent readjustments. Therefore, post-program evaluation is an inevitable step in the integrated land use development projects.

Conclusion

The preceding discussion shows clearly that policy analysis is vital in designing and implementing innovative forest policies and programs on integrated land use. The better this analysis is carried out, the more comprehensive programs can be undertaken and the more efficient solutions to acute land use problems may be found.

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