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Concept and Techniques of Land Use Planning

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SUMMARY

Competition for land is increasing as demand for multiple land uses and ecosystem services rises. Food security issues, renewable energy and emerging carbon markets are creating pressures for the conversion of agricultural land to other uses, such as reforestation and biofuels. This is occurring in parallel with other growing demands from land systems for urbanization and recreation, mining, food production, and biodiversity conservation. Managing increasing competition for the supply of these services, accounting for different stakeholders' interests, requires efficient allocation of land resources. Land use planning can be of use with regard to finding a balance among competing and sometimes contradictory uses (Australia, S.o.W,2005), while promoting sustainable land use options.

INTRODUCTION

Decisions on land use have always been part of the evolution of human society. In the past, land use changes often came about by gradual evolution, as the result of many separate decisions taken by individuals. In the more crowded and complex world of the present they are frequently brought about by the process of land use planning. Such planning takes place in all parts of the world, including both developing and developed countries. It may be concerned with putting environmental resources to new kinds of productive use. The need for land use planning is frequently brought about, however, by changing needs and pressures, involving competing uses for the same land. The function of land use planning is to guide decisions on land use in such a way that the resources of the environment are put to the most beneficial use for man, whiles at the same time conserving those resources for the future. This planning must be based on an understanding both of the natural environment and of the kinds of land use envisaged. There have been many examples of damage to natural resources and of unsuccessful land use enterprises through failure to take account of the mutual relationships between land and the uses to which it is put. It is a function of land evaluation to bring about such understanding and to present planners with comparisons of the most promising kinds of land use. Land evaluation is concerned with the assessment of land performance when used for specified purposes. It involves the execution and interpretation of basic surveys of climate, soils, vegetation and other aspects of land in terms of the requirements of alternative forms of land use. To be of value in planning, the range of land uses considered has to be limited to those which are relevant within the physical, economic and social context of the area considered, and the comparisons must incorporate economic considerations.

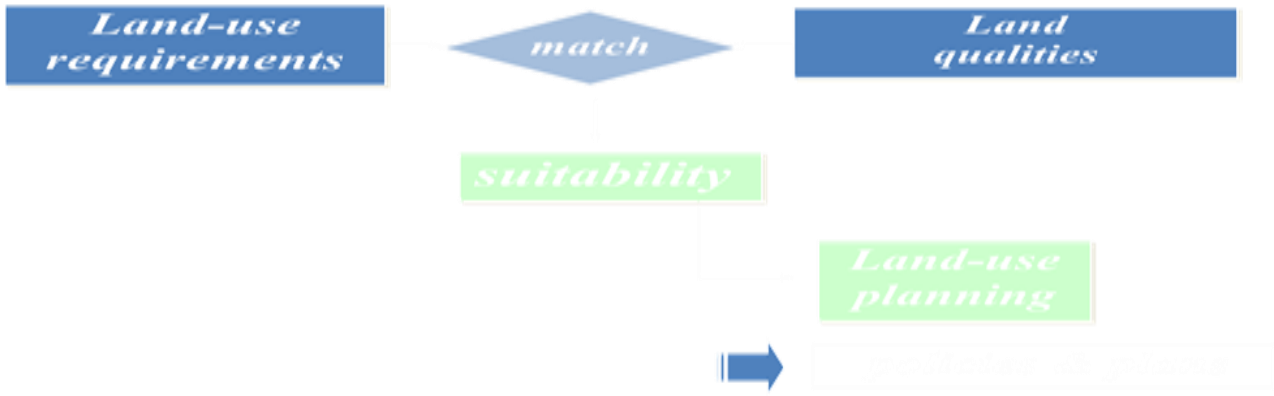
Land Use Planning

Land use planning is the systematic assesement of land and water potential, alternatives for land use and economic and social conditions in order to select and social conditions in order to select and adopt the best land use options (FAO 1993). Its purpose is to select and put into practice those land uses that will best meet the needs of people while safeguarding resources for the future.

Land Evaluation

Land evaluation is formally defined as 'the assessment of land performance when used for a specified purpose, involving the execution and interpretation of surveys and studies of land forms, soils, vegetation, climate and other aspects of land in order to identify and make a comparison of promising kinds of land use in terms applicable to the objectives of the evaluation' (FAO, 1976).

Structure of Land Evaluation



The aims of Land Evaluation

Evaluation takes into consideration the economics of the proposed enterprises, the social consequences for the people of the area and the country concerned, and the consequences, beneficial or adverse, for the environment. Thus land evaluation should answer the following questions:

- How is the land currently managed, and what will happen if present practices remain unchanged?
- What improvements in management practices, within the present use, are possible?
- What other uses of land are physically possible and economically and socially relevant?
- Which of these uses offer possibilities of sustained production or other benefits?
- What adverse effects, physical, economic or social, are associated with each use?
- What recurrent input e are necessary to bring about the desired production and minimize the adverse effects?
- What are the benefits of each form of use? -If the introduction of a new use involves significant change in the land itself, as for example in irrigation schemes, then the following additional questions should be answered:
- What changes in the condition of the land are feasible and necessary, and how can they be brought about?
- What non-recurrent inputs are necessary to implement these changes?

The evaluation process does not in itself determine the land use changes that are to be carried out, but provides data on the basis of which such decisions can be taken. (Ramamurthy*et.al*2015)

Steps in Land evaluation and land use planning:

Land evaluation is only part of the process of land use planning. Its precise role varies in different circumstances. In the present context it is sufficient to represent the land use planning process by the following generalized sequence of activities and decisions:

- Recognition of a need for change;
- Identification of aims;
- Formulation of proposals, involving alternative forms of land use, and recognition of their main requirements;
- Recognition and delineation of the different types of land present in the area;
- Comparison and evaluation of each type of land for the different uses;
- Selection of a preferred use for each type of land;
- Project design, or other detailed analysis of a selected set of alternatives for distinct parts of
- The area; this, in certain cases, may take the form of a feasibility study.
- Decision to implement;
- Implementation;
- Monitoring of the operation.

Land evaluation plays a major part in stages iii, iv and v of the above sequence, and contributes information to the subsequent activities.

Principles

Certain principles are fundamental to the approach and methods employed in land evaluation. These basic principles are as follows:

- Land suitability is assessed and classified with respect to specified kinds of use
- Evaluation requires a comparison of the benefits obtained and the inputs needed on different types of land
- A multidisciplinary approach is required and evaluation is made in terms relevant to the physical economic and social context of the area concerned
- Suitability refers to use on a sustained basis and evaluation involves comparison of more than a single kind of use

Levels of intensity and approaches

Three levels of intensity may be distinguished: These are normally reflected in the scales of resulting maps.

- Reconnaissance- concerned with broad inventory of resources and development possibilities at regional and national scales.
- Semi-detailed or intermediate level - concerned with more specific aims such as feasibility studies of development projects.
- Detailed level -covers surveys for actual planning and design, or farm planning and advice, often carried out after the decision to implement has been made

Two-stage and parallel approaches to land evaluation-

A two-stage approach in which the first stage is mainly concerned with qualitative land evaluation, later (although not necessarily) followed by a second stage consisting of economic and social analysis; A parallel approach in which analysis of the relationships between land and land use proceeds concurrently with economic and social analysis.

Innovative Land Use Planning Techniques

- Multi-Density Zoning Techniques: Transfer of Development Rights, Lot Size Averaging, Feature-Based Density, Conservation Subdivision, Village Plan Alternative, Infill and Village-Style Development, Agriculture Incentive Zoning, Urban Growth Boundary, Inclusionary Zoning
- Environmental Characteristic Zoning: Storm water Management, Steep Slope and Ridgeline Protection, Wildlife Habitat Management, Water Resources Protection, Wetlands, Drinking Water, Shore land and Riparian Areas, Flood Hazard Area Zoning, Erosion and Sediment Control
- Site Design Techniques: Transit-Oriented Development, Pedestrian Oriented Development, Access Management, Dark Skies Lighting, Energy-Efficient Development, Landscaping Regulations.
- Protect Steep Slopes & Ridgelines :Health and Safety,Infrastructure, Aesthetics,
- Water Quality

CONCLUSION

Land-use planning is becoming complex and multidisciplinary as planners face multiple problems that need to be addressed within a single planning framework. Such problems include nonpoint-source pollution, water allocation, urbanization, ecosystem deterioration, global warming, poverty and unemployment, deforestation, desertification, farmland deterioration, and low economic growth. Watershed-scale planning is gaining popularity among communities and agencies so that biological, physical, and socioeconomic components of the landscape system can be integrated into the planning framework.

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