CHAPTER Six

**6.1. NATURE AND SCOPE OF LAND USE PLANNING**

**What is Land?**

Landcomprises the physical environment, including climate, relief, soils, hydrology and vegetation, to the extent that these influence potential for land use. It includes the results of past and present human activity, e.g. reclamation from the sea, vegetation clearance, and also adverse results, e.g. soil salinization. Purely economic and social characteristics, however, are not included in the concept of land because these form part of the economic and social context.

A land mapping unitis a mapped area of land with specified characteristics. Land mapping units are defined and mapped by natural resource surveys, e.g. soil survey, forest inventory. Their degree of homogeneity or of internal variation varies with the scale and intensity of the study. In some cases a single land mapping unit may include two or more distinct types of land, with different suitabilities, e.g. a river flood plain, mapped as a single unit but known to contain both well-drained alluvial areas and swampy depressions.

Land is thus a wider concept than soil or terrain. Variation in soils, or soils and landforms, is often the main cause of differences between land mapping units within a local area: it is for this reason that soil surveys are sometimes the main basis for definition of land mapping units. However, the fitness of soils for land use cannot be assessed in isolation from other aspects of the environment, and hence it is land which is employed as the basis for suitability evaluation.

According to FAO (1985), ‘land’ is defined as a long but informative definition: *Land* is defined as ‘an *area* of the earth’s surface...; the characteristics of which embrace all reasonably *stable*, or *predictably cyclic*, attributes of the biosphere vertically above and below this area...including those of the atmosphere, the soil and underlying geology, the hydrology, the plant and animal populations... ; and the results of past and present *human activity*, to the extent that these attributes exert a significant influence on present and future uses of the land by humans.

**Land use and land cover change**

It is also known as *land change*, which is a general term for the human modification of Earth's terrestrial surface. Though humans have been modifying land to obtain food and other essentials for thousands of years; current rates, extents and intensities of land use and land cover (LULC) changes are by far greater than ever in history, driving unprecedented changes in ecosystems and environmental processes at local, regional and global scales. These changes encompass the greatest environmental concerns of human populations today, including climate change, biodiversity loss, and the pollution of water, soils and air. Monitoring and mediating the negative consequences of LULC changes while sustaining the production of essential resources has therefore become a major priority of researchers and policymakers around the world.M /

**What is land-use planning?**

There is bound to be conflict over land use. The demands for arable land, grazing, forestry, wildlife, tourism and urban development are greater than the land resources available. In the developing countries, these demands become more pressing every year. The population dependent on the land for food, fuel and employment will double within the next 25 to 50 years. Even where land is still plentiful, many people may have inadequate access to land or to the benefits from its use. In the face of scarcity, the degradation of farmland, forest or water resources may be clear for all to see but individual land users lack the incentive or resources to stop it. These call the necessities of planning the land for different purposes.

Land-use planning is the systematic assessment of land and water potential, alternatives for land use, and economic and social conditions in order to select and adopt the best land-use options. Its purpose is to select and put into practice those land uses that will best meet the needs of the people while safeguarding resources for the future. The driving force in planning is the need for change, the need for improved management or the need for a quite different pattern of land use dictated by changing circumstances.

All kinds of rural land use are involved: agriculture, pastoralism, forestry, wildlife conservation and tourism. Planning also provides guidance in cases of conflict between rural land use and urban or industrial expansion, by indicating which areas of land are most valuable under rural use.

**Central idea of land use planning**

Wherever groups of people use land and its resources, land use is planned being whether people aware of it or not. Land use does not consider production only, but also land functions such as protected areas, land recreation, road-building, waste disposal sites and use restricted areas such as buffer zones for exhaust gases, areas for regenerating groundwater, buffer zones for traffic noise pollution, etc.

Land use planning (LUP) is not only practiced when national authorities intervene or as a result of development co-operation projects. LUP happens in every society, even if the term is not used*.*

The subject of these guidelines is land use planning in the context of development co-operation. It deals with cases in which an intervention occurs in order to improve land use and to sustain natural resources. In the past, decisions made on land use have resulted in the degradation of land resources, or an imbalance between supply and demand of those resources. Here, land use planning is understood as an instrument of the technical co-operation used in the following types of projects:

 resources management (forestry, production systems compatible with resources and agro-forestry, pasture management, nature protection and erosion control);

 rural regional development;

 community support and village development; and

 government consultation (environmental strategy planning, agricultural sector planning, development planning, assessment of land potential).

These LUP-guidelines are not intended to standardize and impose compulsory procedures for all conceivable variants. It appears more appropriate to offer support for different situations, taking into consideration the specific conditions of the technical co-operation. In addition, the exact role and scope of LUP within the technical co-operation has still to be determined according to the context and local conditions by those responsible for planning and implementation of projects.

**Principles of land use planning**

Land use planning is orientated to local conditions in terms of both the methods applied and contents followed. Planning approaches often fail because global models and implementation strategies are applied and taken over automatically and uncritically. But LUP is not a standardized procedure which is uniform in its application world-wide. Its content is based on an initial regional or local situation analysis. On the basis of the central idea, ten key principles are explained below.

 *Land use planning considers cultural viewpoints and builds up on local environmental knowledge.*

Rural societies or groups can often provide complex indigenous knowledge of the environment. If this is the case, such local knowledge should be part of the basis for planning and implementing a sustainable land use.

 *Land use planning takes into account traditional strategies for solving problems and conflicts.*

Traditional rural societies have their own way of approaching problems and settling conflicts concerning land use. In the process of land use planning, such mechanisms have to be recognized, understood and taken into account.

 *Land use planning assumes a concept which understands rural development to be a "bottom-up" process based on self-help and self-responsibility.*

The population should actively participate in the process of LUP. The results of planning and the implementation of measures can only are sustainable if plans are made with and by the people, not behind them or even against them. Planning is therefore not just a matter for experts, but should be carried out together with those affected by it. To ensure a feeling of ownership concerning self-help activities, people who are affected have to be involved in the planning process from the early beginning.

 *Land use planning is a dialogue, creating the prerequisites for the successful negotiation and co-operation among stakeholders.*

The core task of LUP consists of initiating a process of communication and co-operation which "allows all participants to formulate their interests and objectives in the dialogue". On the basis of sound decisions a sustainable form of land use is proposed "whereby the aims and interests of other participating groups are taken into account to the greatest possible extent” An important element of participation-orientated LUP is the identification of the various groups of participants and differentiating them in terms of their use of land and access to land resources. In addition, their position on the social scale (gender approach) and their capacities, either as stakeholders or as members of authorities and of other organizations have to be considered.

 *Land use planning is a process leading to an improvement in the capacity of the participants to plan and take actions.*

The participatory methods used in all planning steps of LUP promote the technical and organizational capabilities of all participants, thereby extending their capacity to plan and to act. In the medium term, this qualification process leads to an improvement in the capacity of local groups for self-determination.

 *Land use planning requires transparency. Therefore, free access to information for all participants is a prerequisite.*

Transparency in planning and the extent, to which stakeholders are informed, strengthen both their willingness and capacity to participate in planning and decision-making. It increases the motivation of the people for creating sustainable results. An open exchange of information leads to discussions about objectives among the key figures and promotes the willingness to reach a consensus. The dissemination of information in the local language(s) contributes to an improved transparency. In addition, it strengthens the trust of the population in land use planning activities.

 *The differentiation of stakeholders and the gender approach are core principles in land use planning.*

A prerequisite for realistic land use planning is the detailed analysis of the various interest groups. The aim is to find out the various interests of the participants in order to create a basis for the negotiation and decision-making process. Men and women often do not have the same access to land and have specific ways of articulating themselves. Different interests are arising from the economic and social character of their roles and scope of duties. Therefore, the role of gender is an important criterion when differentiating stakeholders.

 *Land use planning is based on interdisciplinary cooperation.* The ecological, economic, technical, financial, social and cultural dimensions of land use make it necessary to work with an interdisciplinary approach. Land use planning provides many interfaces with other technical disciplines and planning fields. It uses a broad spectrum of tools. A one-sided view of planning will be avoided due to the interdisciplinary and intersectoral configuration of the planning groups.

 *Land use planning is an iterative process, i.e., it is the flexible and open for reaction based on new findings and changing conditions.*

LUP is more than the preparation of a planning document; it is an iterative process. Iteration is both the principle and the method simultaneously. New developments and findings are specifically observed and incorporated into the planning process. It may lead to the revision of decision and the repetition of steps already taken. This can render superfluous both analyses and data bases which would have been set up at some expense.

Iterative planning requires flexibility in planning, but in no way constitutes a "concealed lack of planning".

 *Land use planning is implementation-orientated.*

Land use planning has to consider how the negotiated decisions and the solutions identified are to be implemented. LUP does not end with the land use plan.

The implementation of limited measures (e.g. the development of cultivation techniques which conserve land resources) right at the outset, or parallel to the LUP process, plays an important role in increasing the trust of the people in the village as far as the planning process is concerned.

**When is land-use planning useful?**

Two conditions must be met if planning is to be useful:

 the need for changes in land use, or action to prevent some unwanted change, must be accepted by the people involved; and

 there must be the political will and ability to put the plan into effect.

Where these conditions are not met, and yet problems are pressing, it may be appropriate to mount an awareness campaign or set up demonstration areas with the aim of creating the conditions necessary for effective planning.

**Goals and focuses of land use planning**

Land-use planning aims to make the best use of limited resources by:

 assessing present and future needs and systematically evaluating the land's ability to supply them;

 identifying and resolving conflicts between competing uses, between the needs of individuals and those of the community, and between the needs of the present generation and those of future generations;

 seeking sustainable options and choosing those that best meet identified needs;

 planning to bring about desired changes; and

 learning from experience.

There can be no blueprint for change. The whole process of planning is iterative and continuous. At every stage, as better information is obtained, a plan may have to be changed to take account of it.

1. **The goals of land use planning**

Goals define what is meant by the "best" use of the land. They should be specified at the outset of a particular planning project. Goals may be grouped under the three headings of efficiency, equity and acceptability and sustainability.

***Efficiency****.* Land use must be economically viable, so one goal of development planning is to make efficient and productive use of the land. For any particular land use, certain areas are better suited than others. Efficiency is achieved by matching different land uses with the areas that will yield the greatest benefits at the least cost. Efficiency means different things to different people, however. To the individual land user, it means the greatest return on capital and labor invested or the greatest benefit from the area available. Government objectives are more complex: they may include improving the foreign exchange situation by producing for export or for import substitution.

***Equity and acceptability****.* Land use must also be socially acceptable. Goals include food security, employment and security of income in rural areas. Land improvements and redistribution of land may be undertaken to reduce inequality or, alternatively, to attack absolute poverty. One way of doing this is to set a threshold standard of living to which those of target groups should be raised. Living standards may include levels of income, nutrition, food security and housing. Planning to achieve these standards then involves the allocation of land for specific uses as well as the allocation of financial and other resources.

***Sustainability.***Sustainable land use is that which meets the needs of the present while, at the same time, conserving resources for future generations. This requires a combination of production and conservation: the production of the goods needed by people now, combined with the conservation of the natural resources on which that production depends so as to ensure continued production in the future.

A community that destroys its land forfeits its future. Land use has to be planned for the community as a whole because the conservation of soil, water and other land resources is often beyond the means of individual land users.

1. **The focus of land-use planning**

*Planning is for people.* People's needs drive the planning process. Local farmers, other land users and the wider community who depend on the land must accept the need for a change in land use, as they will have to live with its results.

*Land-use planning must be positive.* The planning team must find out about people's needs and also the local knowledge, skills, labor and capital that they can contribute. It must study the problems of existing land-use practices and seek alternatives while drawing the public's attention to the hazards of continuing with present practices and to the opportunities for change. Regulations to prevent people doing what they now do for pressing reasons are bound to fail. Local acceptability is most readily achieved by local participation in planning. The support of local leaders is essential while the participation of agencies that have the resources to implement the plan is also important.

*Land is not the same everywhere.* Land is, self-evidently, the other focus of land-use planning. Capital, labor, management skills and technology can be moved to where they are needed. Land cannot be moved, and different areas present different opportunities and different management problems. Nor are land resources unchanging: this is obvious in the case of climate and vegetation, but examples such as the depletion of water resources or the loss of soil by erosion or salinity are reminders that resources can be degraded, in some cases irreversibly. Good information about land resources is thus essential to land-use planning.

*Technology.* A third element in planning is knowledge of land-use technologies: agronomy, silviculture, livestock husbandry and other means by which land is used. The technologies recommended must be those for which users have the capital, skills and other necessary resources; that is, appropriate technology. New technologies may have social and environmental implications that should be addressed by the planner.

*Integration.* A mistake in early attempts at land-use planning was to focus too narrowly on land resources without enough thought given to how they might be used. Good agricultural land is usually also suitable for other competing uses. Land-use decisions are not made just on the basis of land suitability but also according to the demand for products and the extent to which the use of a particular area is critical for a particular purpose. Planning has to integrate information about the suitability of the land, the demands for alternative products or uses and the opportunities for satisfying those demands on the available land, now and in the future.

Therefore, *land-use planning is not sectoral*. Even where a particular plan is focused on one sector, e.g. smallholder tea development or irrigation, an integrated approach has to be carried down the line from strategic planning at the national level to the details of individual projects and programmes at district and local levels.

**Planning at different levels**

Land-use planning can be applied at three broad levels: national, district and local. These are not necessarily sequential but correspond to the levels of government at which decisions about land use are taken.

Different kinds of decision are taken at each level, where the methods of planning and kinds of plan also differ. However, at each level there is need for a land-use strategy, policies that indicate planning priorities, projects that tackle these priorities and operational planning to get the work done. The greater the interaction between the three levels of planning, the better. The flow of information should be in both directions (Figure 6.1). At each successive level of planning, the degree of detail needed increases, and so too should the direct participation of the local people.

*National level.* At the national level, planning is concerned with national goals and the allocation of resources. In many cases, national land-use planning does not involve the actual allocation of land for different uses, but the establishment of priorities for district-level projects. A national land-use plan may cover:

 land-use policy: balancing the competing demands for land among different sectors of the economy food production, export crops, tourism, wildlife conservation, housing and public amenities, roads, industry;

 national development plans and budget: project identification and the allocation of resources for development;

 coordination of sectoral agencies involved in land use;

 legislation on such subjects as land tenure, forest clearance and water rights.

National goals are complex while policy decisions, legislation and fiscal measures affect many people and wide areas. Decision-makers cannot possibly be specialists in all facets of land use, so the planners' responsibility is to present the relevant information in terms that the decision-makers can both comprehend and act on.

*District level.* District level refers not necessarily to administrative districts but also to land areas that fall between national and local levels. Development projects are often at this level, where planning first comes to grips with the diversity of the land and its suitability to meet project goals. When planning is initiated nationally, national priorities have to be translated into local plans. Conflicts between national and local interests will have to be resolved. The kinds of issues tackled at this stage include:

 the siting of developments such as new settlements, forest plantations and irrigation schemes;

 the need for improved infrastructure such as water supply, roads and marketing facilities;

 the development of management guidelines for improved kinds of land use on each type of land.

*Local level.* The local planning unit may be the village, a group of villages or small water catchments. At this level, it is easiest to fit the plan to the people, making use of local people's knowledge and contributions. Where planning is initiated at the district level, the programme of work to implement changes in land use or management has to be carried out locally. Alternatively, this may be the first level of planning, with its priorities drawn up by the local people. Local-level planning is about getting things done on particular areas of land - what shall be done where and when, and who will be responsible.

*Examples are:*

 the layout of drainage, irrigation and soil conservation works;

 the design of infrastructure - road alignment and the sitting of crop marketing, fertilizer distribution, milk collection or veterinary facilities; and

 the siting of specific crops on suitable land.

Requests at the local level, e.g. for suitable areas to introduce tobacco or coffee, must be met with firm recommendations. For instance, "this land is suitable, this is not; these management practices are needed; it will cost so much and the expected returns are so much".

Planning at these different levels needs information that is at different scales and levels of generalization. Much of this information may be found on maps. The most suitable map scale for national planning is one by which the whole country fits on to one map sheet, which may call for a scale from 1:5 million to 1:1 million or larger. District planning requires details to be mapped at about 1:50000, although some information may be summarized at smaller scales, down to 1:250000.

For local planning, maps of between 1:20000 and 1:5000 are best. Reproductions of air photographs can be used as base maps at the local level, since field workers and experience show that local people can recognize where they are on the photos.



Figure: Two-way links between planning at different levels (FAO, 1993)

**Land use in relation to sectoral and development planning**

Land-use planning is non-sectoral by definition but, unless a special planning authority is set up, a plan must be implemented by sectoral agencies - in agriculture, forestry, irrigation, etc. Implementation will call for help from the different extension services.

There can be no clear boundary between land-use planning and other aspects of rural development. For example, a desirable change in land use may be the introduction of a cash crop. Successful management may require the use of fertilizer. This cannot be done unless there are local centers for fertilizer distribution, effective advice on its use and a system of credit for its purchase.

Local services will be of no use without an adequate national distribution system and the sufficient manufacture or allocation of foreign currency for imports. Building a fertilizer factory and organizing national distribution are certainly not part of land-use planning but they may be essential for the success of planned land use. On the other hand, the sitting of local distribution centers in relation to population and suitable land could well be part of the work of a land-use planner.

Therefore, there is a spectrum of activities ranging from those that focus on the interpretation of the physical qualities of the land, for which the land-use planner will be largely responsible, to those that need a combined input with other technical specialists. Furthermore, where matters of national policy-adequate prices for crops, for example, are prerequisites for successful land use, the planner's job is to say so clearly.

**People in planning**

Land-use planning involves getting many different people to work together towards common goals. Three groups of people are directly involved:

***Land******users****.* These are the people living in the planning area whose livelihood depends wholly or partly on the land. They include not only farmers, herders, foresters and others who use the land directly but also those who depend on these people's products, e.g. operators in crop or meat processing, sawmills and furniture factories. The involvement of all land users in planning is essential. Ultimately, they have to put the plan into effect and must therefore believe in its potential benefits as well as in the fairness of the planning process.

The experience and determination of local people in dealing with their environment are often the most neglected, as well as the most important, resource. People will grasp development opportunities that they themselves have helped to plan more readily than any that are imposed on them. Without the support of local leaders, a plan is not likely to succeed. Achieving effective public participation in planning is a challenge. Planners have to invest the time and resources needed to secure participation through local discussions, by broadcasting and newspaper articles, through technical workshops and extension services. Imagination, a sincere interest in people and the land as well as a willingness to experiment mark the more successful efforts.

***Decision****-makers.* Decision-makers are those responsible for putting plans into effect. At national and district levels, they will usually be government ministers; at the local level, they will be members of the council or other authorities.

The planning team provides information and expert advice. The decision-makers guide the planning team on key issues and goals while also deciding whether to implement plans and, if so, which of the options presented should be chosen. Although the leader of the planning team is in charge of day-to-day planning activities, the decision-maker should be involved at regular intervals. Decision-makers also have a key role in encouraging public participation through their willingness to expose their decisions and the way they are reached to public scrutiny.

***The******planning******team****.* An essential feature of land-use planning is the treatment of land and land use as a whole. This involves crossing boundaries between disciplines (natural resource, engineering, agricultural and social sciences), so teamwork is essential. Ideally, a team needs a wide range of special expertise; for example a soil surveyor, a land evaluation specialist, an agronomist, a forester, a range and livestock specialist, an engineer, an economist and a sociologist.

Such a range may only be available at the national level. At the local level, a more typical planning team may consist of a land-use planner and one or two assistants. Each must tackle a wide range of jobs and will consequently need specialist advice. Government agency staff and universities may be useful sources of assistance.

**5.2. STEPS IN LAND USE PLANNING**



Figure 5.2. Steps in land-use planning (FAO, 1993)

**Step 1: GOALS AND TERMS OF REFERENCE**

**Responsibility: decision-makers and planners together**

* Define the planning area;
* Contact the people involved;
* Acquire basic information about the area, such as land resources, present land use, infrastructure, population, land tenure, social structure, government, NGOs and commercial organizations;
* Establish the goals;
* Make a preliminary identification of problems and opportunities;
* Identify constraints to implementing improvements;
* Establish the criteria for making decisions on land use;
* Set the scope of the plan;
* Set the planning period;
* Agree on the content and format of the plan; and
* Decide on operational questions for the planning project: personnel, cooperating agencies, timing, and budget

**Step 2 ORGANIZATION OF THE WORK**

**Responsibility: planning team leader and administrator**

 List the planning tasks and activities. For each task:

* identify the people and organizations responsible for or contributing to it
* set out the resources needed;
* estimate the time needed.
* Decide which tasks need to be completed before others can be commenced.

 Draw up a work plan for the project as a whole (table, bar chart or critical path analysis).

 Draw up individual, personal work plans.

 Allocate money and equipment.

 Arrange administrative matters and logistics:

* Check and arrange security clearances for staff and equipment, e.g. for the purchase and use of maps, air photographs and computers.
* Budget for staff, equipment and transport costs
* Provide for: transport (vehicles, spares, fuel, servicing); equipment; office facilities.
* Provide and coordinate technical support: inputs from other agencies, field assistance, laboratory, cartography, secretarial.
* Make provision for wet or hot seasons, public and local holidays, contingencies and iteration of steps in the planning process

Step 3: ANALYSIS OF PROBLEMS

**Responsibility: planning team**

• Collect data on the existing situation; where possible, compile maps:

* population;
* land resources;
* employment and income
* present land use
* production and trends;
* infrastructure

• *Sources*: maps, satellite imagery, air photographs, censuses, departmental records. Check in the field whether the sources are reliable and up to date.

• Identify and map:

 land units

 land-use systems.

• Identify problems of land use:

 nature and severity, land units and land-use systems affected;

 analysis of causes

• *Methods*: interviews with land users, local leaders, extension staff, agencies; field reconnaissance.

• Prepare problem statements

Step 4: IDENTIFICATION OF OPPORTUNITIES FOR CHANGE

**Responsibility: planning team**

 Based on the goals from Step I and problem statements from Step 3, isolate problems for which solutions other than land-use planning must be sought.

 Generate a range of options for solving each problem, in terms of:

* opportunities: the people, land resources, improved technology, economic measures, government action;
* land-use strategies: no change, maximum production, minimum investment, maximum conservation, maximum equity;
* kinds of production, the role of conservation, self-reliance versus external investment
* Develop realistic options that best meet the needs of production, conservation and sustainability and that minimize conflicts of land use.

 Prepare outline budgets and time frames for each option.

 Present the problem statements (from Step 3) and the alternatives for change in terms suitable for public and executive discussion

**Responsibility: decision-makers**

 Decide if the goals are attainable.

 Select the priority problems.

 Choose the most promising alternatives for a feasibility study; specify targets.

 Specify action needed at other levels of planning.

Step 5: LAND SUITABILITY EVALUATION

* **Responsibility: planning team**
* Describe land-use types in sufficient detail for subsequent analysis.
* Select land qualities and land characteristics to be used in comparisons of land-use requirements with land.
* Map the land units and determine their relevant land characteristics and qualities.
* Set limiting values to land-use requirements, to be used for determining class limits for land suitability. Take into account sustainability and the ratio of benefits to inputs.
* Match land use with land:
* compare land-use requirements with land qualities or characteristics to determine provisional land suitability classes;
* consider modifications to land-use types, in order that they become better suited to the land;
* consider land improvements that could make the land better suited to the land use.
* Map land suitability for each land-use type.
* Plan for research needed: additional surveys, research by outside agencies or within the land-use plan

**Step 6:**

**Responsibility: planning team**

**APPRAISAL OF ALTERNATIVES: ENVIRONMENTAL, ECONOMIC AND SOCIAL ANALYSIS**

The following studies refer first to individual combinations of land use with land units that have been classed as suitable in physical terms and, second, to alternative combinations of land use that are being considered in the plan.

o ***Environmental impact assessment*:** soil and water resources, pasture and forest resources, wildlife conservation, resources for tourism and recreation; off-site effects.

o ***Financial analysis*:** are the proposed land-use types profitable for the farmer or other land users?

o ***Economic analysis*:** what is the value of the proposed changes to the community, within and beyond the planning area? Are there areas of land of critical importance (for production or conservation) for certain uses?

o ***Social impact***: what effects will the proposed changes have on different sections of the community, especially women, minority groups and the poor?- *Strategic planning*: how do the proposed changes in laud use affect wider aspects of rural development planning, including national goals?

Step 7:

CHOICE OF THE BEST OPTION

**Responsibility: planning team**

 Set out a series of options for the allocation or recommendation of land-use types to land units. Also state their evaluation in terms of land suitability and environmental, economic and social analysis.

 Set out the consequences of these options in terms of the goals and planning objectives.

 Present the options and their consequences in a way that is appropriate for review.

**Responsibility: planning team and decision-makers**

 Make arrangements for consultations with the communities affected as well as with the implementing agencies; obtain views about feasibility and acceptability.

 Assemble and review the comments received. In the light of these, make any necessary changes to the options.

**Responsibility: decision-makers**

 Decide if the response to comments is adequate.

 Consider the options in terms of goals and policy criteria.

 Choose the best option.

 Authorize preparation of the plan

**Step 8 PREPARATION OF THE PLAN**

**Responsibility: planning team**

 Prepare maps - the basic or master land-use plan and supporting maps.

 Set out the land-use allocations and recommendations, based on the preferred option selected in Step 7. Give descriptions of land-use types, including management recommendations on each kind of land.

 Set targets for achievement, by land-use type, area and agency. Specify how they will be reached. Check that they are within the capabilities of the agencies and infrastructure.

 Draw up logistic preparations, specifying the capital works, recurrent inputs and responsibilities for implementation.

 Establish mechanisms for monitoring progress and revising the plan (Step 10).

 Make arrangements for research needed to support the plan.

 Determine the finance needed for each operation and determine sources of funds.

 Write the report - executive summary, main report, maps and appendixes.

 Establish mechanisms for communication with, and the participation of, all institutions involved.

 Prepare public relations material

**Step 9. Implementing the plan**

* Implementation involves a wide range of practical activities, many of which lie beyond the scope of these guidelines. The following refer specifically to roles that the planning team may undertake.
* Ensure that the changes recommended in the plan are correctly applied in the plan; be available for technical consultations; discuss with implementing agencies any suggested modifications.
* Help to maintain communications between all people and institutions participating in or affected by the plan, i.e. land users, sectoral agencies, government, non-governmental organizations, and commercial organizations.
* Assist in coordination of the activities of the implementing agencies.
* Assist in institution-building by strengthening links between existing institutions, forming new bodies where necessary and strengthening cooperation.
* Focus on the participation of the land users; ensure adequate incentives
* Organize research in association with the plan; ensure that results from research are communicated and, where appropriate, incorporated into the plan.
* Arrange for education and training of project staff and land users

**Step 10: MONITORING AND REVISION**

* List the goals and criteria achievement agreed in Step 1. Add any that emerged later in the planning period
* Gather data relevant to each criterion of attainment: physical, economic and social
* Compare what has been achieved with what was planned. Identify elements of success and failure.
* Seek explanations for failures. Were they caused by:

o Incorrect assumptions of the plan?

o Changed economic or political circumstances?

o Logistic problems of implementation?

o Problems of communication and participation?

* Review the goals: are they still valid?
* Initiate modification or revision of the plan:
* minor modifications through action by implementing agencies; and larger revisions by the preparation of proposals and reference back to decision-makers