

# The new FAO approach to land use planning and management, and its application in Sierra Leone

Andrea Kutter<sup>1</sup>, Freddy O Nachtergaele<sup>1</sup> and Willy H Verheye<sup>2</sup>

## ABSTRACT

The FAO *Framework for Land Evaluation* states that the use potential of land depends on both biophysical and socio-economic conditions. Nevertheless, current assessments are oriented mainly towards the evaluation of the physical environment, and most land evaluation studies are limited to predicting theoretical production potentials, without addressing the questions: how can this potential be tapped by the users and what constraints have to be removed? Because this situation remains remote from the realities in the field, it provides only a weak basis for land management and land use planning. Since its appointment as task manager for the implementation of Agenda 21, Chapter 10, FAO has been promoting a new approach which emphasizes the integration of physical, socio-economic and institutional aspects of land use, as well as the need for the active participation of all stakeholders in decision-making. This integrated approach has the advantage that it better meets the needs of the stakeholders; consequently, it has a better chance of implementation at grassroots level. In our example, this approach is applied in Sierra Leone, a country characterized by demographic pressure, mismanagement of resources, civil war and declining crop production. It is obvious that depletion of soil fertility is not the only constraint to production. It follows that if land use planning is to improve the situation, it must square up to the difficult conditions encountered by the people, as well as to the conditions of the land.

The FAO *Framework for Land Evaluation* [6] states that the potential of land for various uses depends on both biophysical and socio-economic conditions. The difficulty of assessing simultaneously the impact of such diverse conditions—the former being relatively stable and the latter highly variable in space and time—has led to a two-stage approach, with evaluation of the physical environment followed by socio-economic analysis, including the institutional and legal aspects.

Because land evaluation has been carried out mainly by soil scientists and agronomists, the assessment of land use potential has often been restricted to evaluating soil, terrain and climate, and to identifying physical constraints and remedial interventions. More sophisticated studies include an economic analysis, while in recent years crop growth simulation models and GIS have also been used in order to achieve a more quantitative evaluation.

The majority of land evaluation studies have focused on assessing the theoretical production potential. Little or no attention has been paid to the extent to which this potential can be, or has been tapped by the users.

This evolution carries a danger. Linking planning with simulation modelling and academic research may lead to a situation where the development of the tools becomes an end in itself, and where technical criteria override common sense. This can be observed in the

numerous papers on land evaluation that are published in esteemed scientific journals, which concentrate more on correlations between physical parameters and yields than on anything else. However, high correlations obtained within farmers' fields are dismissed by people with field experience. They suggest to policy makers that land management and land use planning are no more than a mathematical exercise, and one that may safely be entrusted to the computer. Equally, since the results and recommendations of this approach are often far away from field realities, they constitute a very weak basis for land management.

The key problem is not to find correlations for yield predictions; it is to assess the conditions that allow people to obtain an optimum benefit from the land on a sustainable basis. It is particularly important to understand why land users frequently take decisions which do not correspond with what planners consider to be optimal. Clearly, land users take into account factors that are not considered in the technical approach to planning, and it is therefore of utmost importance that these factors be investigated and their impact integrated in the planning process from the beginning [32].

## NEED FOR A NEW APPROACH

In many countries, soils are being used with an increasing intensity to meet the needs of growing populations. Higher demands for food and increasing material expectations call for the optimization of the use of available natural resources and a more even distribution of wealth. The two major factors in this regard are land and people, the former because it is finite and the latter because their demands for land are increasing (Table 1).

The relationships between land and population have an impact not only on food production and malnutrition, but also on competition for land, mismanagement and environmental degradation, mass migration and political conflicts. These issues are symptoms of a fundamental problem, ie, conflict resolution mechanisms are not coping with technologic advances and increasing population [15, 18, 19].

Over the past 20 years, FAO has prepared guidelines for land use planning [14] and has gained experience in the identification of physical land constraints and remedial land interventions [7, 8, 11], the management of problem soils [5, 9, 10, 11, 12] and data collection/retrieval for land evaluation and land use purposes. In the process, data collection and interpretation has advanced beyond the narrow bounds of soil science, focusing on the broader land requirements of specific crops and cropping systems [3, 17].

<sup>1</sup> Land and Water Development Division, FAO, Rome, Italy

<sup>2</sup> Laboratory General Pedology, RUG, Krijgslaan, 281, B-9000 Gent, Belgium

**TABLE 1** Land, population and land use in the world [4, 13, 15, 16, 19, 30]

Arable land	potential	- 1993	3030 million ha
	presently used	- 1995	1451 million ha
Land degradation and land losses:	1995		
	attributed to deforestation		580 million ha
	attributed to overgrazing		680 million ha
	attributed to fuelwood needs		137 million ha
	attributed to agricultural mismanagement		550 million ha
	attributed to industry/urbanization		19 million ha
Population	1900		1650 million
	1970		3600
	1990		5300
	1995		5700
	2050		10000 (projected)
Per capita available arable land	1900		1.00 ha (approximately)
	1970		0.41 ha
	1990		0.27 ha
	1995		0.25 ha
	2050		less than 0.15 (projected)

Note: Arable land = land under temporary crops (double-cropped areas are counted only once), temporary meadows or mowing or pasture, land under market and kitchen gardens and land temporarily fallow (less than five years). The abandoned land resulting from shifting cultivation is not included in this category. Data for "Arable land" are not meant to indicate the amount of land that is potentially cultivable [17]

The principles outlined in the FAO Framework for Land Evaluation have been applied in rural development and land assessment studies all over the world, not only by FAO but also by many other institutions or individuals. Many projects have, however, remained in the study phase and did not have any practical impact. Many soil conservation studies can even be considered failures in relation to the amount of effort and funding involved [25, 34, 1, 24, 27, 20, 2, 28]. An important reason for this is the failure of institutions to integrate such diverse human needs, and to develop the necessary management systems at local, national and international levels. It may be deduced that the classical land evaluation approach has not provided relevant answers for a rapidly changing society. In particular, it seems to be affected by the following four major problems [33]:

- the failure to address relevant issues of food supply and soil conservation, which in a given situation or locality are both technically sound and socially acceptable. The approach advocated is often too technical.
- the difficulty in integrating all disciplines and activities involved in or affected by land use, linked to institutional weakness as regards developing and properly implementing the plans. The approach is too sectoral and lacks multidisciplinary.
- the problem of sufficiently involving and empowering the stakeholders. Land evaluation sometimes ignores the most urgent needs and priorities of the people, and through its top-down approach suffers from a lack of participation at grassroots level.
- the inability to link production and development issues satisfactorily with the environmental aspects of a sustainable land use.

In the face of a global situation that is rapidly becoming

more intense and more complex—and which may lead to serious conflicts—a strategy is required that allows the sustainable management of natural resources.

## PRINCIPLES OF THE NEW APPROACH

Since its appointment as task manager for the implementation of Agenda 21, Chapter 10, FAO has been elaborating a more pragmatic and workable concept of land management and land use planning. It acknowledges the role of technical solutions in optimizing land use, but equally the importance of institutional, legal and socio-economic aspects in the implementation of these solutions. While not ignoring the successful results obtained with earlier approaches, the new approach emphasizes a closer integration of these four factors in land management and, in particular, the need for a more active participation of the stakeholders in planning and decision making.

This strategy is not completely new, as it refers back to the basic principles of the FAO framework, and most of the individual components have been in existence for some time. However, it differs from earlier approaches in that land use planning should be concerned not only with decision makers but also with the users of the land. This implies that from the beginning all stakeholders should be involved in the planning process. Within the framework of the natural production and use potential of the land, due attention should be paid to people's aspirations and to the involvement of the users themselves in the conception and implementation of the plans.

The key elements in the development of this approach under field conditions are as follows:

- Land potential is determined in the first place by climate, soil and landform. The range of crops and their potential yields, as well as the nature of other land use types, are functions of these natural resources.
- Land use planning and management involve both a production and a conservation component.
- The degree to which the natural potential can be tapped by the land users depends on technologic know-how, as well as on people's aspirations. The former can be learned and emphasizes the need for an appropriate transfer of knowledge; the latter refers to people's objectives and needs.
- A successful land use plan is not necessarily one that produces most, but one that balances what can be obtained sustainably within the limits of the natural potential with the aspirations of the people.
- The primary objective of most land users is to meet their immediate needs for food, fuel and income. To do so, they use their energy and skills to exploit the available resources in the most cost-effective way. In other words, land users act according to what they think are their best interests. The best strategy for achieving their objectives is to increase production and conserve the productive potential of the land. All they need are the right incentives. This incentive system should have a short-term and a long-term component.
- The most important incentives to produce are [18]:
  - (1) the right to land ownership—as there is no reason to plant perennial crops or apply fertilizers unless there is a guarantee that land users will enjoy the long-term benefits of their labour and other inputs
  - (2) economic incentives and attractive prices for the

produce and expectations of fair remuneration for work

(3) access to information and services (including the transfer of technology, extension advice, etc) and to improved infrastructure (eg, transport networks, storage facilities, etc).

- A purely bottom-up approach has still to be adjusted to fit within the long-term objectives of society's options and policies. Hence, people's aspirations might be too ambitious or short-sighted, and not in line with environmental concerns. A plan for sustainable management therefore includes an environmental component, and requires the direct involvement of the stakeholders in this environmental concern. The major incentives to conserve are:

(1) security of land tenure, for example by ownership or long-term leasehold (this aspect links the incentive for long-term benefit and production referred to above)

(2) access to land conservation techniques that are also productive—where land is scarce, no farmer will relinquish part of his cultivated land for conservation practices that do not lead to production

(3) direct participation of stakeholders from the beginning in both analyzing problems and developing practices that reduce land degradation

(4) legal and punitive enforcement measures, charges and sanctions for those who do not comply with the overall agreements.

## A PROGRAMME FOR MANAGEMENT

A pragmatic programme for land management and land use planning, which should lead to a workable land use policy, involves the following [18]:

(1) *installation of a national task force*, which encompasses both the technical expertise to deal with the various problems and the power to take decisions and legal actions. Experience has shown that it is difficult to create such a group. In practice, the task force should be composed of high-level decision makers (who do not generally have the necessary technical expertise), and be assisted by ad hoc technical groups for specific issues.

(2) *awareness creation* at all levels of society concerning the need to increase production while conserving natural resources. The main aims should be to generate debate on these issues, receive feedback from experience at the grassroots level, and convey the message that governments cannot be expected to resolve every local conflict.

(3) *creation of a national resource database*, with information on physical, economic, legal and social issues (databases, reports, studies).

(4) *identification of the natural resource potential*, and its particular constraints, for a range of possible land use scenarios, including agricultural and non-agricultural uses.

(5) *provision of information to land users* (top-down), and feedback on their objectives, aspirations and priorities (bottom-up). As it is often difficult to consult with all stakeholders individually, this transfer of ideas can be organized through the creation of platforms for negotiation and discussion [26]. This requires the involvement of identified (potential) local resource management groups, local chiefs, NGOs working at village level and planners. Organizational structures at village level have to be identified and existing groups have to be contacted in order to evaluate their potentials and constraints to

work as local area management groups. In many cases, traditional social structures may indicate the most effective way to proceed.

(6) *identification of the needs and constraints to production and conservation faced by local communities*, and suggestions to remedy to the major issues. Usually, local communities already have interesting solutions to hand, but lack the means and technical support to implement them.

(7) *development of land management plans* based on the long-term objectives of government agencies and the stakeholders. Action should be decided on through negotiation. The plan should outline series of actions, define the responsibilities and involvement of the different parties, and define the appropriate rules. Follow-up actions should monitor the application of the plan to ensure that the rules are followed and to assess whether the plan requires modification.

(8) *provision of personnel and means* to implement the plans and enactment of the enabling legislation. Enforcement of management plans or rules can be achieved through social sanctions; it can also be given weight through national legislation.

## APPLICATION: SIERRA LEONE AS A PILOT COUNTRY BACKGROUND

Sierra Leone is a small country in west Africa, with a total land surface of 7.2 million ha and an estimated population of 4.2 million. The average population growth rate is between 2.3 and 2.8 percent per year, and the population density has increased from 31 per km<sup>2</sup> in 1965 to 51 per km<sup>2</sup> in 1994. Although Sierra Leone is endowed with gold, diamonds and bauxite, it is one of the least developed countries in the world. The per capita GDP dropped from US\$ 250 in 1991 to US\$ 210 in 1993, and is still decreasing.

The country faces long-term problems of declining crop production, soil degradation and increasing competition for land. This situation has been exacerbated by civil war. Once an exporter of rice, it has now become a net importer, and at present the bill for external supplies of the staple food amounts to US\$ 22 million per year. It is argued that the main reasons for this are demographic pressure; the current reduction in the fallow period, and the related soil nutrient depletion; and land mismanagement. Aware of this situation, the government has set the highest priority on restoring food self-sufficiency and optimizing the use of land. In this context, an FAO assistance project, "Land use planning for optimizing agricultural production in Sierra Leone", was initiated with the following aims:

(1) to develop a rationale for increased production through creating a framework at government level for integrated land use planning and development

(2) to evolve strategies for establishing and implementing a national land use policy.

## PROJECT ACTIVITIES

In line with the eight-step action plan outlined above, the following activities were developed [21, 22, 23, 29, 31]:

(1) *Installation of a national task force*

The objectives of such a group are to identify both land use problems and ways of tackling them.

In Sierra Leone, the existing Land Use Committee (LUC) was identified as the national task force group and the counterpart agency for the project. It is a multidisciplinary government agency, composed of technical experts and planners belonging to various ministries, and is chaired by the Director General of the Ministry of Agriculture and Forestry. Initially, the LUC was only an ad hoc advisory body with a mandate focused on land issues in the western area. In the past, it was also successful in solving conflicts related to forest encroachment around Freetown and issues of land ownership. It has enforced forest replanting after illegal tree cutting. Over the past years, its mandate has gradually been extended to cover the whole country, and the LUC now deals with a variety of matters, including:

- competition between different land users for land
- raising crop yields
- promoting crop diversity
- farming systems
- improving the living conditions of the rural population
- reducing forest encroachment.

At the end of the FAO project, the LUC will collaborate in drafting a national soils policy and finalizing the national land use plan. In particular, it will make sure that the land use policy is integrated in the National Environmental Action Plan (NEAP).

#### (2) Awareness creation

At the beginning of the project, a one-day workshop on land use planning was held to raise awareness of the serious situation regarding natural resources and land use in the country. Participants came from various ministries, international donor organizations and several national and international non-governmental organizations. Keynote papers were presented by three national experts and the team leader of the project.

For logistic reasons, this meeting took place in the capital, Freetown. Once security conditions improve, additional awareness creation activities are planned for the provinces, where local leaders and farmers' associations can also attend.

#### (3) Creation of a national resources database

An important prerequisite for land use planning is the creation of a national land resources database providing all available information on climate, soils and landforms in a single and easily retrievable format. As part of this exercise a computerized database system was conceived, with facilities to enter all available data (including information from older studies) and retrieve them for various uses through an adapted interface. All agroclimatic information from the 62 stations in the country was entered into the system. A new agroclimatic map was drafted, and a national soil database was established, defining the soil composition of the 44 already established land systems. On the basis of this information, an agroecologic zones map will be drafted and natural land use potentials evaluated.

Data interpretation and retrieval have been supported by the introduction of computer models and databases, eg, CROPWAT 7, ECOCROP, ALES and CYPAC, and national staff have been trained in these operations.

#### (4) Identification of the natural resource potential

There is considerable information available about the natural resources of the country; most studies, however, are more than 20 years old. These studies include reports and maps of major land systems, soil associa-

tions, agroclimate and vegetation patterns, and suitability maps for a range of food and plantation crops. The documents—and the methods on which they were based—are sometimes outdated and needed careful checking. Likewise, modern approaches, especially with respect to land evaluation and land use planning, needed to be introduced.

A training course on land evaluation and land use planning was organized for the technical staff of the Land and Water Development Division, and for interested staff members of other technical divisions. The course concluded with a training exercise in land resources inventory techniques. The theoretical part of the training was followed by field excursions, involving suitability assessments, feedback from the land users, farmers' perceptions on land use, and the role and impact of farmers' groups and gender-related aspects in decision making. This training enabled national staff to develop the land suitability evaluation for the most important crops and land utilization types in the country.

It was intended to draft, as a follow-up, suitability maps for the whole country, matching land data with crop growth requirements, but this exercise was interrupted by the coup of 25 May 1997, and the subsequent evacuation of the external project personnel.

#### (5) Gathering information on land use and related issues from the target groups using participatory methods

Although physical criteria may indicate the potential of the land to produce, this does not necessarily mean that the potential is effectively tapped. In this respect, a study was undertaken to define and understand the main socio-economic constraints in the farming systems within the different agroclimatic zones. The results of this study and of a subsequent panel discussion on the subject emphasized that there is scope for significant amelioration in present farming systems and for increased yield outputs if more attention is paid to pricing and marketing of goods; creating an enabling environment for more profitable agriculture; introducing cash crops in the rotation system; and better and timely access to seeds and fertilizers in rural areas.

To avoid a too obvious top-down tendency, the new approach integrates the stakeholders in the decision-making process right from the beginning. In this respect, due attention has been paid to farmers' perceptions on land use, with direct data collection and interviews in 20 villages in various agroclimatic zones and with different farming systems.

Several participatory methods (rapid rural appraisal methods) were used, with the focus on information gathering related to land use matters. Focal points in this study were farmers' attitudes, the role of gender issues, local needs and constraints for optimal rural development. The identification and registration of the problems and needs related to land use in the villages by stakeholders themselves is the starting point of the participatory planning process. The methodology allows them to analyze the causes of the different problems and to identify potential solutions. Finally, the type of support needed (technical, institutional, etc) to solve the problems and improve living conditions is discussed, and recommendations are formulated accordingly.

#### (6) Identification of constraints to production and conservation

Farmers are obviously aware that the potential of their

land is much greater than present outputs indicate. However, because there is little scope for marketing their products, they do not produce more than is actually needed to meet immediate family demands.

Six main constraints to a higher agricultural production were identified:

- poor infrastructure (poor roads, lack of tools, fertilizers and improved seeds)
- no/weak institutional support (communication gap between village level and national level, weak extension services)
- lack of technical knowledge (lack of adapted agricultural techniques, soil conservation measures and alternative farming systems)
- inappropriate marketing conditions (no access to markets, no competition, and weak incentives)
- present land tenure system (plantations versus farming, competition between agriculture, mining and other uses)
- labour shortage (migration, work distribution between genders).

Previous studies suggested that the decline in crop yields is a result of shortening the fallow period because of increased demographic pressure. Our preliminary conclusions indicate that this is only part of the picture, and that in most parts of the country there is no disturbing demographic pressure as yet. However, there does appear to be a migration of younger males to the urban and mining centers and, consequently, most agricultural activities are left to older people, women and children. These people are not able to clear large trees from long-term fallow and therefore prefer a shorter fallow period (five to six years) which they can handle properly. Obviously, nutrient generation on this land is limited.

#### OUTSTANDING PROJECT ACTIVITIES

Because of the military coup, all project activities have been temporarily suspended. Nevertheless, the land evaluation—including assessment of the theoretical land use potential based on technical criteria—can be finalized. Integrating the results of land evaluation, the outcome of the participatory appraisal and the identification of appropriate solutions form the basis for a draft national land use policy.

Attention will be paid to:

- improving technical support (related mainly to a coordinated supply of seeds, tools and fertilizers, and to the provision of credits)
- improving knowledge transfer between research agencies and farmers, with emphasis on the importance of extension services (this involves better training of extension staff in agricultural techniques, soil conservation measures and alternative farming systems)
- improving road systems (feeder roads in particular and the marketing system in general)
- creating incentives to keep younger people in rural areas
- reviewing and eventually adapting the land tenure system, in close consultation with village authorities (particularly where the system hampers long-term development and land conservation aspects)
- considering ways of promoting gender-oriented planning and actions, as a means of curbing migration from the rural areas.

The proposals will be presented in a discussion forum

towards the end of the project. The feedback received will be incorporated in the final proposal document on national soils/land use policy.

#### CONCLUSIONS

The Sierra Leone project is a pilot project to implement in the field the new FAO approach to land use planning. The aim is to demonstrate that closer integration of physical, socio-economic, legal and institutional components, combined with a stronger participatory component, makes land use planning a useful tool to tackle land issues and optimize land use.

Certainly, the physical environment determines the natural potential of the land to a large extent, but there is no guarantee that this potential is effectively tapped. On the basis of climatic and soils criteria, the best cassava land in Sierra Leone is located in the subcoastal areas, with suitability gradually decreasing towards the center and the north. In reality, cassava—being the staple food—is grown almost everywhere in the country, particularly in remote areas where communications are difficult and subsistence agriculture predominates.

Under conditions of persistent civil war and rebellion in the provinces, a situation has developed where farmers are now cultivating whatever crops they can, depending on the availability of seeds. Because of current shortages in some parts of the country, cassava is even becoming a cash crop. The production levels in this case, however, are not determined by the natural land potential but by the trafficability of roads and access to markets.

The evolution in upland rice production marks a similar trend. During the past 20 years, overall production has decreased, in terms of both yields per ha and cultivated areas. This is mainly because farmers have no incentive to produce more than is effectively required to meet family needs and obtain a reasonable market profit. Clearly, improved price and market incentives, independent of biophysical suitabilities, might increase production levels.

Extending the opening of the former technical approach with social and economic considerations provides more realistic perspectives. In addition to the examples cited above, it offers an alternative explanation to insufficient manpower for forest clearing for the shortening of the fallow period in Sierra Leone.

Another important aspect (which has still to be investigated in more detail) will refer to the impact land tenure could have on the introduction of long-term sustainable development programmes. This is particularly relevant to areas under customary law (where the long-term leasing of land is not evident), which might hamper the introduction of amelioration or conservation measures with long-term effects. This could also hold true for the application of fertilizers or the planting of tree crops, where benefits can be expected only after several years.

The involvement of stakeholders right from the beginning, and the identification of problems that directly affect their primary needs are an additional argument for them to effectively contribute to the implementation plan.

In the case of Sierra Leone, it can be expected that the moment peace is restored many technical assistance pro-

grammes will be initiated. The existence of a draft national land use policy may then prove a useful tool to orient and coordinate donor inputs. In particular, it will prevent efforts being duplicated or crucial aspects neglected at a time when rehabilitation and the rural development of the country are resumed.

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## RESUME

Le cadre FAO pour une *Evaluation des Terres* établit que l'utilisation potentielle des terres dépend aussi bien des conditions biophysiques que socio-économiques. Pourtant, des évaluations présentes sont orientées principalement vers une évaluation de l'environnement physique, et la plupart des études se limitent à prévoir des potentiels de production théoriques, sans que soient posées les questions: comment les utilisateurs peuvent-ils faire appel à ces potentiels et quelles sont les contraintes devant être supprimées? Cette situation demeurant loin des réalités sur le terrain, elle ne peut apporter qu'un faible début de réponse pour une gestion et une planification d'utilisation des terres. Depuis sa nomination au titre de "task manager" pour l'exécution de l'Ordre du Jour 21, Chapitre 10, la FAO a encouragé une nouvelle approche favorisant l'intégration de l'aspect physique, socio-économique et institutionnel de l'utilisation des terres, et favorisant également le besoin d'une participation active des intéressés dans la prise de décision. Cette approche intégrée a l'avantage de mieux répondre aux besoins des intéressés, et a par conséquent plus de chance d'application au niveau rural. Dans notre exemple, cette approche est appliquée en Sierra Leone, un pays caractérisé par la pression démographique, une mauvaise gestion des ressources, la guerre civile et une production de récolte en déclin. Il est bien évident que l'épuisement de la fertilité du sol n'est pas la seule contrainte à la production. Il s'ensuit que si une planification d'utilisation des terres peut améliorer la situation, elle doit faire face aussi bien aux conditions difficiles des populations qu'à celles de la terre.

## RESUMEN

El *Framework for Land Evaluation* de la FAO declara que el potencial de uso de las tierras depende de condiciones tanto biofísicas como socio-económicas. Sin embargo, los avalúos corrientes están principalmente orientados hacia la evaluación del ambiente físico, y la mayoría de los estudios de evaluación de las tierras se limita a predecir potenciales teóricos de producción, sin darles respuestas a las cuestiones siguientes: como pueden los usuarios beneficiarse de este potencial? y que limitaciones tienen que ser eliminadas? Ya que esta situación permanece distante de las realidades del campo, la misma provee una base bien débil para el manejo y la planificación del uso de las tierras. Desde su nombramiento como institución encargada de la implementación de la Agenda 21, Capítulo 10, la FAO ha estado promoviendo un nuevo enfoque que pone énfasis en la integración de los aspectos físicos, socio-económicos e institucionales del uso de las tierras, y en la necesidad de la participación activa de todos los usuarios en la toma de decisiones. Este enfoque integrado tiene la ventaja que satisface mejor las necesidades de los participantes y, por lo tanto, tiene un mejor chance de ser implementado al nivel de finca. En nuestro ejemplo, se aplica este enfoque en Sierra Leone, un país caracterizado por presión demográfica, mal manejo de los recursos, guerra civil y disminución en la producción de cultivos. Es obvio que el agotamiento de la fertilidad de los suelos no es la única limitación para la producción. Por lo tanto, si la planificación del uso de las tierras persigue mejorar la situación, la misma debe tomar en cuenta tanto las condiciones de vida difíciles de la gente como las condiciones de las tierras.