LAND USE PLANNING FOR SUSTAINABLE DEVELOPMENT

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**Summary**

Initially, some notions on sustainable development are dealt with. Since its inception as the new development paradigm there has been a clear shift from a conservation-based ideology to a more development-oriented understanding. Consequently, the parallel development of different perceptions on land use planning is discussed. The 1992 Earth Summit in Rio de Janeiro (1992) and the publication of Agenda 21 constituted a strongly catalyzing event on sustainable development concepts in rural areas, and new perceptions on planning and management of land resources met at cross roads. In this new context sustainable development involved economic, environmental, social and institutional challenges.

The emerging new approaches are streamlined, at least in theory, and provide governments and institutions with a reference base for addressing, in a contemporary context, in how far a better use of basic life supporting systems like land, water and biota can contribute to make the development of rural areas more attractive, sustainable and equitable for all stakeholders.

**1. Introduction**

A vast majority of households, especially in developing countries, depend on land and other natural resources for satisfying their immediate needs and achieving their long-term livelihood ambitions. Agriculture remains a major activity in most countries except in the industrialized world. Hence, crop production, use and commercialization of forest products, wild food gathering and fishing as well as extensive grazing are substantially contributing to the Gross National Product (GNP) of these countries. At present more
than 44% of the economically active people in the world is still employed in agriculture. For Africa this is even more than 57% (against more than 74% in 1965).

In traditional societies the concept of land extends beyond the production purpose but holds also important social and spiritual values. Land is often the only available resource on which rural families can rely to build their lives. Contrary to western mechanisms of land markets, access to land is often regulated through belonging to a social group like a tribe, clan or community. Whereas informal land markets are a reality in rural Africa, its perception differs from the western context, because African land does not only belong to present users but also to the ancestors and the unborn.

If there have been times that land was abundant for rural households, at least in the eyes of the less informed outsider, pressure on land and its impact on agricultural production and the environment pre-occupies almost every government, both in developed and developing countries. At world level the per capita available land has been reduced from 0.39 ha in 1961 to 0.27 ha in the 1990s. The land/man ratio for the African continent has decreased from 0.62 ha in 1965 to merely 0.26 ha in 1995. In countries like Rwanda and Malawi this figure has even dropped to almost 0.15 ha (Verheye, 1997).

One of the consequences of increasing pressure on agricultural lands is the exploitation of marginal land (too steep, too salty, too shallow, too dry) resulting in degradation. Intensification of agricultural production has not yet given the desired results to respond to this decreasing land/man ratio, mainly because most modern techniques and farming systems are not within the reach of the average African farmer. Moreover, agricultural extension services in these countries only target the better-off rural households, because immediate results are easier to obtain.

The economic reform processes, initiated in the mid-1980s in many developing countries, have aggravated the land access problem. These have contributed in several cases to a considerable increase in GNP for some countries but they have also induced more poverty for the more vulnerable layers of society. In certain countries for example, there is increasing pressure on community lands from commercial entrepreneurs who regard land as a resource base that can easily be acquired at little or no cost. Flawed land legislation and out-of-date tax systems allow large-scale land speculation, depriving ordinary farmers from using these lands and inducing skewed land access. Within this new economic setting, options for alternative land uses such as eco-tourism are becoming important. Big tracts of land are being allocated to new economic agents, but direct benefits for the local populations, who are to be considered as the main historical guardians of these resources, are still scarce.

 Political and social conflicts result in mass movements of people, undermining operational systems of land access. This often leads to the creation of “open access” systems, land degradation and uncontrolled natural resource use. National parks, wildlife reserves and biodiversity conservation areas, once the pride of many African governments, are encroached upon by refugees, having no land access elsewhere. Conflict resolution does not automatically and immediately lead to the restoration of these areas. Opportunistic entrepreneurs take advantage of transitional periods of indecisiveness to mine the last remaining natural resources within these reserves.
Being aware of this explosive situation, national governments both from North and South, and national and international institutions including the UN have for many years focused on promoting a more sustainable and equitable land use. They have urged the formulation of land and land use policies aimed at both conserving land resources and optimizing their production in its largest context. This chapter deals with past and present thinking on land resource management in the context of sustainable development.

2. The Concept of Sustainable Development

Over the past two decades sustainable development has been a major topic on the political agenda of governments and international organizations. The significance and approaches to sustainable development have been extensively discussed in international literature (Pearce, 1989; Morita, 1993; Reed, 1996; Murcott, 1997). In this discussion five major milestones can be identified along the conceptual road to sustainable development.

2.1. Milestones on Conceptual Thinking

The UN Conference on the Human Environment, commonly known as the Stockholm Conference (1972) was one of the first initiatives of the industrialized countries to address concern about the rapidly shrinking world’s resource base, both qualitatively and quantitatively, either through pollution in the developed world or population explosion in the developing countries. A number of catastrophic events (Bhopal, Seveso, Chernobyl, Amoco Cadiz) had already highlighted the risks of an excessive and uncontrolled industrialization. Pressure of civil groups and not directly conviction of policy makers had put this environmental concern on the political agenda. At the same time, structural problems of the Third World were only addressed in an emergency relief context.

Third World policy makers regarded poverty alleviation as the single most important issue to arrest environmental degradation. They highlighted the relation between impoverishment and the degradation of natural resources through processes like soil erosion, deforestation and desertification. Economic growth was put forward as the only viable answer to this problem. The growth model through industrialization, as was the case on the European continent from the mid 1800s until the beginning of the 1960s, was severely discouraged for different reasons. Alternatives like an accelerated development of the agricultural sector had put severe stress on the use of rural land.

The Stockholm Conference resulted in a strong environmental action-oriented approach to sustainable development, with the needs of the third world capturing much less attention.

The second milestone was the publication of the World Conservation Strategy (IUCN, 1980) at the initiative of IUCN, FAO, UNEP and UNESCO. It promoted development objectives through the sustainable utilization of species and ecosystems, while maintaining essential ecological processes and life support systems, including the preservation of genetic diversity. Its point of departure was that development must be compatible with conservation. This strategy provided guidelines for governments to use
their natural resource base for promoting human welfare while respecting the carrying capacity of ecosystems. The follow-up publication “Caring for the Earth” in 1991 (IUCN/UNEP/WWF, 1991) reiterates that sustainable development should aim at improving the quality of human life within the carrying capacity of supporting ecosystems.

The third milestone refers to the work of the World Commission on Environment and Development, known as the Brundtland Commission. Its report “Our Common Future” (World Commission on Environment and Development, 1987) emphasized that it is the present generation’s responsibility to safeguard future generation’s options and opportunities for development by protecting the planet’s environment and natural resources. It considers the alleviation of poverty and deprivation in developing countries as a priority to achieve sustainability. Conservation and enhancement of the resource base are conditions sine qua non for poverty alleviation. The concept of development needs to be broadened so that it does not only cover economic growth but also social and cultural development.

The Earth Summit or United Nations Conference on Environment and Development (UNCED, 1992) constituted the fourth milestone. At this forum the international community formally embraced sustainable development as the standard for measuring development objectives and performance in both North and South. It reflected the southern perspective in emphasizing that basic development is part of a framework that includes environmental issues. The social dimension of sustainable development was initially only vaguely touched, but was later addressed in the wordings of additional UN initiatives: Summit on Human Rights, Vienna 1994; Social Summit, Copenhagen 1995; Women Summit, Beijing 1995.

The output of the Rio Conference is immense and includes, amongst others: a set of global conventions on climatic change and biodiversity, a set of principles for governments and people (the Earth Charter), an action program to promote sustainability (Agenda 21), institutional arrangements to implement programs (the Commission on Sustainable Development—CSD), and awareness raising amongst policy makers at the highest level.

The importance of the use of land and other natural resources in the economy of rural populations is recognized. With a continuing degrading land resource base that is clearly finite, its allocation and use must aim at satisfying the needs in the most equitable and sustainable way. Chapter 10 of Agenda 21 considers that an integrated approach to the planning and management of land resources—more popularly called land use planning—is essential for achieving this.

The most recent development in this thinking was achieved at the Johannesburg meeting in 2002. At this fifth milestone a major additional emphasis was given to poverty eradication and the more efficient use of land, including a better integration of women, on the basis of equality with men, and indigenous communities in decision making and implementation of agricultural activities and a more efficient use of natural resources.
In particular with respect to Africa it was indicated that most countries on the continent have not benefited enough from the opportunities of globalization. Africa’s efforts to achieve sustainable development have been hindered by political instability and ethnic conflicts, leading to the loss of goods and harvests, insufficient investment and the impossibility to stop the negative effects of HIV/AIDS. Major hopes are now established on more concrete actions for the implementation of Agenda 21 in Africa through the New Partnership for Africa’s Development (NEPAD) which commits African leaders to the people of Africa and to a more active South-South co-operation.

2.2. Additional Considerations

Whereas initially the sustainable development concept finds its roots in the protection and safeguarding of the environment, a growing emphasis is nowadays put on economic development. A good indicator for this shift is the re-thinking of African Range Management Policies under the auspices of the Commonwealth Secretariat, the Overseas Development Institute (ODI) and the International Institute for Environment and Development (IIED), dating back to the early 1990s and disseminated through the Woburn conference (Behnke and Scoones, 1991). In particular the critical assessment of the concept of carrying capacity is interesting in this context, not least because it is central in the IUCN, UNEP and UNESCO approach to sustainable development.

Carrying capacity is traditionally assessed by using standard botanical indicators like perennial/annual ratios, bush encroachment, increasing and decreasing species. A undesirable change in these indicators (for instance through grazing) is considered as being a sign of overstocking and environmental degradation. African pastoralists, however, are able to profitably maintain higher stocking rates than commercial beef ranchers without irreversibly degrading the environment by adapting different management strategies. These are mainly based upon opportunistic responses to spatial and temporal variations of the resource base. This approach defines carrying capacity relative to economic objectives and management practices and not only to biological factors. The above also implies that sustainability should not be based on the assumption that ecosystems are stable or at equilibrium and that maintaining an assumed stability automatically results in sustainability. Altogether it challenges the idea that sustainable development should happen within limits of carrying capacity.

Another area of concern is that sustainability is often assessed in a global framework, without considering enough its impact on the day-to-day land user. It is questionable whether national development achievements like the five year consecutive 10% economic growth of Mozambique effectively has contributed to, for instance, household level poverty alleviation in rural areas. This leads automatically to the conclusion that social issues are not yet adequately dealt with in sustainable development concepts.

A refreshing approach which is people-centered and that offers possibilities for addressing directly the local land user, is the “Sustainable Livelihoods Strategy” promoted by the Department for International Development (DFID). While its major objective still has a global character, i.e. reducing by one-half the proportion of people living in extreme poverty by 2015, it has a strong focus on the micro or community level. People rather than the resources they use or the governments that serve them are the
priority concern. It is the underlying motivation of supporting people’s livelihoods that should determine the shape of the support (DfID, 1999).

Often the major livelihood strategies of rural people are not maximization of production or profits, but minimization of risks for the provision of a continuous, steady and assured income. This may imply that sustainable development is not necessarily equivalent to economic growth. Reed (1996) strongly emphasizes that a major weakness of most thinking that has shaped the concept of “sustainable development” wrongly assumes a continuous growth that is supported by unlimited technical innovations and technological breakthroughs. We would like to add that even when these innovations exist, they are not always within the reach of a majority of land users.

2.3. Sustainable Development in a Land Use Management Context

From the above it becomes clear that it is generally accepted that sustainable development considers three dimensions that are closely inter-linked and between which trade-offs are inevitable: environmental, economic and social. Moreover, these three can hardly be implemented if not supported by institutional and political backing.

The environmental dimension generally deals with maintaining a certain stock of natural resources above a certain quality threshold. A number of criteria to assess this dimension can be put forward. These include:

- Biodiversity preservation measured against species richness, abundance, diversity, high number of endemic species, high number of important gene pools.
- Rate of irreversible resource depletion.
- Degree and reversibility of degradation of renewable resources.
- Use rate of non-renewable resources against the potential use by future generations and/or the orderly transition to renewable energy sources.
- Reduction of adverse global impacts.

The economic dimension can be assessed as follows:

- Steady, continuous stream of income at different levels: individual households, communities, countries.
- Increased food availability, real income and cash.
- Maintenance of productivity in the face of stress or shocks like human health, natural disasters, economic conjuncture, social conflicts.
- Real benefits derived from land management.
- Efficiency of investment through cost/benefit analysis.
- Maintenance of a given level of expenditure over time.

While to date the social dimension has been less addressed in the sustainable development discussion, it embraces a wide range of issues that should be considered if sustainable development aims at being socially acceptable:

- Equitable access to resources.
- Equitable access to information and services.
Protection of acquired rights.
- Redistribution of wealth derived from land use and management.
- Active participation of all stakeholders in policy and law development.
- Governmental and local accountability for resource use and good management.
- Respect for and valuing indigenous knowledge, local diversity and rural populations’ livelihood strategies.
- Room for social and cultural evolution without abrupt disruption.
- Fulfilling people’s cultural and spiritual needs.

Trade-offs between the different dimensions of sustainable development can only be made when there is an appropriate institutional capacity to negotiate and implement the different options. This institutional dimension is often neglected or assumed to be in place. It includes formal and informal institutions that affect the use and the transfer of assets to future generations to assure the quality of life in the long run. It can be observed that in many African countries the capacity of institutions is wholly incompatible with their mandates to promote sustainable development. New institutions are created as a response to external factors, but are not perceived by governments and politicians as being really instrumental (like several Ministries of Environment created after the Rio Conference). When institutions are not empowered to execute their role or when they do not have the capacity to continue to perform their functions over the long term without being dependent upon external support, it is highly questionable that sustainable development can be achieved.

Finally, it should be recalled that sustainable development approaches may only be put into practice if there is a political will to do so. The promotion of sustainable development implies a redistribution of political and, consequently, economic power. Empowerment of ordinary land users, participation of civil society in policy and law development, sharing of resources, and redistribution of wealth are all issues that may reduce control of elite groups, and as such may be politically sensitive issues.

3. Traditional Land Use Planning

3.1. Land Capability and Land Evaluation

Identifying and comparing present and potential land uses for different land types, making decisions on land uses types and implementing development programs and activities on the basis of these decisions is an activity that is being implemented by governments, communities and individuals to organize space. Sometimes it is rigid and formal like in urban and industrial planning with hard copy plans passed from top to bottom through a wide number of different administrations. Elsewhere, it is flexible and more informal when considering, for instance, annually re-negotiated trekking routes between different nomadic tribes. These land use plans are orally agreed upon but are supported by very precise though fictitious drawings.

A major breakthrough in land use planning methodology for rural areas dates back to the 1960s with the introduction of the land capability concept (Klingebiel and Montgomery, 1961). This approach was developed to identify and classify areas to be allocated for different agrarian activities like irrigation, mechanized farming, grazing and forestry.
This initial work was followed in the late 1960s and early 1970s by an attempt to add value to the results of soil surveys in order to determine land use potentials and to promote land use patterns according to land potential. This has led to the Framework for Land Evaluation (FAO, 1976), which provides a solid and unique technical basis to compare the present and potential performance of different land uses on different lands. More details on these aspects are discussed in extenso in The FAO Guidelines for Land Evaluation and in Other Land Evaluation Systems.

Over the years, a series of guidelines have been produced dealing with land evaluation for different land uses such as rain-fed agriculture, irrigated agriculture, grazing, and forestry (FAO, 1983, 1984, 1985, 1991). The comparison of the suitability of these different land uses for specific, mostly bio-physical conditions, identifying the most suitable land use between the alternatives and allocating land according to this optimization process was generally considered as land use planning (FAO, 1993).

3.2. Socio-political Setting at the Time of Methodology Development

In order to fully comprehend the logic of the above approach, it is important to consider the general socio-political setting (with an emphasis on the African continent, being a priority region for testing the approach) under which it was developed. In this respect the following points are relevant:

- A majority of countries adhered to a centralized decision-making model, including centralized planning according to multi-year development plans.
- The state considered itself as the major player for food production. This often entailed a marginalization of the small farmer versus the big state-run agricultural enterprises. The rationale for land use as implemented by the peasant and based on inventive strategies of risk avoidance, diversification of production and opportunistic use of key resources was associated with "non-productive subsistence tactics". Western production models like mono-cropping and cattle ranching for beef production were examples to promote and to substitute indigenous land use systems.
- Major land use planning exercises occurred at national and regional scales with clear differences in biophysical conditions. Social conditions were not often included because the human capital was considered as merely an input into the system, i.e. a production factor. At the local level, land use planning relied heavily on mathematical models to determine for instance human carrying capacity in settlement planning which consequently was imposed on people, often with coercive measures. This approach was at the basis of the development paradigm of *ujama* in Tanzania, and communal villages in Mozambique and Angola for example.
- Agricultural policies were directed towards food self sufficiency, hence stressing the importance of crop production over other uses. The use of "green revolution" technical solutions for increasing production was promoted, and research was adapted to these objectives.

3.3. Weaknesses of Past Approaches

Though the above-presented approach may be appropriate for planning purposes within a top-down central planning system, a number of weaknesses and shortcomings can be
identified in a contemporary context of sustainable development. Over time, land evaluation and land use planning have developed into a science rather than into a tool for development. A large number of academics, students and, to a lesser extent, development workers have used the methodology and its applications as a subject for research. The development of methodologies and models has by far outnumbered the practical implementation of land use plans. Apart from this too technocratic approach three major weaknesses can be identified (Verheye et al., 1997):

- decisions are taken beyond the people’s priorities and demands;
- sector and institutional competition has often over-ruled multi-disciplinary thinking, and
- assumptions on the existence of favorable conditions, including the legislative framework for conflict resolution, were often unrealistic.

Deciding for people and not with people. The top-down approach clearly fails to address the legitimate goals and priorities of land users and to involve them in the planning process. It does not tap local knowledge and inventiveness for identifying land use options. Planning options are often based on existing situations, without elucidating the dynamic aspects of society. Imposed solutions are often alien to land users; they do not fit with their own logic and as such will not voluntarily be implemented.

A top-down approach installs a dependency syndrome on government services. Such an approach undermines existing, functional and legitimate land management institutions, often embedded in customary structures. These exercise important executive functions at little or no cost to the government, and in addition tend to be sustainable in terms of personnel and functioning. Their eventual marginalization induces reluctance for populations in government involvement at the local level, and this can jeopardize the implementation of rural development activities.

In relation to conservation, a top-down approach fails to engender local accountability for sound resource management. Without any direct benefit or incentive it will be difficult to promote environmental sustainability.

Sector interests and institutional competition. In the pursuit of national food self-sufficiency policies, governments have placed major emphasis on agriculture and, in particular, crop production. This one-sided view has since been challenged by other sectors such as forestry. Forest plantations on agricultural marginal land can indeed generate higher revenues, while other uses like mining, tourism and urban development have to be considered as alternatives to agriculture.

Governments often organize development through sector development plans prepared by key ministries while economic growth or rural development themes clearly require a more holistic approach at some stage. A sector approach does not necessarily address all the underlying socio-economic factors which contribute to the problem. Thus, sector plans need not only to be combined into an overall development plan at some stage, but a real analysis of the fundamental underlying problems is imperative. The latter does not always occur, mainly due to the self-interests of the line ministries (competition for funds of donor agencies) and lack of effective co-ordination mechanisms for cross sector planning.
Overlapping responsibilities can also jeopardize clear decision making.

**Unrealistic assumptions on the existence of favorable conditions.** Maybe the major weakness of the previous approach was the assumption that a conducive environment for plan implementation is automatically in place or readily available. In fact, land use planning is often an imposed exercise from governments on land users; and thus, it is clearly not demand driven at the local level. Institutional weaknesses (human resources, funds, responsibilities, etc...) at the national level and even more at the local level have very much hampered plan implementation.

A special issue to underline is the weak legislative framework for conflict resolution and land adjudication. In addition, land use plans are not being implemented because they have no legal status. Institutions do not function because they are not legitimized by law. Weak tenure arrangements, controlling access, holding and transfer of land, are often identified as hampering sustainable land management. Some land reform efforts, promoting statutory law in substitution of customary law have created opportunities for circumventing both legislative systems.

An area of particular interest is the legal status of land management units. Often land management units at the local level correspond more with customary territories (territories under the jurisdiction of a chieftaincy) than with modern administrative divisions (like districts) or with biophysically-defined areas (e.g. watersheds). These units are rarely legally recognized and thus cannot easily be registered, providing as such little protection within a “modern” law system.

**4. Modern Land Management Options in a Sustainable Development Context**

In order to better meet contemporary needs a modern more adapted approach has rapidly emerged, especially at the initiative of FAO, which has been appointed as task force manager for the worldwide implementation of Agenda 21 - Chapter 10. The best indicator of the change in conceptual approach is the evolution of the terminology used in the most prominent publications in this period: Guidelines for Land Use Planning (FAO, 1993), Planning for Sustainable Use of Land Resources (FAO, 1995), Negotiating a Sustainable Future for Land (FAO-UNEP, 1997).

Apart from being a direct response to the practical implementation of the sustainable development concept paradigm, the new land management approach has emerged parallel to the evolution of the structural adjustment programs (under the guidance of the IMF and World Bank), and efforts to review agricultural policies in the developing world (under the auspices of FAO). The following political agenda has shaped this new environment:

- The adoption of a food security strategy, which is in line with the livelihood strategies of rural households, implies that more options are open than just crop production. Diversification of income sources is crucial and includes activities that are not traditionally carried out by rural dwellers (like eco-tourism). However it also suggests that there is more potential for conflict between land uses and users, and thus more need for consultation and negotiation.
- Recognition of the private sector, including the smallholder, as the pre-eminent
engine for economic development, and encouragement of private investment in land development within the framework of a negotiation process involving all stakeholders.

- Decentralization of government and devolution of various responsibilities and powers to communities and other civil society structures, with an emphasis on bringing land management closer to its intended beneficiaries and facilitating active local participation in the planning and implementation of resource management. Empowerment and participation are foundations for a rights-based approach, including the right to access to land and other resources.

- Re-conceptualization of the role of the government at all levels, in order to support the foregoing trends. This entails finding optimal levels within the government to assign different land-related tasks—from facilitating land management to land use regulation to registration of land rights—and a growing emphasis on the government as “enabling” private action through training and education, capacity building, facilitating negotiation and balancing disparities in negotiation power, improvement of stakeholder relations, regulation and standard setting of land uses for public interest and welfare.

4.1. Challenges to Support the Economic Agenda

A central question is how a better use and management of land and other natural resources can contribute to income generation, in a sustainable fashion, for different stakeholders at all levels, i.e. rural households, private entrepreneurs, communities, local and central governments. The use and management of natural resources is often approached in a parallel way with a clear separation between private sector initiatives and community development efforts. While the former operates on a free market basis, though often distorted, the latter are frequently facilitated with donor funds (or other external funding mechanisms) that are difficult to sustain over time.

There is also a tendency to push communities to more marginal land resources in favor of the private sector, whose real capacity or genuine interest to “develop” is sometimes over-estimated by governments. Several private sector projects (often agricultural based) promoted by central governments tend to dry out when initial investment incentives (tax cuts, grants, cheap loans) are phased out or used for other purposes (like investment in urban real estate).

The private sector often uses at no or little cost the resource base that belongs to the local populations. Direct or indirect benefits from this private sector development to the communities are more an exception than a right. The only benefits from the resource loss are often a one-time marginal “compensation”, only decided upon against the standards set by the Government. Sometimes a more sustainable form of development in rural areas is being promoted by forging partnerships between different sectors with direct benefits for all.

Efforts that envisage a stronger involvement in resources management, while at the same time stimulating private investment in rural areas, may offer a stronger basis for a balanced and sustainable development process. Land use planning at three levels each with a specific objective may facilitate this process:
- Strategic planning for resource allocation at the national/federal level.
- Regional (district, province) investment-oriented planning.
- Local action-oriented planning.

4.1.1. Strategic Planning

Strategic planning deals with the identification and negotiation of major development priorities on the basis of a set of criteria. This involves collating existing information on land use, identifying already committed land uses (especially reserved areas), analyzing existing sector land use needs, policies and proposals, negotiating conflicts and competing interests. Using a set of practical tools (land evaluation, farming systems analysis), broad land use zones showing the same constraints and opportunities for development are identified. These include priority areas for encouraging specific types of development, areas for targeting specific government or private sector actions, strategic allocation of resources and the provision of services. This exercise may result in a National Land Use Policy including a National Land Use Plan. On the basis of this visionary planning, governments can put in place incentives and disincentives to shape and promote desired land uses in a macro-economic framework.

As part of the development process of the agricultural policy in Rwanda, a series of studies on macro-economics, agricultural production systems and land evaluation for different agro-ecological zones have resulted in region-specific recommendations on future land use (De Wit, 1997). The present and potential performance of a number of existing and promising production systems was compared taking into account approximate costs of soil management interventions (fertilizer use, soil conservation practices, etc…). On the basis of a financial analysis of all production systems in terms of revenue in dollar-per-day, it was possible to develop a platform for decision making on “best” uses for different land types, priorities and nature of required interventions for an eventual intensification of agricultural productions systems, financial benefits derived from improved management interventions. This information has allowed the Government to concentrate on the promotion of a number of characteristic production systems in specific regions. Population growth and the future needs of this population to exceed a minimum poverty threshold were matched with the supporting capacity of the main production systems (agriculture, grazing and forestry-based). It resulted in the projection for the year 2010 that 425,000 rural households (or 33% of the rural population) will be deprived from any revenue from the land. This implies that the Government should consider measures to absorb this population through job creation in other sectors.

The lack of such a visionary plan as in Rwanda can result in valuable resource loss and exacerbate social conflicts. In Sudan, emphasis on agricultural development is put in the drier northern part with irrigation schemes and extensive mechanized farming activities. While irrigation requires major investment and remains expensive, large scale mechanization on fragile soils has led to the Sudanese dust bowl. On the other hand the southern part of the country is environmentally more suitable for the production of a wide range of crops. Mainly for political reasons, this part of the country receives less development attention and remains deprived of investment. A cost/benefit analysis of different production systems for all parts of the country may constitute a solid base for a more balanced decision making on future land use policy.
Strategic land use planning does not necessarily have direct farm level implications in the sense that it does not involve recommendations for putting specific production systems into practice at the land users level. In Ghana, as an example, a pilot strategic planning exercise was conducted by comparing the economic performance of different cropping systems on different soils in the respective five agro-ecological zones. The economic appraisal is carried out by calculating the profitability as annual cash flow for each option. The results show clearly that (i) land is not used up to its capability, and that (ii) present levels of farming outputs can technically be improved.

4.1.2. Local Action-Oriented Planning

Planning at the local level, normally a community or a village, deals with the identification of concrete actions and activities within a global framework, called the strategic plan, to promote local development. Direct stakeholders include village administrations, different community interest groups, co-operations and individual land users, outsiders with an interest of engaging in the community development (eventual investors or neighboring communities).

It is a demand- and opportunity-driven exercise where realistic development options are identified mainly but not solely by the community itself. Indigenous communities usually have more experience of local conditions than outsiders when managing natural resources like pastures, forests, water and wildlife. Technical institutions and development organizations often have experience and knowledge of the outside world (e.g. market information, outsider demand for resources use) that is unavailable to those at the local level. Bringing these different sources of information and knowledge together opens more perspectives for sustainable development. What local land use planning really wants to achieve is a well targeted support to manage land and other natural resources, designed with the full participation of local communities and administered through community-based institutions.

At this level it is crucial to distinguish between the use and management of resources. Traditionally, local planning was confined to the use of the resources by exclusively community members. The community land was defined on the basis of present land use with an expansion area for the needs of future generations, calculated on a theoretical basis. In reality communities have land rights over much vaster areas as part of their heritage or patrimony. While actually used lands are protected by most land laws, larger parts of the territory are left unprotected. Such free land has become increasingly sought after by private investors, while, according to customary law it strongly remains under the management jurisdiction of the communities.

This has led to the concept of community land management units and territories, as opposed to land use units (De Wit, 1996). It is evident that the negotiation on the use of these “free” lands between the community and outsider users is becoming an important part of local planning. This kind of land management planning is an excellent example to attract smaller private investment in rural areas with direct benefits for the communities.

Planning sustainable development on individual land resources deals more with assisting the land holders in developing a number of options to improve the use and management
of their holdings. In practice it will often relate to the improvement of existing farming systems and eventually to an introduction of new promising farming practices. Here, there is a close link with farming systems research and development, as well as with agricultural extension techniques.

As community level land use planning is demand driven, i.e. there is a perceived need for change and action, it is imperative that direct action is taken once there is a clear consensus on what needs or may to be done. Whereas some actions can be implemented by the communities themselves, other activities will need outside intervention, requiring a third level of planning.

4.1.3. Regional Investment Planning

A first objective of investment planning is to channel locally identified initiatives to higher levels, district or province, for attracting private sector investment and/or soliciting assistance from the public sector for the implementation of locally identified actions.

In Mozambique, a number of NGO’s are assisting communities with (i) taking stock of their natural resources, (ii) appreciating their value, (iii) identifying opportunities and constraints for a better use and management, (iv) promoting self help actions and (v) identifying partnership options with the private sector for the use and management of natural resources that fall under the jurisdiction of this community. The investment and partnership options of different communities are then aggregated in a kind of district/province investment portfolio that will be available for consultation at the relevant administration offices. In the future it may be considered to employ a regional investment manager who will facilitate the process and who can be remunerated on the basis of commissions directly derived from successful deals.

During pilot community land use planning exercises in Ghana, a number of opportunities for investment on community land were identified. These include unexplored gold deposits on Agyakoo-Manso land, the presence of “hot springs”, caves, and an impressive natural storey amphitheatre complex with enormous potential for tourism on Oforikrom land (Aidoo, 2000). It was commonly agreed between the local administrations and the Community Land Management Committee that these opportunities should be promoted through the District Assembly.

Often communities need to rely on public services to implement some of their identified actions. This may include technical assistance for drilling a borehole, access to information, training (to improve for instance negotiation skills). This assistance is not always available at the local level, and has therefore to be channeled from higher levels, like the district or province. Likewise, district and/or provincial planning is also required to channel national or regional level investment initiatives to local stakeholders for negotiation and eventual implementation.

4.2. Challenges to Support the Environmental Agenda

The environmental agenda of land use is often perceived as being imposed by external
forces as a sort of policing mechanism to control environmental degradation caused by “ignorant” (the peasants) and “unscrupulous” (the companies) land users. However, mainstream peasants realize well that over the last decades the environment is rapidly changing. In Ghana rural dwellers use both global and local indicators to illustrate this change. They are well aware that certain traditional farming methods such as slash and burn and bush fires are devastating the environment. Agricultural practices that are more adapted to the present day conditions (for instance higher population density) exist, but these are not implemented on a large scale for several reasons.

Rural dwellers are also highly aware of reckless devastation caused by forces beyond their control, and often without their consent, by uses like surface mining and sand winning. Information and local negotiation with local land users and owners on land use by private or government could have avoided several land use conflicts. Private companies are inclined to consider environmentally-friendly exploitation standards if they derive benefits from this.

Addressing the environmental agenda in a positive and incentive-oriented way can result in more satisfactory results than by solely maintaining a set of coercive and restrictive measures. Hence, the promotion of the following actions can create incentives for land users to embrace more environmentally friendly practices.

4.2.1. Local Accountability for Land Use and Management

When communities and other land users are devoid of responsibility for the natural resources they use and manage, this may lead to destructive behavior. Large profit making agricultural holdings often shift their plantations/concessions when natural resources are depleted or are no longer available. Logging of precious woody species is often accompanied by a total destruction of the forest because this exploitation method is cheaper and companies do not have any further interest in the land once it has been mined.

Confronting communities and land users with a set of land management rights and obligations induces a sense of local accountability that may lead to a more conservation-based and sustainable use. The new land law in Mozambique recognizes community land rights on the same footing as the private land title (long term leasehold). The registration of this right (and management obligation) is a powerful and excellent tool to strengthen local empowerment.

The State now needs to reinforce this embryonic form of local accountability with appropriate measures. It is imperative that local communities gain direct and substantial benefits, either monetary or in kind, from sound local level management. The redistribution of financial benefits between different public services (like forestry services, national and provincial cadastre) and the community must be well balanced. In this context it must be observed that forestry legislation already provides some direct benefits to communities, calculated as a fixed percentage (20%) of the annual tax levy of the forestry concession.
4.2.2. Direct Benefits derived from Conservation Measures

There is a general consensus that the conservation of natural resources is more successful when stakeholders derive a direct benefit from the interventions. In his analysis of soil conservation projects and programs in Haiti, Murray (1979) states that the principal determinant of success or failure is the degree to which the new practices are associated with visible increases in annual domestic income for the participating farmers. The most impressive success has been in the domain of terrace and rock wall building, locally called the “tram”, in a high altitude area situated in the proximity of the capital Port-au-Prince. This indigenous conservation technique was mainly used for the cultivation of vegetables with heavy fertilizer use. Erosion control on the excessive steep slopes is only of secondary importance to the farmers, the priority being the conservation of the applied fertilizer. This economically effective use of terracing has made these communities the principal vegetable producers for the urban market.

4.2.3. Education and Awareness Creation

Beyond any doubt, land users are well aware of environmental damages that certain land uses can cause to their resources base. They also dispose of mechanisms, rules and regulations that deal with resource conservation. Customary authorities play a crucial role in the monitoring of the compliance of such rules, though over the last decades, many of these authorities have lost some of their influence.

Large private companies involved in resource exploitation are generally well informed on the environmental damage that is caused by specific land uses, but their response to remedy these does not always exist. Land for such companies is purely a production asset that often is available at little or no cost. Maintaining its production level is more expensive than exploiting it beyond its sustainability level and once depleted, sometimes irreversibly, pursuing access to other tracts of land. Several governments ratify and sign international conservation conventions and develop national plans and strategies to implement these, but monitoring mechanisms and accompanying regulatory legislation remains weak. Local administrators who are in closer contact with land users are badly informed and ill-prepared on centrally-devised conservation policy measures.

Education and awareness creation is thought to be an inter-active and iterative process with NGOs in a central role. An excellent example, is the effort to sensitize and inform the civil society on the contents and implication of the Land Policy and Land Law package in Mozambique. During this reform process, a large number of national NGOs organized themselves as the Land Campaign. Graphic and other material about the policy and law was produced in an accessible format, and its basic principles disseminated down to village level. This process has also brought along an active collaboration between the NGO sector and the State with effective dialogue and working partnerships. The Land Campaign achieved notable successes in areas where it worked with dynamic and committed local and international NGOs, revealing that even at this level people are able to take on board the complex messages of the new law and see immediately how it can help them.
4.2.4. Management and Use of Biodiversity and Mobility to increase Resilience

Livelihood strategies of rural communities focus mainly on a risk-free opportunistic use and management of land and other natural resources. Risk management for agricultural production by pursuing diversity, optimizing labor inputs and assuring a certain income and production spread in time are values that are higher estimated than maximizing production. Over time, land users have developed strategies that respond to these goals, including:

- The exploitation of environmental diversity, i.e. the use of different soil types for specific purposes.
- The exploitation of temporal diversity—taking advantage of different conditions (climatic, economic) over time.
- Pursuing a mix of different land uses (agriculture, collection of woody and non-woody forest products, hunting, charcoal making, fishing).
- The management of mobility.
- The use of a wide diversity of genetic material, or
- The opportunistic use of “key” resources and micro-environments like depressions, valley bottoms, peat soils, swamps.

In response to hostile environmental conditions, communities in the semi-arid and arid areas of Sudan develop land use systems with a high degree of mobility for both livestock (pastoralism and transhumance) and crop production (shifting cultivation). Transhumance and shifting cultivation are regarded by a number of policy decision makers as being retrograde forms of land use. In reality, shifting cultivation on the sandy Goz soils with an extreme low fertility is an appropriate and well adapted land use system as long as no alternatives exist within the reach of these farmers. Over the last 30 years efforts to develop more sedentary forms of agriculture on these soils have resulted in severe land degradation.

The pastoral system exploits ingeniously the rural space and its scarce resources, i.e. for trekking opportunities (pasture and water) and for making deals with host communities over access to resources. There is a tendency now to coercively “sedentarize” the transhumance herders, with some minor interventions like borehole drilling and experiments with improved pastures as a bait. Similar efforts over the continent have often lead to irreversible degradation of the environment. A better management of mobility, with interventions along the trekking routes (water points) and negotiated agreements between different social groups in which compliance is monitored seems more appropriate.

4.2.5. Mechanisms for Promoting Environmental Sound Land Uses

Land policies over the world contain general statements on proposed land uses that have to conform to prescribed environmental conservation principles and guidelines. Practical regulations and local and site-specific incentives/disincentives to promote these on the ground are less common. Over the years a number of mechanisms have been developed to respond to this need.
Tax cuts can be envisaged to encourage desired uses while tax increases can “punish” certain uses. It is well known that in Ghana open surface mining is causing serious environmental damage. It may happen that these mining operations occur in previously established forest reserves or on prime agricultural land, mainly because of a severe lack of co-ordination for land allocation between different ministries. A tax hike for mining companies to shift from surface mining to shaft mining, which is more expensive, would result in a more environmental friendly land use. It also promotes the compatibility of different land uses which, generally speaking, should be favored over exclusive uses.

Certification of wood products by Western consumers is now a general accepted principle to enhance desired management practices in the tropics. The community’s role as a monitor for the compliance of the set rules should be underlined here.

In park and natural reserve management a number of techniques have been developed to shape land use according to conservation standards. Core areas of strict conservation are surrounded by buffer zones with limited prescribed land use for host communities. When some parts of nature reserves are populated (this occurs often during a social unrest situation), economic attraction poles outside the conservation areas, together with the creation of job opportunities should relieve demographic pressure on these resources.

Legal sanctions for the non compliance of standards and agreements exist on paper but are not always implemented due to a deficient monitoring capacity and weak judiciary.

4.3. Social Challenges for Land Use Planning

The overall challenge for land management to respond to the social agenda is to find practical ways for minimizing social exclusion and maximizing social equity. In the following section some of these challenges are highlighted in more detail.

4.3.1. Equal Access to Resources and Protection of Rights

For rural households which depend on natural resources for meeting their livelihood goals, it is obvious that access to these resources must constitute a basic right. In Africa these rights have generally been acquired through historic occupation, and they are administered by customary authorities. Post independence land reforms have invariably tried to replace these indigenous tenure systems, and this policy has undoubtedly resulted in a more skewed land access, with rural communities losing ground to more powerful commercial entrepreneurs.

Recently some countries (Mozambique, Guinea Bissau, Ivory Coast, The Gambia, etc.) have reconsidered legislation on land access and have again recognized traditional land rights. The policies and accompanying legislation not only protect these existing rights, but also stimulate development by better management of these resources.

The Mozambican land legislation considers one kind of right, i.e. the right to use the land on the basis of long term leaseholds, and three ways to acquire such use rights. First, the State confirms existing community rights acquired through occupation according to customary practices. These rights are not new and do not have to be authorized or
registered, the law offering them full legal protection. Second, rights on the basis of good faith occupation are recognized for Internally Displaced Persons (IDP) and others who have de facto occupied land for a certain period of time (10 years) without being contested by any other party. Third, the law considers new requests for land, from investors or others with no previous links to the land in question.

Previously, there existed a norm to value the last way to acquire land rights as having more weight. The law now clearly states that all three channels through which land use rights are acquired are equal. As Tanner (2001) states this ended—at least in law—a notorious practice whereby those who managed to secure title documents or licenses to carry out economic activities, either through the cadastral services or other institutions, felt that they had the right to expel local residents from the area in question. In general the following attributes must be in place to protect acquired rights (De Wit and Lindsay, 2000):

- There is clarity as to the physical location and boundaries of land.
- There are clear and recognized “rules of the game.” It should be clear what rights land owners have, and what powers government or traditional authorities have regarding the allocation of land and regulation of its transfer and use.
- There needs to be freedom from fear that land rights will be arbitrarily taken away or diminished. In other words, there needs to be both an expectation that the “rules of the game” will be enforced, and freedom from fear that the rules will be unilaterally changed without resulting damage being fully compensated.
- There need to be accessible, affordable, fair and effective avenues for seeking protection of rights and for solving disputes.

4.3.2. Equal Access to Information and Services

Information and documentation on land is required to make sound decisions on its use and allocation. A common characteristic of most African countries is a deficient cadastral information system that includes ownership and different rights over land. Whereas most land legislations prescribe that land transactions need to be publicly advertised for a minimum determined time, this usually only happens at a provincial or district capital, far away from the actual stakeholders or interested parties who live in the rural areas. Numerous are the cases where land use rights have changed hands without right holders being properly informed, evidently leading to serious conflicts.

A wide number of rural dwellers are deprived from public services that should facilitate land management. In Angola and Sudan cadastral services are not at all accessible for the ordinary land user. They are still operated in a realm of secrecy with only elite groups having privileged contacts with the administrations and possibilities to access data.

Recent efforts to reform cadastral services in Mozambique making their operational standards more transparent, efficient and client-friendly have had initial success. In a partnership with NGOs, the Inter-Ministerial Land Commission strengthens the provincial cadastre services and now envisages experiments with an embryonic form of district level services. It also has profoundly reviewed leasehold allocation procedures, including a genuine local consultation process with communities before any private
leasehold can be issued. A system is now being devised where part of the costs incurred for service delivery to communities (like community land registration) is being covered by private sector money.

### 4.3.3. Redistribution of Wealth Derived from Land Use and Management

Most countries consider in their legislation that when natural resources are discovered (often subsoil, but not only) and their exploitation is considered, the State has the right to intervene and to expropriate the land. When communities that have existing historical rights over that land do not derive benefits from the exploitation over these resources, conflicts may arise, as has been recently the case in Nigeria and Sudan.

A number of communities have recently questioned this unilateral land expropriation in court and have gained the right to either derive benefits, restitution of land rights or compensation for privation of income. In 1999 local communities neighboring Kruger and Gemsbok National Parks in South Africa were given a share in the State management benefits of the parks.

Other similar mechanisms of profit sharing are currently being tested in Ghana under the concept of the Timber Utilization Contract (TUC). This arrangement is devised to replace the old timber concessions system where harvesting was considered as the “timberman’s” inalienable right to profit from his property, preferably on his terms (Gronow, 1998). The TUC is an exploitation agreement between a contractor, the local communities and the State, identified through land use planning and awarded on the basis of competitive tendering. It includes the provision of Social Responsibility Agreements that allow the local resource owning communities to negotiate direct benefits from the forest resource, legally established as a certain percentage of the annual royalty accruing from operations in the area.

### 4.3.4. Active Participation of Stakeholders in Policy and Legislation Development

A major difficulty and source of conflict can occur between the legality and the legitimacy of land management (De Wit, 2001). Legality is closely related to the policy and legal framework governing land management and the functioning of its implementing institutions. Legitimacy concerns the way a vast majority of rural land managers and users deal with land issues. In other words, when policies and laws do not reflect the ambitions of a majority of land users and the realities of the rural world, then they constitute an obstacle and not a tool for sustainable development. A participatory approach for developing policy and legislation that reflects field reality and practices narrows this gap.

The Mozambican Land Law reform process gives an excellent example on how this approach of policy and law development not only achieves socially just objectives, but also creates a powerful new development tool. The outcome of the process is the result of a subtle interplay and constructive dialogue between multi-interest actors from different sectors covering all layers of society. The empirical analysis of the rural environment, and especially the functioning of the rural household sector, its strategies to use and manage land and other natural resources, its integration in an open market economy and
its socio-economic relations and exchanges with the private sector have largely defined the contents of the Land Policy. The Land Law package is the product of a wide and intensive consultative process and interaction between the public and civil sector, with NGOs often in a lobbying role. The more practical parts of the Land Law have been developed, tested and validated by technical public services and NGOs, before being transferred into legally accepted documents.

Through its participatory approach, the Government of Mozambique has also expressed a genuine desire for partnership to achieve its policy and economic goals. This land law reform program, being conducted with transparency, has created a situation of mutual confidence between stakeholders that is imperative for its successful implementation in the field.

4.3.5. Negotiated Land Management for Conflict Litigation

Competition for access to natural resources between different groups has been a major reason for the outburst of violence in many African countries over the last two or three decades, resulting in excessive human casualties, devastation and deprivation. Angola and Sudan are good examples of these problems. In the central zone of the upper Nile river system in Sudan including Bahr El Arab, Lol, Bahr El Gazal, Bahr El Jebel and Sobat rivers, four major conflicts have occurred at the same time:

- Resource access confrontation between northerner (Arab) and southerner (animist/christian) pastoralists;
- Resource access confrontation between two major southern ethnic groups, Dinka and Nuer;
- Resource access confrontation between the Government of Sudan and the local communities with expropriated land for mechanized farming and oil fields as the stake;
- Resource access confrontation between different segments of the same ethnic groups.

The Lou-Jikany conflict, which involves two major clans from the Nuer tribe, is a good example to demonstrate that local negotiated land use planning is an excellent tool for conflict litigation and resolution. The main causes of the conflict, with fighting starting in 1991, are the rights to fishing grounds, access to water and rights to grazing lands. The Nuer consider lands, water and fish reserves as common properties. When a clan does not have access to certain resources (like the Lou during the dry season because of a lack of a permanent river within their territory) arrangements are made with other clans. However at one stage, the Jikany challenged the “land use plan” and denied access to the resources. The conflict has been escalating over the last years with and estimated 10 000 to 30 000 youths under arms (UNICEF, 2000) and several thousands of casualties.

In order to address the problem, the Akobo Conference was initiated with participation of a wide number of mediators, including leaders from the Nuer and their arch enemy tribe, the Dinka (Wal, 1999). The conference used traditional methods of conflict resolution. An open process of testimony, free expression of grievances, contestation, open deliberation providing information and clarifying issues, etc. resulted in a new “land
management plan” where both clans agreed to share the use of grazing land as a common-pool resource. The outcome of the process was facilitated by a number of technical committees, with their recommendations based on a systems analysis of the situation.

To implement the new land use agreements, the conference established a special court to enforce the decisions. Together with church groups, women associations and ordinary citizens, this court was identified as the monitoring institution.

On the basis of this kind of experience proposals have been made to the Intergovernmental Authority on Development (IGAD) Partner Forum Working Group on Planning for Peace to consider grass roots land conflict mediation and negotiated land use planning as concrete and direct contributions to the peace building process in Sudan. Similar approaches are being experimented within another war-torn country like Angola.

4.3.6. Integration of Vulnerable Groups into Society

One of the direct consequences of social conflicts in Africa, involving countries like Angola, Sudan, Sierra Leone, Liberia, Somalia, and others, is the displacement of millions of rural dwellers away from their zones of origin where they have established their livelihoods, e.g. the IDP. In the first instance, and rightfully so, the international community has responded to this disastrous situation with humanitarian relief interventions. There is a growing understanding now among the aid organizations that it is necessary to make a rapid transition from these relief actions to a more structural developmental series of interventions that may lay the foundations for longer-term recovery to sustainable livelihoods.

Experience shows that at the end of an armed conflict or after a period of relative peace, rural people tend to return to their area of origin. One of the reasons for this return is that in these zones of origin, access to land for restarting their life is easier and tenure security is higher than in other areas. Upon their return the rural dwellers can also rely on a number of (social) safety nets to take up again their livelihood strategies. When in other cases IDP need to be temporarily or permanently resettled, the necessary conditions for them to engage in sustainable development activities need to be created. Two scenarios of resettlement are most common. Firstly, there is resettlement in areas specifically identified for this purpose, often land under the direct control of governments like abandoned state farms. Secondly, resettlement can be negotiated on lands directly under the control of communities. Both scenarios require a set of well thought-out land management activities to make this resettlement successful.

Resettlement on government controlled land in fact resembles the efforts that socialist countries were engaged in when promoting massive “villagization” programs in the 1970s in Africa, or in the large-scale transmigration programs in Indonesia between 1960 and 1990. Lessons from these experiences indicate the need for caution with this approach. During these programs, peasants were often settled on marginal soils for agricultural production, with each household being allocated one plot. This invariably resulted in land degradation and unsustainable production systems. The major issues now to be addressed through land use planning is that IDPs need to be provided with a
minimum threshold of conditions to restart their life. The following development-oriented activities must constitute an integral part of successful resettlement:

- Providing IDP with secure access to land.
- Make sure that the promoted economic activities for IDP (crop production and others) match the specific opportunities and constraints of the prevalent physical and socio-economic environment. Land allocation, size of plots, access to different soil types, etc., need to respond to these conditions. This requires good local knowledge, generally to be acquired through PRA exercises.
- Consider sustainable livelihood strategies as a departure point for rebuilding IDP’s life, and not only crop production.
- Assure that IDPs are willing and capable of engaging in proposed activities and that these are streamlined with their culture and customs (or that they accept the changes).
- Make provisions so that people can fulfill their cultural and spiritual needs.

Negotiated resettlement of IDP on community land and their subsequent integration with the host communities is more complex but offers better possibilities for a sustained peaceful social situation. In practice, it comes to grips with negotiated land use planning between the host communities and the IDP with the government and NGOs in a facilitating role. A crucial issue is also to target the host communities as well as the IDP in order to avoid distortions between the two groups. Indeed, it has been observed that in such schemes host communities may take a hostile position against the IDP because while the latter gain, the host perceives it is losing in the process. Such ethnic conflicts are still emerging in Kalimantan, Sumatra and Irian Jaya in Indonesia.

5. Closing Remarks

The most relevant economic, environmental and social aspects of sustainable development have been discussed above. When it comes to implementation however, the most serious problems are institutional rather than technical. Institutions deal with co-ordination, implementation, regulation, monitoring, conflict resolution, negotiation of land resources use and management.

Institutional problems vary as a function of the level and responsibilities of planning. At the national level there is need for a national task force. This is a high level inter-departmental negotiation forum which is assisted by a technical secretariat including experts from the same ministries/departments. Its functions are to investigate and facilitate the exchange of information, and to support and enable a holistic and integrated approach to land resources management, including strategic planning. The well-defined long-term vision developed by this national task force, including the proper prediction and tracking of land management needs and priorities, is a major element of sustainability in the planning process.

While most members of the technical secretariat continue exercising their regular functions in their host ministries, a small core group of technicians would be detached full-time for a certain period to implement the day-to-day work of the technical secretariat. This set up can
be encouraged initially through a project structure.

**Districts or provinces** are the intermediate level between land users and national decision makers. They have a direct link with the central level, while administrators are also more closely involved in what is going on the ground, i.e. the daily life of the communities. Hence they have an important two-way “channeling” function between communities and central level. In particular it is their role (1) to provide a rapid response to grass-roots needs in subject matter areas where it is competent to do so, such as the provision of all types of information and technical support; and (2) to report and feed back to national/district-level priority needs which can only be met at national level, such as required changes in the legal or policy framework. In addition, they can be instrumental in preparing bye laws to adapt national legislation to specific local conditions.

**Local** level management committees reflect the existing community social organization and their leadership. As a logical consequence of participatory and decentralized land management policies, and of the devolution of power to local communities for managing their natural resources, they are properly placed to streamline the needs of local stakeholders and to promote the local resource management capacity.

This committee is not imposed on the community but is the result of a locally-generated process; it forms a link between the land users and the district. The main functions of a local level management committee are: (1) to identify, discuss and prioritize local needs; (2) to discuss options for the satisfaction of these local needs; (3) to mobilize the communities and other stakeholders to define and participate in development options for their areas using their land and other natural resources; (4) to incorporate concrete actions in local development plans, channel these plans to district development plans, seek funding through the districts; and (5) to provide a forum of contact between the communities, and the higher levels like the district.

The sustainability of a plan or project is directly dependent on the success by which the local level involvement can be achieved, and especially by the way the local stakeholders feel that they are part of their own project, and not of a project that has been imposed from above.

**Glossary**

**Cadastre:** Land information system that keeps records on land parcels like register of ownership, a register of properties recording the value, land use and other attributes.

**Carrying capacity:** Generally referring to a rangeland management concept, indicating the average number of livestock and wildlife that may be sustained on a management unit compatibly with well-defined management objectives. Recent thinking stresses that any specific definition of carrying capacity must be expressed in relation to a particular objective. The concept is also increasingly used in social demography and population studies.

**Demand driven planning:** An operational strategy in which planned activities are determined by people’s demand, willingness and ability to participate in the implementation process and in application of
Internally Displaced Persons (IDP): People that have been uprooted and displaced away from their zone of origin, mainly due to social conflict and war. When this displacement involves crossing national territorial borders, one generally speaks about refugees.

Land/man ratio: The amount of land that is available per head of the population. In general, the land/man ratio is calculated by dividing the total land surface of a country by the number of its inhabitants.

Livelihood strategies: Term used to denote the range and combination of activities and choices that people make in order to achieve their livelihood goals. Livelihood strategies include: how people combine their income generating activities; the way in which they use their assets; which assets they chose to invest in; and how they manage to preserve existing assets and income. Strategies may reflect underlying priorities, such as risk diversification.

Resettlement: A process by which those adversely affected by a physical dislocation from their home places are assisted in their efforts to improve, or at least to restore, their incomes and living standards. In this paper the dislocation is mainly caused by war.

Shifting cultivation: A method of agriculture characterized by the rotation of fields rather than crops, the use of short cropping periods and long fallow periods, and the maintenance of fertility by allowing natural vegetation to regenerate on fallow land. Clearing of new or previously cropped land is often accomplished by cutting and burning the vegetation.

Stakeholder: All individuals and/or groups who are affected by, or can affect, a given operation. Stakeholders can be individuals, interest groups, corporate organizations, public institutions.

Strategic planning: Planning on the basis of pre-identified priorities and criteria.

Sustainability: Something is sustainable when it can continue into the future, coping with and recovering from stresses and shocks, while not undermining the resources on which it draws for existence. These resources may be natural, social, economic or institutional, which is why sustainability is often analyzed in four dimensions: economic, environmental, institutional and social sustainability. Sustainability does not imply that there is no change, but that there is an ability to adapt over time.

Sustainable development: Development that simultaneously takes into account ecological, economic, social, institutional and technical dimensions.

Ujama villages: A political system to convert the location of dispersed farms into central villages in Tanzania, obviously with an objective to provide central services like drinking water supply and medical services to the rural population, but indirectly to have a better (political) control over the local populations; the system turned out later to be a failure.

Transhumance: A way of life in which people migrate seasonally with their herds, usually from lowlands to highlands and back. Such movements are necessary for the year-round care of their animals upon which
they depend. Transhumance is not nomadism since the cyclical migrations are between predetermined, traditional destinations.

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Biographical Sketches

Paul De Wit is an agronomist and soil scientist by formation. He has been working since 1979 mainly for FAO in forestry, land resources assessment, land tenure and rural development, especially in an African context. Since the mid 1990s, he has been active in land policy and legislation development with a special emphasis on rights-based approaches for rural communities and vulnerable people. Through his fieldwork and wide expertise, he has substantially contributed to the development of new land use planning approaches that emerged since the Rio conference in 1992. Other fields of experience include land

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