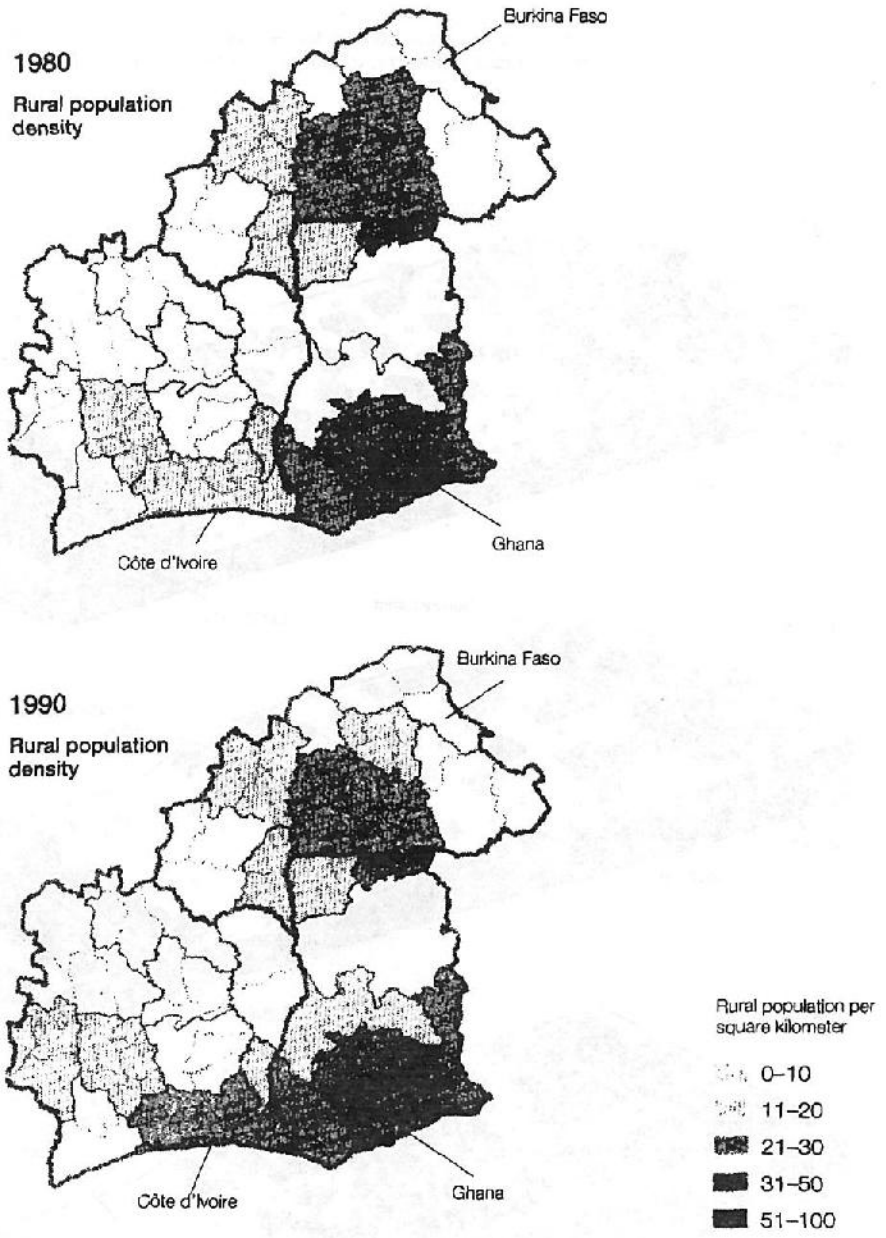
Figure 3 continued



How settlement is changing the land (Figure 4)

In 1973 a thick canopy of evergreen gallery forest bordered the Leraba River, which frequently overflowed and flooded the adjacent grasslands during the rainy season. To the west of the Leraba River in this pilot study area, the flood plain slopes gently upward until it reaches a wooded savannah plateau. A small stream cuts across this savannah. In 1973 this stream was also bordered by gallery forest, a few cultivated fields, and a lone house.

In 1983 that picture was beginning to change. Several farms and fields now dotted the landscape near the stream, and only 85 percent of the savannah woodland remained.

By 1993 farmland had replaced three-quarters of the savannah woodland, and the gallery woods bordering the small stream had been cut down for building materials and firewood. From a central village located in the middle of what had been woodland savannah, footpaths now crisscrossed the area. A wider dirt road had been built from the village, and a few farmers had ventured to cultivate fields on the floodplain. However, the gallery forest around the Leraba River is still intact.

Figure 4 Schematic drawings of a pilot study area on the Upper Leraba River, drawn at ten year intervals, show how resettlement is steadily reducing the number of trees and the amount of unused land.

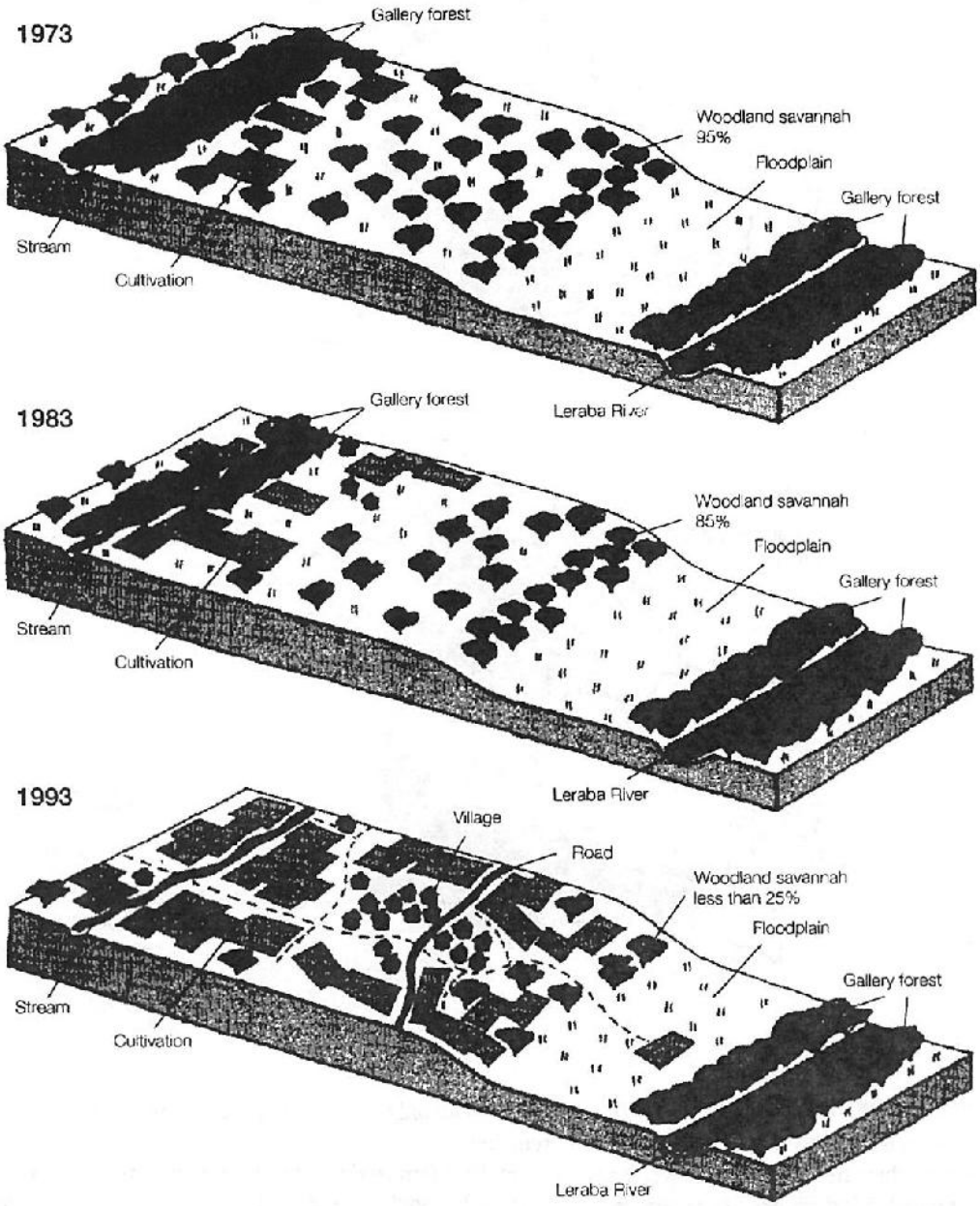
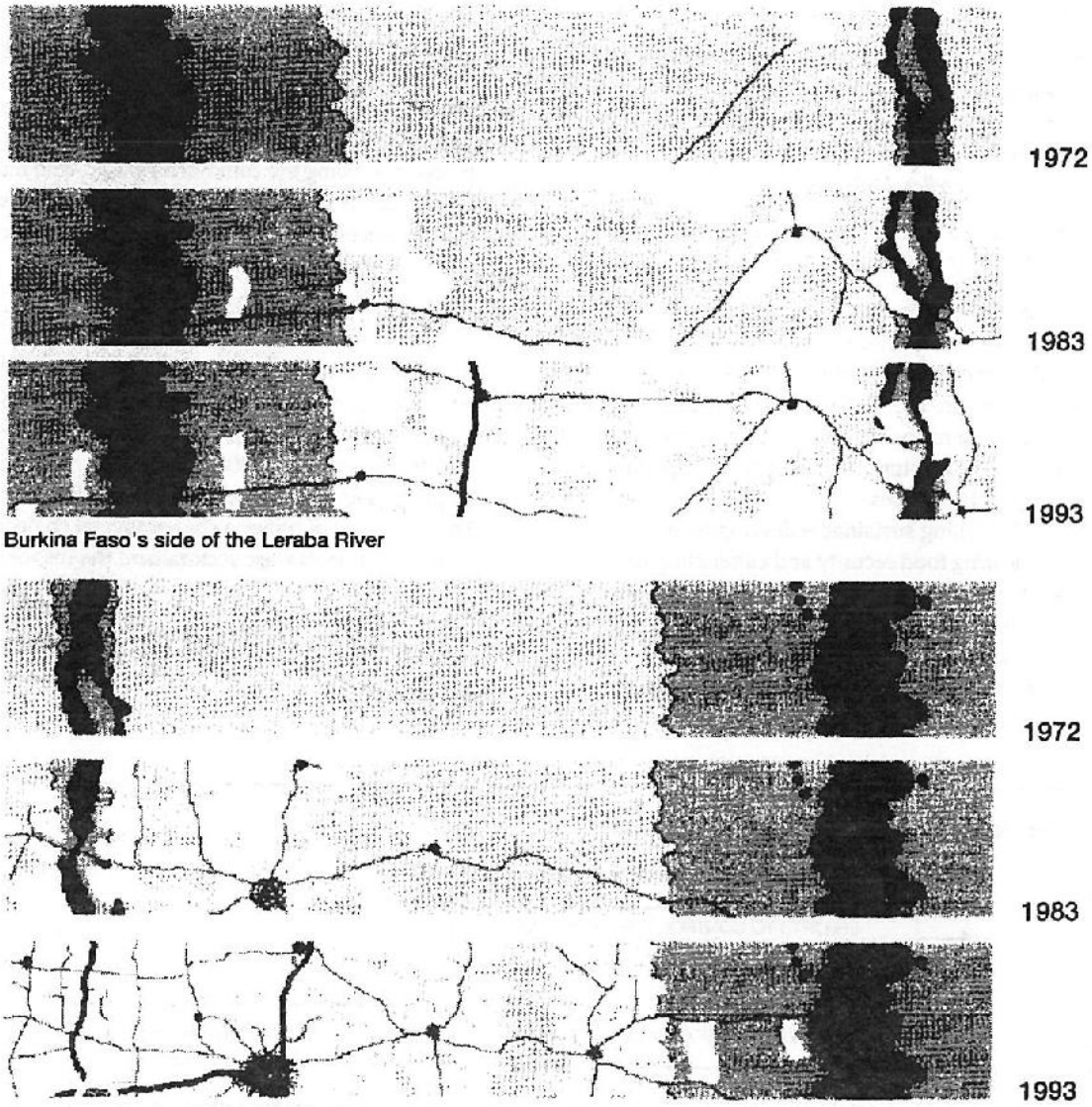


Figure 5 Enhanced aerial photographs, taken in 1972, 1983, and 1993, show different settlement patterns in Burkina Faso and in Côte d'Ivoire in the pilot study area.



Same trends, different patterns

Aerial photos of the well-documented case of the Upper Leraba valley show that development there has not been uniform. On Burkina Faso's side of the river, farmers have large fields separated by unused land. On Côte d'Ivoire's side of the river, cultivated fields are smaller and more densely packed, and a large village and road are visible.

Variations in settlement patterns may reflect different cultural and farming practices, different crops, different agricultural support mechanisms—or simply the press of more people living on the Côte d'Ivoire side of the river.

The villages that have sprung up on the newly safe African savannahs are prosperous. Farmers are growing rice in the floodplain and cotton on the slopes. Some have also acquired cattle, which they leave in the custody of Fulani herdsmen. The markets that have sprung up among villages are centers of economic and social activity.

But even as the settlers prosper and the river's gallery forests remain intact, the area's thin topsoils are eroding and the quality of the water has deteriorated. As the first warnings of a new and invidious scourge, these signs of environmental damage show that government action cannot be delayed.

Community-Based Land Management in the Onchocerciasis Control Zones

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Although eradicating onchocerciasis is the primary objective of the Onchocerciasis Control Programme, there are other important objectives whose achievement would also help ensure the well-being of both present and future inhabitants of onchocerciasis-controlled areas:

- Achieving optimum utilization of important natural resources
- Establishing sustainable development
- Ensuring food security and eliminating poverty
- Identifying and implementing resettlement methods to ensure both controlled migration to onchocerciasis-controlled areas and harmonious settlement of the different socio-occupational groups.

From the start of the OCP, the environment and sustainable and rational management of natural resources were concerns for both the participating countries and the donor community.

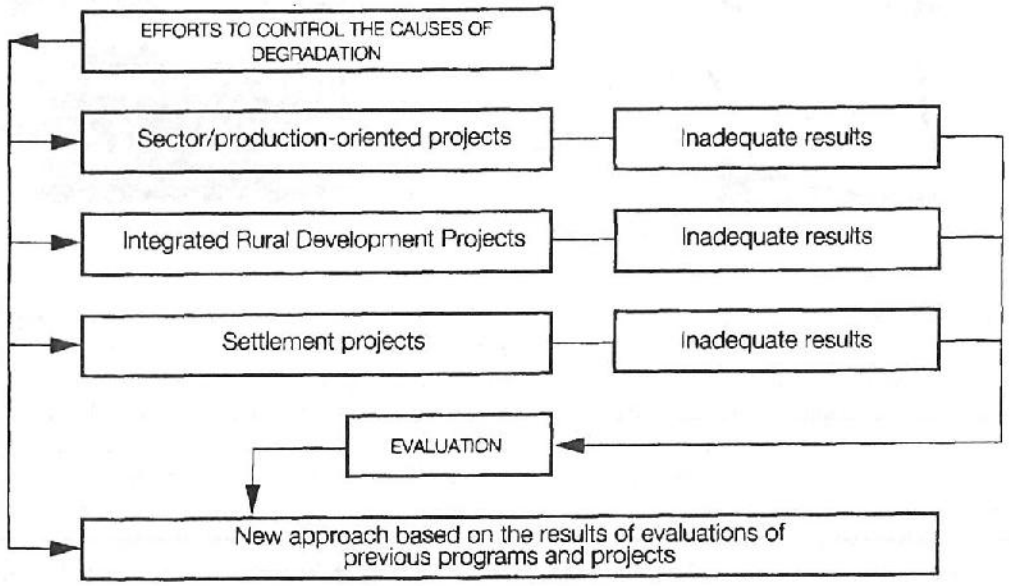
This report presents key elements of a strategy of community-based land management (*gestion des terroirs*) by the local population in onchocerciasis-controlled areas (see PNGT 1993; PGRN/GERENAT 1990; AFRICATIP 1993). Before describing the community-based land management approach, the paper presents an analysis of classic development projects and a brief review of two important pilot studies undertaken in several OCP countries.

Conventional development projects

To gain an understanding of the community-based land management strategy first requires an appreciation of the history of earlier projects. Development projects of the 1970s and early 1980s were mainly production-oriented projects and integrated rural development projects. The two types of projects shared several characteristics:

- The projects were sectoral and the responsibility of a ministerial department or an independent project management unit. Their planning was often overcentralized, and their implementation "vertically" managed.

Figure 1 Development of the new approach



- Productivity was the main objective of projects, and it became such an obsession that some were simply classified as "productivity projects." This approach overlooked the important links between the desired productivity and the natural resources that supported that productivity.
- The people who were to benefit from the projects were often just pawns. The purpose of projects was not always clear to them, and they often quickly lost interest in the many and varied demands made on them. Their participation under such circumstances was minor. Projects usually disregarded local initiatives and traditional knowledge.
- The technology used was not readily mastered by the local people, and the maintenance it required often entailed high recurrent costs after project completion. These high costs jeopardized the sustainability of interventions.
- Project organization ignored the traditional sociopolitical structures that underlie rural power and organization.
- The consequences of many projects for the environment (land, water, vegetation, and fauna) were so serious that environmental rehabilitation of a project area could end up costing more than the project itself.

In the mid-1980s, national policymakers, donors, and regional organizations launched a series of project evaluations. They found that many projects had failed to achieve concrete results and had limited sustainability (See Figure 1)—findings that are hardly surprising in the light of the constraints mentioned above. All the while, degradation of the environment continued at an accelerating pace, and in the OCP zones unplanned migration into onchocerciasis-controlled areas was increasing.

At the same time in the OCP zones, a wide range of large-scale investment projects for the organized settlement of migrants was being implemented. These projects focused on socioeconomic infrastructure and development of a formal, structured agricultural production system. Analysis of these projects found high costs (per hectare and per migrant) and an implementation rate too slow to solve the problem of uncontrolled utilization of natural resources.

This analysis led to discussion by development practitioners of the need to identify a more effective strategy. To draw lessons from unsuccessful projects in several regions, particularly Africa, the Committee of Sponsoring Agencies commissioned two regional pilot studies. In conjunction with the other analytical work, these studies and their conclusions, summarized briefly below, provide important pointers for defining and formulating strategies for sustainable development in the OCP zones.

Pilot studies in the Onchocerciasis Control Programme zones

The two studies, known as the Hunting report and the Land Settlement Review, were complementary. The Hunting report, a series of studies undertaken in 1988 by Hunting Technical Services in conjunction with *Organisation et environnement*, analyzed the potential for development. The Land Settlement Review evaluated sustainable settlement experiences in the OCP zones (McMillan, Painter, and Scudder 1993).

Socioeconomic development

The Hunting report provided the basis for a systematic evaluation of the nature and scope of development prospects in the OCP area. Studies were carried out on the development potential of the onchocerciasis zones in each country, and development proposals prepared. In selecting areas for development projects, the following parameters were used:

- Population density
- Development potential
- Suitability of the soil
- Size of land units with development potential.

This study provides an important body of practical data and information; however, some parameters need updating.

Sustainable settlement and development

The Land Settlement Review evaluated sustainable settlement experiences in almost all the OCP countries. Its goal was to help in identifying strategies that could ensure optimal development of the controlled areas through appropriate settlement and rational environmental management. This study defined a series of factors that need to be taken into account to ensure successful resettlement of the underpopulated onchocerciasis-controlled areas. These include the following:

- Types of intervention in the settlement process
- Land tenure systems
- Appropriate production systems
- Types of development planning
- The integration of indigenous populations, migrants, and herders
- Measures to ensure community responsibility and involvement.

The study recommends an approach called assisted spontaneous settlement (sometimes also referred to as "guided" or "facilitated" settlement), a planning method that falls between two extremes. At one extreme is government-organized settlement, which is highly capital-intensive (along the lines of the AVV in Burkina Faso); at the other extreme is uncontrolled spontaneous settlement.

Assisted spontaneous settlement is a flexible approach. At the local level, it provides basic support in the form of infrastructure (roads, bridges, wells) and social and economic services (extension services, clinics, credit, schools, nonformal education). This assistance can direct migrants toward carefully selected areas, or encourage those who have already settled in a location to invest in developing farming practices that are both more intensive and less harmful to the environment. Assisted settlement can also include an organized settlement component. Experience elsewhere shows that organized settlements that are carefully planned and strategically located can serve as centers for services and as hubs for development for both the host populations and the spontaneous migrants.

The results of the study support two important conclusions about assisted spontaneous settlement. First, its cost-benefit ratio is more advantageous than those of other, established forms of settlement—in particular, spontaneous settlement and highly capital-intensive planned settlement. Second, because of its flexibility, assisted spontaneous settlement leads to greater sustainability.

The community-based land management approach

The combined effects of drought, rapid population growth, and inappropriate agricultural practices in Africa have led to accelerated natural resource degradation over the past decade. This degradation constitutes a serious threat to economic development and food security. Aware of the seriousness of the problem and armed with analyses of previous failures, Sahelian governments, with the assistance of local, bilateral, and international aid, have developed many initiatives to remedy the situation.

An evaluation of test operations led in 1986-87 to the definition and progressive implementation of a new, multisectoral, and decentralized rural development strategy known as the community-based land management (CBLM) approach. By incorporating the concerns of natural resource protection, spatial planning, improved production and incomes, and development of socioeconomic infrastructure, this approach seeks to give organized rural communities full responsibility for managing the land they use. Although the approach initially was seen as conflicting with land use planning, the complementarity of the two is now recognized and valued.

Phases of development

The development of community-based land management strategies that took place in 1986-90 was characterized by several phases. The most important of these phases are as follows:

- *Reorientation of "old-style" projects.* Both beneficiaries and donors agreed to the principle of reorienting the old, integrated development and production-oriented projects. They decided that these projects would be executed within a flexible framework, with extensive community participation and responsibility. This strategy resulted in considerable savings in both time and human resources.
- *Pilot phase.* A series of projects distributed throughout the region that had been reoriented toward the new strategy, while retaining their independence, were monitored. These projects provided valuable lessons that were regularly analyzed by a central coordination unit. Multilateral, bilateral, and NGO projects were all invited to participate in the pilot phase at the national level.
- *Analysis of the different strategies.* Through analysis of the different strategies used in the pilot projects, the basic principles and characteristics of the community-based land management approach were defined. The analysis emphasized the importance of ensuring flexibility and adapting to local conditions.
- *Establishment of policy, legal, and institutional frameworks.* The policy-related (government commitment), legal (land tenure, decentralization), and institutional (recognizing local communities and giving them decision-making autonomy) conditions prerequisite to effective implementation of the community-based land management approach were identified.

Objectives

The community-based land management approach has two main objectives:

- To provide communities, through information, training, and coordinated support, with the operational capacity to initiate and execute activities to improve their production, their quality of life, and their natural environment
- To devolve to communities the authority and administrative and legal power to manage the resources of their land.

Key elements of the approach

The community-based land management approach is participatory, open, and progressive. It is based on local people's knowledge of their land, their resources, their needs, and the possible solutions to their problems. Several elements of the approach are essential for achieving success in its implementation: community participation, dialogue, and community ownership.

Participation. The participatory nature of the approach is crucial. Without participating in implementing the approach, communities cannot assume responsibility for it. Lack of community participation excludes the possibility of using the traditional knowledge of the local people

or allowing them any role in shaping their future—ideas fundamental to ownership. Without participation, and the community ownership that it makes possible, the approach becomes externally driven.

A participatory approach assumes that the needs and aspirations of communities are taken fully into account. This approach therefore must be an open one, without prior determination by external actors of the type of activities to be carried out. That does not, however, exclude the possibility that the first activity within the community might be predetermined or might already have been carried out as part of another project.

The open, dynamic nature of the approach should lead to a substantial change in the "standard" formulation of projects and in their monitoring and evaluation systems. In this context, Rapid Rural Appraisal has an important role to play. Participatory, diagnostic evaluation—carried out by the population—of resources, problems, and potentials is a key element of the strategy.

The participatory approach requires those working with rural communities to listen to the people. Thus, implementation of the CBLM approach often requires change in the behavior of authorities and their representatives.

Dialogue. Coordination among the actors involved in implementing the CBLM approach is essential to its success. Because the CBLM approach is multisectoral, its implementation involves inputs from several different structures and thus calls for many types of skills and support. In most countries of the subregion, coordination will be organized within the framework of established institutional structures. The CBLM approach provides a local diagnostic and planning framework that supports the targeting of investments to local needs and priorities.

Government agencies, NGOs, and project managers must establish a permanent system of coordination that fosters:

- Coherent implementation of the CBLM approach, without contradiction, competition, and conflict with other projects
- Optimal utilization of the skills and comparative advantages of each partner in the system
- Standardization of methods, approaches, and philosophies
- Careful use of resources, to ensure complementarity and targeting of investments and to minimize recurrent costs.

Coordinating structures must be organized at several different levels (department, province, region, central level). At the national level, special attention should be given to bringing into the coordination process the different financial partners interested in promoting CBLM—who will often have different understandings of the approach—to ensure harmonization of their points of view. At the local level, political and administrative authorities (prefects, mayors, high commissioners, deputies) need to participate in the coordination process because, with CBLM, the local government will become a local coordinator of development.

Achieving effective coordination is not easy. Sectoral habits and incentives are well entrenched. The CBLM approach calls for a change in behavior by the staff of traditional government units. Particularly important is that agricultural extension workers provide effective support for CBLM activities in the field. Agricultural extension will play an essential role in providing technical solutions to the problems identified in the implementation of community-based land management. Extension messages must relate directly to the concerns of the people and draw on farmers' input. The complementarity between agricultural extension and the CBLM approach becomes increasingly clear in the field; the CBLM approach provides a format for discussion and implementation that encourages adoption of the techniques proposed by extension workers.

Community ownership. A community's ownership of the CBLM approach depends on its commitment to the approach and its capacity to implement it. Commitment to the approach initially will come from the community's assessment of how CBLM will help it improve its living conditions. The capacity to implement the approach will develop primarily through learning (rather than training in the strict sense), reinforced by putting the approach into practice. Community ownership of the approach is essential for its sustainability.

Lessons from the field

Despite the diversity of agroecological and socioeconomic situations confronting the CBLM programs in Burkina Faso, Mali, and Niger, certain basic lessons have emerged from all these programs.

- *Security of tenure.* An absolute prerequisite for the success of natural resource management activities is security of tenure. It guarantees and encourages investments in community land, and it supports the peaceful coexistence and the harmonious integration of activities among different socio-occupational groups occupying the same area. Creating effective ways for communities to resolve their problems will help strengthen this security.
- *Decentralization.* Transferring central government authority to local communities, to give them legal status, control over their own property, and decision-making power, is necessary to enable local authorities to directly manage their own affairs and to initiate local activities and projects.
- *Management capacity building at the village level.* Villagers require information and training to help them

acquire the skills they need to assume their responsibilities in community-based land management.

- *Project flexibility and adaptability.* There are many different ways to apply the CBLM approach. Appropriate practices must be determined for local conditions, while nevertheless remaining consistent with the progressive, iterative, and cumulative nature of the approach.
- *Community responsibility.* Communities must bear the primary responsibility for selecting and carrying out local development activities.
- *Resource management.* Community-based land management efforts should balance the development of productive activities with the protection of the land's agroecological potential. Ensuring the most rational utilization of resources requires both a global and a long-term perspective.
- *Organizational structures.* Organizing communities and improving their operational capacity for participation in community-based land management are key elements of the approach. Organizational structures must be based on traditional structures and systems and thus will vary depending on the situation in each country. It is important to ensure that traditional authorities and the users of natural resources are represented in the decisionmaking structure.

Key issues in implementation

As countries implement the CBLM approach, both in onchocerciasis-controlled areas and in the rest of the country, they will need to pay particular attention to several issues: promoting women's participation in community-based land management, building community capacity, supporting construction of social infrastructure, and protecting biodiversity.

Women's participation. Although women play an important role in land development, they do not always reap the full fruits of their labors because of the many sociological handicaps they face, particularly difficulty in gaining access to land. To ensure that women benefit from community-based land management, special attention needs to be given to:

- Involving women in preparing and implementing the management plan
- Encouraging women's active participation in meetings, in decisionmaking, and in the ensuing actions
- Working to bring about a change in ways of thinking and an improvement in male-female attitudes and relations
- Taking women's concerns and issues—education, maternal and child health, easing of domestic chores—into account in preparing and implementing local development projects.

Ensuring that women participate in community-based land management requires the effective integration in all such projects of actions designed to benefit them. Care must therefore be taken to avoid anything that might contribute to women's isolation or aggravate their situation, including excessively highlighting women's participation as a specific issue. Gender issues must be considered from the perspective of, and linked with, the future of the community land in order to achieve genuine involvement of women in the development process.

Community capacity. The gradually increasing pace at which the CBLM approach is applied is determined primarily by the capacity of communities to learn and to build their management and implementation skills. Consequently, under the CBLM approach, a program of special training and field visits designed to develop local human resources is set up for the communities and the other partners involved. Experience shows that communities are best mobilized by implementing specific actions through individual projects.

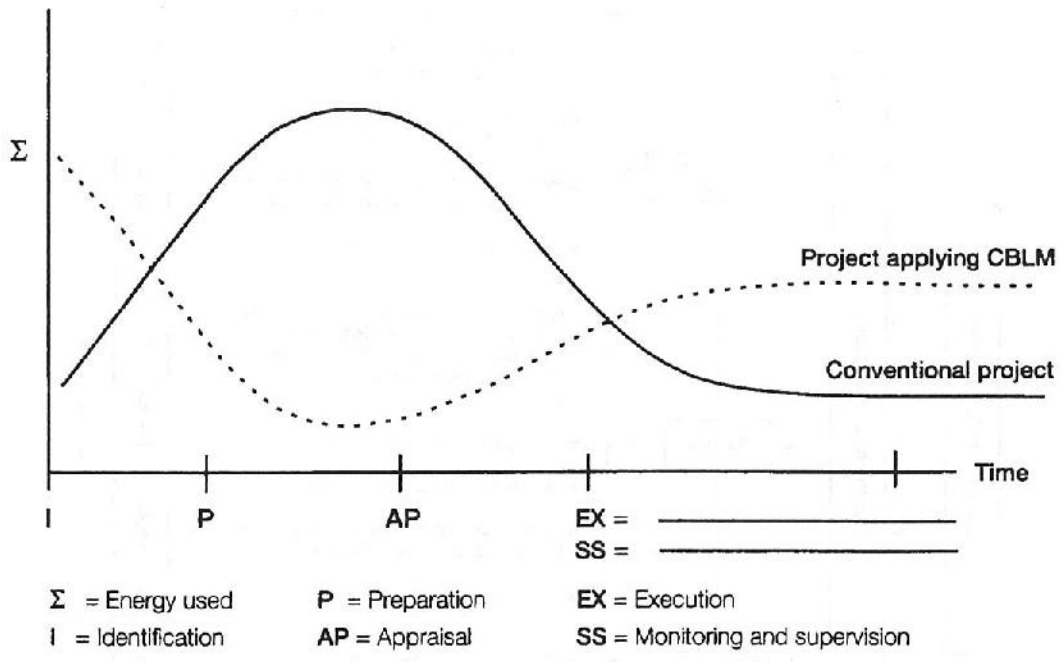
Social infrastructure. Social infrastructure has always been the primary demand of the people in the OCP area, and a legitimate one considering the extremely poor facilities in many of its villages. The CBLM strategy must take account of such demands because they emerge naturally as the result of applying its principles. The local communities that identify these infrastructure needs must play an important role in satisfying them by:

- Helping to find sources of finance
- Giving contributions in cash or kind, depending on what they can afford
- Identifying specialized partners to help execute infrastructure projects
- Managing the infrastructure.

The *Agences d'exécution des travaux d'intérêt public* (AGETIPs), nonprofit, nongovernmental agencies that play an important role in infrastructure construction in West Africa, could also have a part to play in implementing CBLM. Their services can be sought by any group with the necessary resources—local authorities, socio-occupational groups, national projects and programs. But because of the specialized nature of AGETIPs, it would be difficult for them to act as direct contractors; they are better suited to undertake infrastructure components planned at the start of CBLM projects and programs. In such cases they would simply serve as authorized developers managing contracts for a specific purpose.

Biodiversity protection. Because one of the main aims of community-based land management is to protect natural resources, it is an appropriate approach for protecting biodiversity outside the areas that have been legally set aside as protected national parks. Protection of biodiversity, not

Figure 2 Distribution of effort across project phases



only species of plants and animals but also types of ecosystems, is of major importance for the OCP area, which contains biologically important species and ecosystems that are threatened. The basic methodology that CBLM provides for the management, protection, and rational utilization of natural resources can be adapted to biodiversity conservation in the OCP area.

Stages of implementation in community-based land management

The external project cycle

With the CBLM strategy comes a new approach to the preparation and appraisal of projects. The strategy does not envision identifying all the details of project execution during the preparatory phase. That is no longer possible or desirable, although it is, of course, important to have a good understanding of the problems and the related issues. Instead, in the CBLM approach the target population, and not technicians, determines the types of activities and investments to be undertaken.

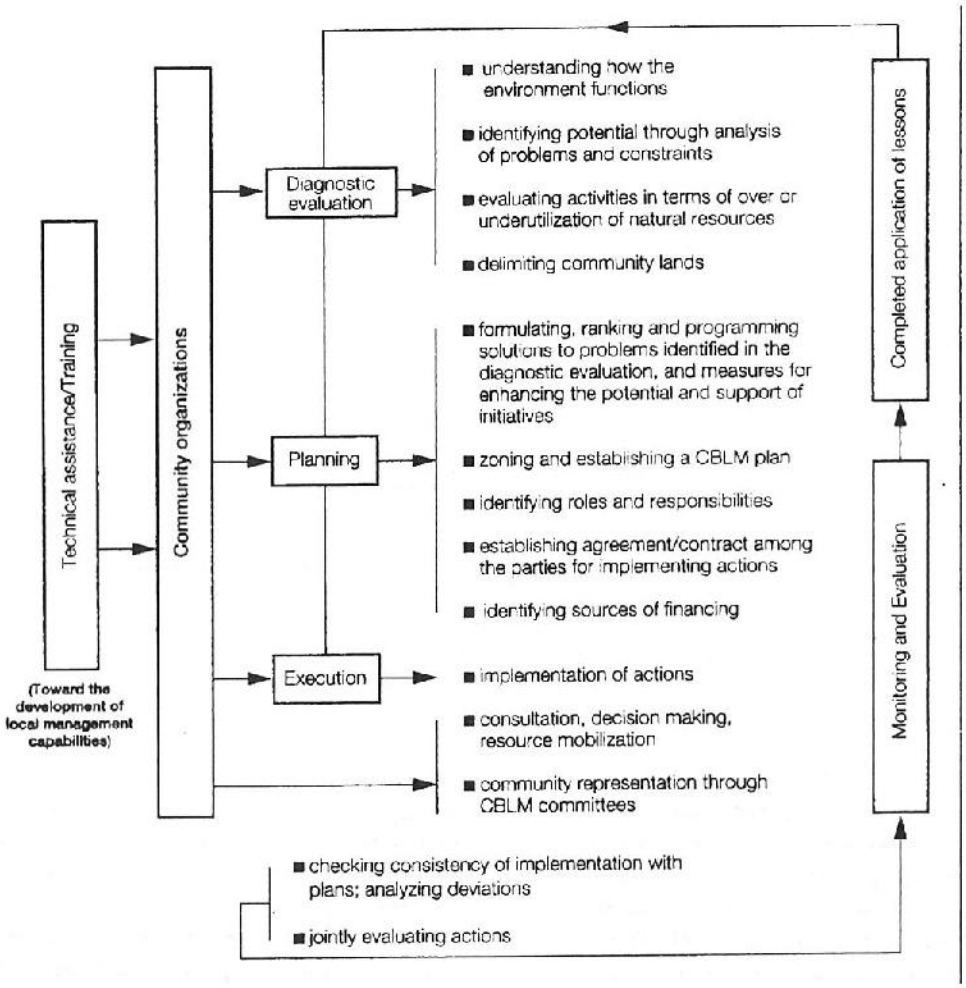
Thus, the planning process and the techniques for project appraisal must be rethought for the CBLM strategy; an approach different from that used for conventional projects is needed. The "Cohen curve" presented in figure 2 clearly reflects the differences in the distribution of energy—that is, effort—among the phases of a project that applies the CBLM approach and among those of a conventional project.

In a CBLM project, the most effort is expended in the identification and basic preparation phases; these phases are important because it is then that the goals and activities of the implementation phase are defined. The monitoring and supervision phase is also critical in ensuring the success of the project. In conventional projects the identification phase is weak, and the likelihood that it will produce good results is thus poor. In addition, the precision with which investments, implementation rates, and results are detailed is misleading and hinders effective implementation. By contrast, with the new CBLM strategy, detailed, predetermined goals are lacking because responsibility for project execution and key decisionmaking lies with the community and the project team and not with external planners; for this reason, however, monitoring and supervision systems must be extremely vigilant.

The internal project cycle

The practical procedures for implementing the CBLM approach have certain common elements yet are not rigid. They depend on a multiplicity of parameters (context,

Figure 3 Implementation of the Community-based Land Management Approach



resources, know-how, level of community organization) that vary widely among communities. Nevertheless, implementation of the approach is still structured around common phases (figure 3). The process of implementing the CBLM approach is not linear, but iterative.

The internal, iterative, "diagnostic-planning-action-evaluation" cycle of the CBLM approach focuses at the outset on one or more specific problems (figure 4). The cycle is then repeated with these same problems in order to evaluate and improve the efficiency of implementation. The cycle can be continued indefinitely whether it is focusing on a one-time action or one that is repetitive (cooperative activities, for example). The cycle then becomes the main tool for managing the cooperation.

In practice, the diagnostic-planning-action-evaluation cycle will gradually extend from the initial problems to other issues linked to them, to new constraints reported by the population or resulting from a change in the environment, or to other elements identified during the diagnostic evaluation. The approach thus gradually evolves toward broad coverage of local development at the community level. This evolution is accompanied by the population's increasing capacity to manage the CBLM approach and by a corresponding reorganization and redefinition of the roles of the state, extension services, and other partners (figure 5).

Community-based land management in the onchocerciasis control zones

Community-based land management is not a magic formula that can solve all the problems in the onchocerciasis-controlled areas. It is merely a strategy for planning

Figure 4 Building awareness

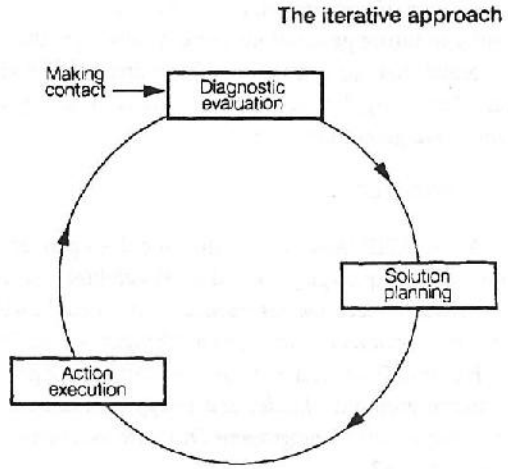
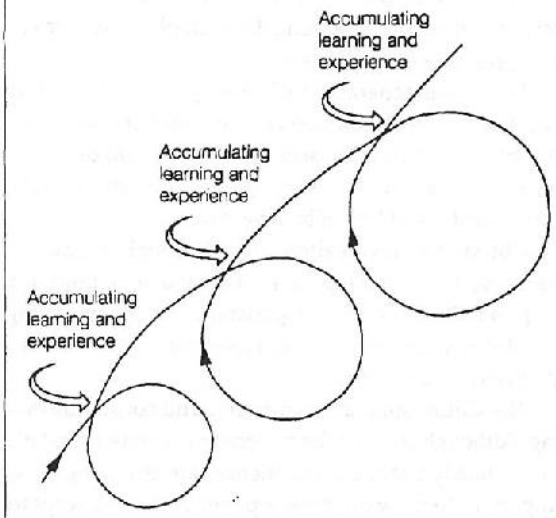


Figure 5 Toward universal capacity



and executing activities in the field that, if correctly applied and supported by other measures, can lead to better natural resource management and improved rural development. As such, CBLM can make an important contribution to the settlement of migrants, the development of onchocerciasis-controlled areas, and the protection of the environment.

If assisted spontaneous settlement becomes the policy of choice for the OCP zones, CBLM can provide an operational strategy for its implementation. On the planning side, CBLM does not replace land use management. Thus, within the framework of assisted spontaneous settlement, the regional land use planning process must provide the broad guidelines for a settlement and rural development program. Once those guidelines are completed, CBLM can provide the elements for local planning and for the implementation and monitoring of the resulting plans. CBLM thus can provide a framework for action that establishes operational links between land use management and investments in production, management, and socioeconomic infrastructure. Clearly, CBLM has a major role to play in the OCP zones.

The CBLM approach pulls together the interests of different groups that use natural resources on community land, including indigenous populations, migrants, and herders. In doing so, the CBLM approach provides another type of important link for the OCP zones. The onchocerciasis-controlled zones are subject to strong demographic dynamics, including significant flows of migration, a situation inevitably accompanied by conflicts and disputes between the settled population and the migrants and between farmers and herders. Although CBLM is not a universal remedy for all these problems, it does offer a framework for open discussion and negotiation that can be helpful in resolving them.

As a strategy that depends on community participation, CBLM has never been used in areas with no human population and no user or traditional land rights. There is thus no evidence that CBLM can be successfully applied in such regions. But even in the OCP zones, it is rare to find large areas in which no one has an interest.

The process of creating a CBLM plan includes an analysis of land availability. That entails evaluating the land's capacity to accommodate new migrants, a process that helps make communities aware of the natural constraints to that capacity. The CBLM internal cycle, in which this evaluation is repeated periodically, gives communities the opportunity to tailor their management strategies and their decisions on future migrant settlements to current conditions. Thus, the CBLM approach will have an impact on spontaneous settlement and will help channel migrants to areas where land is still available.

Conclusion

The onchocerciasis-controlled areas have enormous potential in agriculture, fisheries, hunting, and tourism. This potential is threatened by serious ecological problems, however—some of natural origin but most caused by man, including mounting demographic pressures and inappropriate farming practices.

The earlier generations of development projects failed because they were nonparticipatory, unsustainable, and too costly. The clear consequences, some two decades later, are natural resource degradation, poor agricultural productivity, and loss of biodiversity.

CBLM provides an alternative. Although it is no panacea, it is worth applying—it is capable of putting a stop to natural resource degradation and of stimulating development at the grassroots level that communities themselves can sustain.

The CBLM approach is dynamic and constantly evolving. Although most of the national programs are relatively new, already a range of experiences are emerging. It is important to draw on these experiences to find ways to improve the approach, particularly with regard to the rate of implementation and the ability to deal with the rapid expansion of areas to be included in the programs. Implementing the CBLM approach in the OCP area is an enormous task, and the current implementation rates are inadequate.

It must be kept in mind that the onchocerciasis-controlled areas are special cases: they still have a good supply of natural resources, and the demographic pressures they face are still relatively low. There is therefore little incentive for the people to adopt new approaches, and an awareness campaign is needed to ensure extensive and rapid application of CBLM in these areas.

It is up to all those involved in developing the onchocerciasis-controlled areas to ensure that both present and future generations benefit fully from the resource potential that has been gained by overcoming onchocerciasis. Achieving that goal requires the community-based land management approach.

References

AFRICATIP (Association africaine des agences des travaux publiques pour l'emploi). *Possibilités d'intervention des agences d'exécution des travaux d'intérêt public (AGETIP) dans les programmes onchocercose,* Ouagadougou, 1993.

Hunting Technical Services Limited and Organisation et environnement. *"Etudes de développement socio-économique zone du programme OCP.* 3 vols. Herts, England, 1993.

McMillan, Della, Thomas Painter, and Thayer Scudder. *Installation de populations et développement dans la zone de lutte contre l'onchocercose.* World Bank Technical Paper 192. Washington, D.C., 1993.

PGRN-GERENAT (Programme de gestion des ressources naturelles/Gestion des ressources naturelles). *La Gestion des ressources naturelles au Mali.* Ouagadougou, 1993.

PNGT (Programme National de Gestion des Terroirs). *La Gestion des terroirs au Burkina Faso.* Ministère de l'Agriculture et des Ressources Animales. Ouagadougou, 1993.

Capitalizing on Success: The Onchocerciasis Control Programme and Resource Management Options

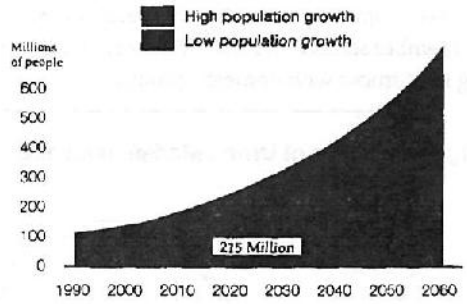
U.S. Agency for International Development

West Africa's population is not only growing, it is also shifting. As of now, the urban population in West Africa is growing by over 7 percent per year, and by 2025 it is expected to constitute nearly half the total. There is little evidence that this rate will come down, for throughout the world, the young are attracted to the lifestyle, social mobility, and new consumption opportunities found only in cities.

Figure 1 Interdependence

Area covered by the Onchocerciasis Control Programme

Figure 2 The main trends are known



Established in 1974 as part of the international response to Sahelian drought, the Onchocerciasis Control Programme represents an investment of US$500 million and is one of the most ambitious public health and resource recovery programs in the world. Its goal is the reopening of 25 million hectares of arable land for settlement.

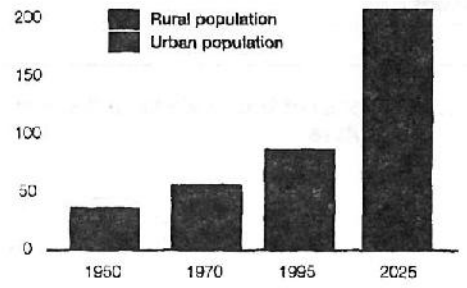
Second only to the Smallpox Eradication Program in Africa, the OCP has been a major public health success. But the war is not yet won. Now that river blindness has largely been eradicated, further battles must be fought to protect and manage the vast new lands opened for resettlement. The fate of the OCP zone and its potential contribution to the overall development of West Africa are inextricably linked to the fate of each member state.

Major socioeconomic trends affecting West African development

Since 1974, West Africa's population has doubled. Even under low-growth scenarios, it is projected to double again, or to more than double, in the next thirty years.

With enough arable land to allow for the fallow cycle no longer available, perennial vegetation is being depleted at an alarming rate. Farmers and herders fight each other for scarce resources. In sum, the traditional mechanisms that once maintained ecological stability are no longer able to operate.

Figure 3 The shifting urban-rural balance



Rural and urban population in West Africa, selected years, 1950-2025.

What does this mean for the rural economy? Urban populations purchase food, clothing, raw materials, and consumption goods. Household surveys conducted by the International Food Policy Research Institute (IFPRI) around Bamako, Niamey, and Ouagadougou indicate that there have already been dramatic shifts in household production strategies in response to increased urban demand.

In these survey zones, over half of all household income now comes from sources other than direct agricultural production. Within the urban market zone, demand for fuelwood, charcoal, and construction poles has created income alternatives to subsistence agriculture.

As the total urban population in the eleven OCP countries approaches 85 million, this "pull" of urban markets will spread and is likely to alter the farmers' production choices. Because food for the cities must come from somewhere, urban consumption represents potential cash demand. Recent currency devaluations within the CFA zone make importing food within the broader West African economic region less attractive. It is now up to OCP member states to transform their rural economies by filling food trucks with domestic produce.

Figure 4 Zones of Urban Market Influence: Present

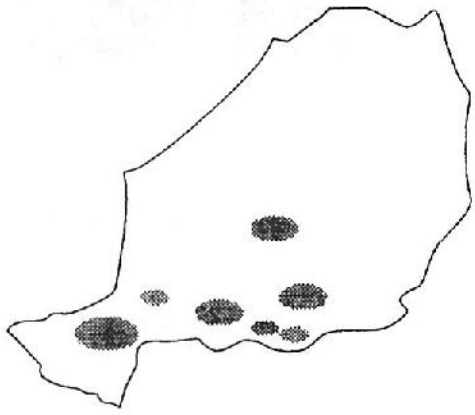
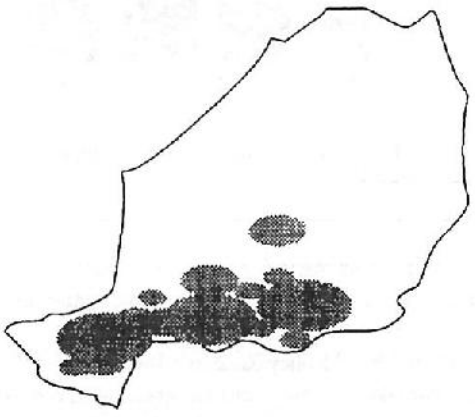


Figure 5 Zones of Urban Market Influence: Future

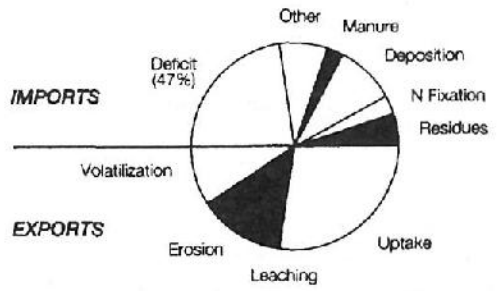


As arable land grows increasingly scarce, more intense use depletes West Africa's soils. A number of recent scientific studies (including those conducted by the Compagnie malienne pour le développement des textiles, the Dutch Royal Tropical Institute, and the Wageningen Center for Agrobiological Research) have found that, throughout the Sahel, farmers are using up the soil's nutrients faster than they are being replenished. Crop uptake, leaching, and erosion exceed what is put back into the soil through manure and other fertilizers, nitrogen fixing by insects, bacteria, and plants and atmospheric deposition.

Although viable in the short run, soil mining cannot be sustained long, and the costs are now being paid.

CMDT analyses show that, in Mali, up to 47 percent of nutrients now used in crop production come from soil

Figure 6 The cost of soil mining



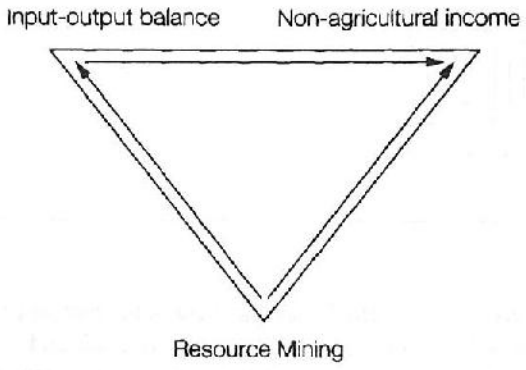
mining. With better management of existing resources—that is, more inputs and better soil and water conservation to reduce losses—this percentage could be reduced. Twenty years of research in the Sahel have convinced the Center for Agrobiological Research in Wageningen that, while improved management of existing natural resources can possibly restore the balance of inputs and outputs for a time, the inherent biophysical limitations of the land cannot support West Africa's growing population. External inputs will be necessary to restore the balance in the long run—a fact that must significantly affect economic choices in the region.

These demographic and biophysical trends impose certain demands on West Africa's governments. The need for external inputs to sustain agriculture means that cash income will be needed to buy those inputs. Widespread cash income for rural households implies a basic change from subsistence to more diversified and commercialized crop production. And although growing urban centers are

already creating cash demand for rural products, this will accelerate sharply in the next thirty years.

As field research by the International Food Policy Research Institute has shown, West African households with access to markets are already diversifying. At this stage, the IFPRI study found, people seek to diversify as much to reduce risk as to increase income. Households that have successfully diversified have also tended to invest in production methods sustainable over the long-term and have increased their incomes. Conversely, households that have not made the transition successfully continue to mine their resource base despite declining yields and increased risk.

Figure 7 Household Strategies

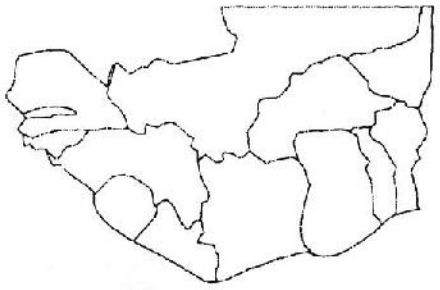


In West Africa's rural households today, strategies for income generation, risk management, and economic diversification are already in flux. The rich database of field observations about their evolution includes five major reviews of local-level resource management initiatives (prepared for the 1989 Segou Roundtable on Natural Resources Management), at least ten follow-on studies, IFPRI household surveys, and dozens of locality-specific and project-specific studies.

Essentially, West Africa's rural producers today face three choices: to mine the resource base to maintain income, to change production techniques to restore the input-output balance of agriculture, or to seek nonagricultural sources of income. Most rural households are already pursuing some mix of the three. But because basic demographic and biophysical dynamics have already been felt at the household level, household strategies cannot remain static.

Household strategies, income diversification, access to markets, and the decision to mine resources or to

Figure 8 Household Strategies in the OCP Zone



- The Migration Cycle
- Incentives for Resource Mining
- Resource Degradation Potential
- Uncertainties for Migrants in OCP Zone

invest in more sustainable production lie at the heart of resource management in the OCP zone. Information about household decisions in the OCP zone includes the Land Settlement Review, studies prepared for this conference, and other major environmental and production studies.

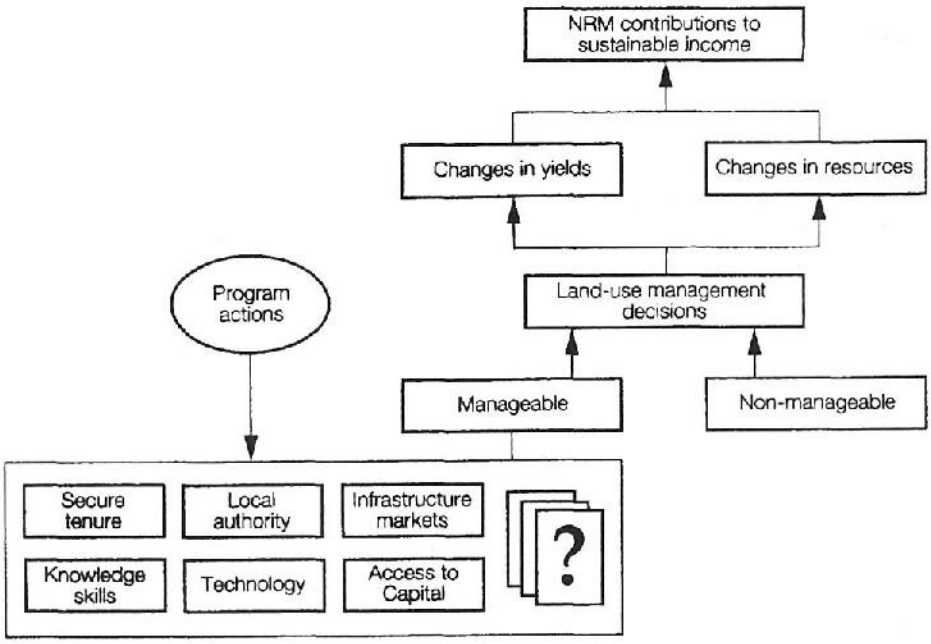
More than just land

Unlike other areas in Africa, the OCP zone offers significant opportunities for new settlement. Relative to other zones, therefore, the pace of change is rapid. Infrastructure is being built, land is being put under cultivation, and new people are settling on and benefiting from the land.

In making decisions about the use of natural resources, households in the OCP areas are affected by where they are located, where surrounding communities are, and where each is in the settlement cycle. But while resources in the OCP zones are generally rich, they are also fragile. Migrants have relatively few established social ties in the community, and resource tenure is often uncertain or insecure. All of this contributes to a sense of impermanence that leads to resource mining. Settlers typically have little knowledge of local conditions and do not know how to manage and sustain the unfamiliar environment. As a result, there is high potential for resource degradation. Even when resource mining is not a strategy, it can become a fact.

Settlers must also deal with unfamiliar disease profiles in the new areas. Political stability is not guaranteed. The legal framework (including land tenure, administrative jurisdiction, and common property resource management rights) changes from one area to the next and is often in flux. Infrastructure is limited and has not always kept pace

Figure 9 How do people decide?



with changing migration patterns. Finally, OCP lands are frequently far from markets, from sources of supply, and from social and community systems.

All these factors combine to heighten settlers' sense of impermanence in OCP communities, and therefore to promote a shorter-term perspective of settlement and land use management. While some OCP settlements have developed sustainable, long-term natural resource management, others have depleted the land and moved on, leaving the area worse off than it was. What the OCP settlements have shown is that success requires far more than simply making land available for settlement.

What governments can do

In figuring out what the public sector can do to promote long-term natural resource stewardship, the key question is how people make natural resource management choices. With twenty years of experience in natural resource policy, it is now possible to build on what governments are already doing.

In the OCP areas, thousands of rural settlers and households seek better livelihoods. In doing so, they make decisions that will affect their agricultural yields and their use of natural resources. Obviously, if yields go up but the resource base is degraded, sustainability will soon become a problem. Policy should seek to promote practices that simultaneously increase both yields and resources. Experience has shown that there is a range of cost-effective technologies available that enable farms to achieve sustainable increases in household incomes. To learn what influences land use management decisions, bilateral and international aid agencies have sponsored hundreds of case studies in West Africa.

These studies show that specific conditions of secure tenure, access to markets, access to capital and credit, devolution of authority, and access to technologies—conditions that vary by area and change over time—influence resource-sustaining decisions. Because public policymakers wish to make appropriate resource management appeal to thousands of farmers' own self-interest, they must keep abreast of continually changing local conditions. Understanding what motivates farmers is not, therefore, a one-time activity.

At the national level, too, many OCP member states are undergoing long-term structural change. Since mortality rates began to decline forty years ago, West Africa's social, political, and economic climate has been transformed. All signs point to continued, accelerating change over the next thirty years, which will create new opportunities in the OCP zone. The policy challenge is to keep pace with this

changing dynamic and to develop an overall, integrated development strategy that will include the proper management of OCP resources. To achieve this goal:

- Governments should use major national natural resource policies already in place (in resource tenure, community resource management, resource pricing) as the basis for OCP zone development.
- Policies should create conditions conducive to sustainable growth. Once they have been field-tested, they should be applied in the OCP zones.
- The use of field observations and case studies to collect information on local conditions is particularly well suited to the OCP zones because of the variation in conditions in local areas and over time. When population density is low and land remains relatively fertile, for example, land tenure may not be an important issue. But as population density increases and good land becomes scarce, land tenure becomes crucial. The rapid changes brought about by new settlement in the OCP zone make field studies particularly important if an accurate picture of the situation is to be maintained. Most OCP member states already base their national policies on observation and case studies.
- Worldwide settlement experience suggests that assisted spontaneous settlement works best. Once spontaneous migration patterns establish where and why settlement occurs, public investment should quickly follow to build and reinforce positive resource management practices. Purely spontaneous settlement has too often led to short-term stays unsupported by physical, market, social, and policy infrastructure. Controlled settlement, on the other hand, requires major planned investment, and has often failed to attract or retain permanent settlement, leading to the waste of resources on a large scale.
- Governments must monitor migration flows, which change rapidly, to target public investment efficiently. There are low-cost techniques available for doing so. Existing regional organizations (such as Agrometerology and Operational Hydrology Centre located in Niger) could both lead the data collection and serve as regional data repositories.
- Governments should focus effort on the key pressure points where public policy will have maximum impact. The majority of OCP studies suggest, for example, that the decision to diversify crop production is associated with long-term settlement, and therefore ultimately with more sustainable land use management practices. Particularly in the OCP zones, where farmers must deal with more and more wide-ranging economic and social variables, policymakers should seek to understand and influence this decision.
- Twenty years after the inception of the OCP, the volume and richness of information about natural resource management—based on field experience in the OCP zone—are already growing. OCP member countries now need to set up structured networks to share this information across borders. Existing regional institutions could be used for the task.
- To improve the flow of information across sectoral lines, a concerted effort should be made to inform the natural resource management community about the particular conditions of the OCP zones, to integrate OCP considerations into plans for existing projects and designs for upcoming ones, and to reevaluate national resource management strategies in the light of the enormous new potential these lands offer.

Discussion

Community-based land management

Participants showed a great deal of interest in natural resource management and the community-based land management approach. The discussion prompted extensive debate on the role of women in natural resource management and on the increasing level of conflict between transhumant and sedentary populations.

Comments

"Do not rush into the community-based land management approach even though it seems good. There are several prerequisites for success, and other approaches that also seemed good are now judged to be failures."

"Before the community-based land management approach can work, it has to be part and parcel of national sectoral policies with well-defined strategies. Otherwise, there could be highly diverse situations in adjacent areas."

"Despite the importance of national policies, planners should not wait for perfect policies and ideal legislation to be in place before attempting the community-based land management approach. People should be aware of possible problems and try the approach anyway."

"Local communities must be responsible for funding local efforts either with their own money or through local authorities. Control over the financial aspects of projects is an important way of empowering local decision making, and financial involvement leads to closer attention to the activities by the local population."

"Laws will not get people to replant trees, and you cannot simply tell the people not to cut trees when they are very poor and have no alternative. Make communities responsible and they will protect natural resources."

"Local adaptation of the approach to site-specific conditions is important. There is no one blueprint."

Women's Participation in CBLM

All participants recognized the importance of women's participation in community-based land management associations and in development in general. There was some debate, however, on the extent to which women were currently participating and on how fast the rates of participation by women could be expected to change, given customary decisionmaking patterns and women's already heavy work load.

Comments

"Women must be treated on an equal footing in community-based land management associations. There have been cases where women without secure tenure have made improvements to land only to later find themselves dispossessed. However, if women are given preferential treatment in land tenure, there will be difficulties with customary authorities."

"Experience shows that when communities have decisionmaking power, tradition will be upheld in the beginning but gradually things will change. These changes cannot be made from the top. Legislation gathers dust and does not change anything at the village level."

"Gender-based battles must be avoided. Women are already consulted on an informal basis and are making progress."

"Women are already overburdened. One should be very careful about how much involvement can be expected from women."

Transhumant populations

The issue of the transhumant populations sparked a heated and politically sensitive debate. It was clearly an important issue in each of the participating countries and one on which there was no clear agreement.

Comments

"Pastoralists come through every year and devastate the land. They cause fights and shooting, and migrants have borne the brunt of the conflict with herders. One country in West Africa has banned transhumant herding, and this is being considered in other countries. Some of the established migration corridors have been cut due to crime. Plans must be developed to settle the transhumant populations."

"Major problems occur with the cohabitation of farming, agroforestry, and pastoralism. Governments need to work hard to prevent problems before conflict occurs and before environmental degradation becomes severe."

"Immense areas of seasonal grasses in the northern parts of the Sahelian countries are not used because there is not sufficient dry-season grazing in the south. Mechanisms need to be worked out so that these grasslands can be exploited because transhumant herds produce more efficiently and at lower cost than sedentary herds. Moreover, studies have shown that there are high levels of female ownership of these herds."

"Herders can be either hosts or settlers. The village land management concept has been criticized because it could give too much authority to sedentary farmers and might not include herders in the process of establishing land use plans. This leads to conflict later on when herders find themselves forced off land they have traditionally used."

"Transhumance is important because it provides cheap meat for countries that are net importers of meat and it provides a gene pool for upgrading national livestock herds. However, it may also spread disease if other countries have different livestock health rules. Countries have

used the military to drive away herds, but they always come back. The issue needs to be addressed at the subregional level because intergovernmental cooperation is needed to regulate movement."

"Some countries have tried to establish livestock corridors. Niger, Côte d'Ivoire, and Burkina Faso currently have an agreement regulating livestock corridors. This agreement may expand, as meetings between these three countries have been attended by Ghana, Nigeria, and Mali as observers."

SESSION 3

Land Tenure in New Settlement Areas

Land tenure is perhaps the most critical issue in the discussion of settlement and development (recommendation 13). It was a central point in the session on natural resources, and it figures importantly in the discussion on host settler conflicts, gender-related issues, transhumant populations, and sustainable agriculture. While much of the area that onchocerciasis control is making available to settlement is sparsely populated, almost none of it is unclaimed. Attempts by national governments to override existing land tenure systems have in many cases led to conflict between host and settler populations. Insecurity of tenure resulting from conflicting national and local land tenure systems inhibits long-term investments in productivity, something that is crucial if new settlements are to be sustainable.

The paper by the Food and Agriculture Organization (FAO), "Land Tenure Policy in Onchocerciasis Control Programme Areas," addresses a number of key issues regarding land tenure, including the different types of tenure in the OCP area and how these interact with the different types of land settlement. It highlights security of tenure as the critical issue, and discusses methods for achieving secure tenure, particularly in the difficult area of encouraging host populations to cede permanent tenure rights to new migrants.

Dr. George Benneh's paper, "Land Tenure and the Development of Onchocerciasis-Freed Areas in Northern Ghana," takes many of the general issues discussed in the FAO paper and applies them to northern Ghana. He examines the types of tenure that exist there and presents data on how people acquired the land they use. He then examines the implications of the different forms of tenure and modes of access to land for planned and spontaneous settlement. He concludes that some form of communal tenure will continue regardless of state intervention because of the importance of livestock production and the need for flexible access to land.

The paper by the Club du Sahel, "Land Tenure and Settlement in the Onchocerciasis-Freed Zones of Burkina Faso," examines land tenure issues in the context of land settlement in Burkina Faso in the past fifteen years. It traces settlement and land tenure policy and shows how a top-down, government-controlled program evolved to a more decentralized system, using community-based land management committees to resolve tenure conflicts and organize the use of space.

Land Tenure Policy in Onchocerciasis Control Programme Areas

Food and Agriculture Organization

In 1974, at the same time that the technical teams of the Onchocerciasis Control Programme began establishing an entomological surveillance network, evaluating medical operations, and training the entomological field staff, the program beneficiary countries were also launching economic and social development plans at the national level. For if onchocerciasis could be controlled, the way would be open for resettlement, renewed cropping, and reopened rangelands.

Before the eradication of onchocerciasis, at least 80 percent of the river valley lands went unused. Today, with river blindness largely eradicated, 25 million hectares of arable riverine land are available for resettlement, with sufficient agricultural potential to sustain some 17 million people. With the reopening of these lands, governments need to plan for their socioeconomic development, making sure that those who resettle West Africa's river valleys have full health, economic, and social benefits.

In most West African countries that take part in the program, rehabilitated OCP lands offer excellent settlement potential. But if they are to prosper over the long term, settlers will have to learn how to increase their yields, make rational use of renewable natural resources, and enhance their production and marketing systems. First and foremost, peasant farmers must be guaranteed the use of the fields they cultivate for a sufficient number of years to be productive.

Three types of tenure systems currently coexist. In traditional West African agrarian systems, the village chief authorizes settlement on village land, and the customary chief decides on access to land, rights to land use, and the times when agricultural activities should be carried out. Today, however, government-registered landownership has, in principle, superseded the traditional system, and usufruct rights are supposed to belong to the person cultivating the land. The establishment of community management groups fully responsible for the use and development of their areas further complicates the land tenure picture.

West Africa's agroeconomic future will depend largely on the OCP areas' ability to produce cereals, livestock, and industrial crops, hence the need for coordinated strategies and actions that reflect the interests of the populations concerned.

During the past twenty years, the socioeconomic development of the OCP areas has been influenced by the dynamism of the local communities, population pressure, the successive droughts in the Sahel and the resulting migrations, and rural development efforts undertaken within the OCP framework. But development depends primarily on national policies supported by national, international, and bilateral agencies.

West African countries plan and fund rural development on the basis of the nation's agroeconomic potential as a whole, of which areas cleared of onchocerciasis are only a part. Nonetheless, national policymakers may choose OCP zones as the best sites for rural development. But investments should be based on real site assessments and not limited to the OCP zones just because they are newly available for agriculture and stockraising.

Land settlement is an important means of easing heavy population density and pressure on natural resources. Within the context of national rural and agricultural development policies, the international community—including the FAO and the World Bank—can help countries to examine the best way of using new lands to help the least privileged rural population groups.

In sum, neither the OCP countries nor the development agencies should restrict their rural development and land settlement efforts to the cleared areas. To avoid cultural and economic clashes when populations mix, governments must pay as much attention to migrants' departure points, and to their social and cultural makeup, as to the settlement areas and host communities. Similarly, governments must have plans to address problems of poverty, environmental degradation, unequal access to resources, and rapid natural resource depletion in settlement areas and on regional and national levels.

It is up to West Africa's governments to make sure that natural resources located on OCP lands are exploited to the best advantage and developed in ways that guarantee sustainable production and environmental protection and enhance the welfare of the entire region.

Settlement patterns

Although lands newly cleared of the threat of river blindness may be sparsely populated today, many are still under some form of land tenure. In West Africa, therefore, it is inappropriate to speak of lands abandoned because of river blindness or other natural disasters as "vacant."

People generally come back to such lands through spontaneous settlement, assisted settlement, or systematically organized settlement. In each case, concerned groups include host communities—the traditional owners of the valleys—settlers, and the state, whose role it is to ensure that individual rights are respected and that the land is used to best advantage within a national context. It is up to each OCP beneficiary country to determine which settlement strategies it should adopt to suit its own local conditions.

Entirely spontaneous land settlement, guided by land chiefs and heads of migrant households, has several drawbacks. In new areas, traditional land occupancy systems do not give migrants sufficient security of tenure to ensure the rational use of natural resources, soil protection, land improvement, enhanced productivity through inputs, or reforestation. Nor are newcomers guaranteed access to agricultural credit or to public services (such as primary health care, access roads, wells, agricultural extension and training, or schooling). Furthermore, immigrants who continue to use the same farming practices that led to the degradation of their original lands, need better technical know-how of systems more conducive to environmental protection.

Without government controls, therefore, spontaneous settlement leads to eventual environmental degradation, soil impoverishment, and the gradual economic marginalization of both the host and the settler populations.

Yet spontaneous settlement may be necessary to ease pressures on arid, exhausted, and overpopulated lands. To make it work, governments must supply suitable infrastructure reflecting the nature of the land and the availability of natural resources. Governments also need to secure a firm commitment from host communities to share land and water access and cropping rights with the newcomers, in return for compensatory infrastructure, social amenities, and agricultural extension.

"Assisted settlement" is usually spontaneous settlement that later receives government, local development project, or NGO aid. Such aid can take the form of infrastructure, social services, roads, wells, or other support.

Not planned from the outset, such settlement can nevertheless receive considerable outside support once a formula for assisted (or supervised) settlement has been adopted. Provided that compensation is eventually given, assisted settlement can also ease the social tensions that arise from the spontaneous arrival of settlers in a host community. Furthermore, when assistance helps to reinforce community institutions, host, settler, and pastoral populations are all brought closer together in the management of their natural resources.

Even belated intervention can help lessen the risks of environmental degradation, poor or lacking social services and agricultural extension, and mediocre productivity, all of which are greater with unassisted, spontaneous settlement.

With or without assistance, however, spontaneous settlers have the advantage of a firm will to refashion lives blighted by the ecological and agricultural difficulties that prompted them to leave their homelands. They are willing to use their best energies and economic resources to adapt successfully to their new situation.

With planned settlement, the government or sponsoring agency can use the state's authority to persuade the host populations to share access to land with the settlers and—on a more practical level—can invest heavily in infrastructure, access roads, agricultural extension, and such costly public goods as wells, dispensaries, schools, stores, and warehouses. But planned settlement is extremely expensive to prepare and implement.

No matter which type of settlement is practiced, land tenure arrangements must be stable. At the beginning of the settlement process, the government, local farmers, settlers, and herdsmen must agree to land tenure terms. Without such agreement, the host population will not recognize the transfer of land rights to settlers, and disputes will be inevitable.

Countries must also agree on a plan to supply services and to improve the infrastructure to compensate the local population for the release of land to the settlers. Traditional herdsmen's rights (to rangelands and pastures) must also be recognized and respected. Without such agreements underwritten by the state, there can be no land tenure security for the settlers.

The state, therefore, must intervene in the process of resettling the onchocerciasis-freed valleys. The greater the intervention, moreover, the more power the state will have over land allocation and the entire development process.

Governments can intervene with limited investment to assist already established settlers. At the other extreme, they can take the costly path of becoming fully responsible for the planning, implementation, and continuity of systematically programmed settlement. A compromise solution is to mobilize the resources of NGOs and local and migrant populations, inviting them to participate in land use planning for environmentally sound development. Government would then act as promoter, supervisor, and guarantor rather than as chief executor and funder of settlement activities.

Governments can also use structured settlement as a bridgehead for inviting both host and settler populations to use the infrastructure services provided with supervised settlement in areas upstream and downstream from the selected valley sites. The effect of localized, participatory examples would then spread rational land management and cost-effective practices to other areas.

In September 1990, a workshop on population settlement in OCP areas was held in Ouagadougou. The participants determined that a mechanism was needed to coordinate, facilitate, and monitor development operations. This unit would help governments exchange experiences in development planning for cleared areas and would help countries formulate internationally coordinated programs. Individual governments, of course, would define their own settlement strategies and mobilize the necessary financial and technical support. Participating governments would also select the intercountry mecha-

nisms for planning, information, dissemination, and coordination. But at the request of these countries, the OCP Sponsoring Agencies would provide technical advice and other support. Both OCP governments and donors should seize this opportunity to work together to achieve sustained development in the newly cleared areas and, indeed, throughout West Africa.

Principles of sustainable land development

- To make development of the OCP valleys both sustainable and ecologically sound, governments, settlers, and host populations will have to be committed to this goal over the long term. The OCP areas have exceptionally high agroeconomic potential. Their development therefore merits clear political commitment, continuity in government strategies toward resettled areas, cooperation among the various population groups involved, and ongoing evaluation. Within the framework of a coherent national development plan to develop the valleys, settlement operations will need support from local and international NGOs, bilateral agencies, and international organizations.
- To achieve lasting benefit from the new lands, traditional land claims must be reconciled with settlers' needs. Infrastructure, services, and agricultural extension must be provided on a long-term basis. For optimal use, therefore, governments will need to plan and finance the development of OCP zones. The ultimate goal would be to achieve sustainability, that is, to use natural resources carefully and sparingly, thereby enhancing their renewable use.
- Local land rights must be harmonized with settlers' rights. Conditions for access to—and development of—new lands and accompanying agronomic, commercial, and environmental criteria must be explained fully to the populations concerned, who must accept and adopt these terms of development before any action is taken.
- Governments need to promote discussion, cooperation, and harmonization of activities among host and settler populations and executing and extension agencies, all of whom will have to work together if OCP areas are to be developed on a sustainable basis. To achieve cooperation among national and local authorities, landowners, valley development officials, village leaders, and representatives of the migrant population, governments should maximize grass-roots participation in the social and economic development of the valley areas.
- Africa needs to develop lands with agroeconomic potential for sustainable exploitation as rapidly as possible. Governments should therefore seek to accelerate the settlement of lands cleared of onchocerciasis. Agencies charged with this task will need the institutional, financial, and technical resources to formulate and implement guidelines for OCP land use, to plan and coordinate appropriate transnational activities, to define objectives for each settlement area, to evaluate progress, and to assess remaining work to be done and to make sure that data on settlement experiences are kept up to date and exchanged among the various OCP sites and countries.

Land Tenure and the Development of Onchocerciasis-Freed Areas in Northern Ghana

George Benneh,
University of Ghana, Legon

The subject of land tenure in Ghana has received much attention from policymakers and researchers. But while the main principles governing access to land are well known and documented, some issues of land tenure need further discussion. These issues are best discussed in the context of the type of development encouraged or planned for Ghana's Onchocerciasis Control Programme areas, which can be broadly classified into the populous upper west and upper east regions and the sparsely populated northern region.

In deciding how these areas should be developed, the government will have to ask the following questions: Is it better to resettle the onchocerciasis-freed areas with planned resettlement schemes, spontaneous resettlements, or both? What are the land tenure implications for the different development strategies? What role should the government take to provide access to land? In addition, those who guide development in the new lands will have to look into such areas as large-scale and capital-intensive mechanized farming, large-and small-scale ranches, mixed-farming agricultural cooperatives, and agroforestry.

Promoting farming schemes is further complicated by the claims of different potential beneficiaries (displaced persons, women who normally have limited access to land, people with resources to develop the land, migrants, locals). Developers must act to make sure that a scheme will be sustainable. And finally, it must be decided which area should receive priority attention.

Land tenure in northern Ghana

Before examining these many policy questions and related issues of land tenure, it is useful to describe briefly the salient features of the land tenure system in northern Ghana. Several studies have confirmed that, in northern Ghana, the communal, or corporate, system of land tenure is characterized by mutual individual user and community (or some other group in which the individual user has an identified status) rights to the same piece of land. Individual user rights are established by initial clearance and use of land. These user rights, furthermore, remain with the initial user and his heirs until the land is abandoned. Once the land is abandoned, the community reasserts its residual interest in the land until someone with recognized status in the community is granted individual user rights. These conditions apply to people who are members of the landholding group, be it a state, clan, or family. Nonmembers of the landholding groups, who are often described as "strangers," may be given easy access to land but have no rights of ownership.

Kasim Kasanga interviewed 346 landowners in the Wa District, of which 249 (72 percent) had obtained their land as members of the landholding group. Ninety-five farmers (27 percent) had gained access to land through inheritance, and 19 (6 percent) by direct allocation from the *tendaana*, or earth priest.

My own studies confirm that similar land acquisition practices exist in the Tamale-Jimle and Tolon local council areas. In Tamale-Jimle, 149 (60 percent) of the 251 farmers interviewed held their land as members of the landowning group, and 91 (36 percent) had obtained land through inheritance. In the Tolon area, people obtain land chiefly through inheritance, which accounted for 288 of 500 respondents (57 percent), as compared with 125 respondents (25 percent) who had acquired land by virtue of being members of the landholding group.

In the Tolon area, 236 of 265 female respondents did not have fields of their own, and 27 had one field each. In contrast, only 2 of 170 male respondents had no fields of their own, and 47 had four different fields.

According to customary law, no individual has the right to alienate land to another person, although concurrent and successive use of the same piece of land by different groups or persons is easily accommodated. For example, one person could have rights of cultivation while another had rights to trees at the same time, or the land might be used by cultivators during the cropping season and as grazing land by herders during the off-season.

In the centralized state systems of the northern region, however, the chiefs are the custodians of all unclaimed lands, which they hold in trust for their people. In the less centralized societies of the upper west and upper east regions, on the other hand, it is the *tendaanas* and not the chiefs who are custodians of all communal land, while all members of a landholding group have equal access to unclaimed community lands. In theory, furthermore, inheritance laws favor sons over daughters. The results of the studies by Kasim Kasanga confirm these characteristics of land tenure throughout northern Ghana.

Settlement schemes

While a great diversity of settlement schemes exist, two features are common to all: the movement of populations and the need for planning and control.

In northern Ghana, organized settlement schemes could help to relieve population pressure in Ghana's more congested areas by redistributing at least some of the population. Land settlement is also part of a general program of agrarian reform that promotes more homoge-

neous distribution of land and labor, and increased agricultural production. In northern Ghana, this embraces both livestock and crop production.

Land tenure and planned resettlement schemes

In the past, planned resettlement projects such as the Gonja Agricultural Resettlement Scheme have involved the compulsory allocation of land to settlers. Such a strategy is only possible in sparsely populated areas; it is in any case expensive, and original landowners may be dispossessed. Settlers are attracted to planned settlement schemes by the prospect of land ownership.

"State-initiated approaches may increase conflict between hosts, settlers, and pastoralists, and between local residents and more powerful individuals from outside the area who do not necessarily settle but perceive the area largely as a profitable investment" (McMillan, Della, Thomas Painter and Thayer Scudder 1992. *Settlement and Development in the Riverblindness Control Zone.* The World Bank). It may be necessary, therefore, to impose restrictions or conditions on the land titles to prevent landholders from transferring their lands. Without such a restriction, some settlers would sell their lands, thereby defeating the aim of the settlement program. Nigeria's 1978 land use decree, for example, prevents holders from transferring their land.

Land tenure and spontaneous settlements

While uniform land tenure systems are easier to impose on planned settlements, spontaneous settlements will encounter entrenched customary tenure systems. Northern Ghana's communal system assures access to land for the landholding group, but migrant settlers must rely on indirect tenure systems, especially sharecropping, which often works to their disadvantage. The rights of the individual parties are often unclear; tenants can be restricted to raise only specific crops; and the division of farm profits between landowner and tenant frequently fails to reflect the tenant's labor, inputs, and capital investment. To safeguard the interests of share tenants in newly opened areas, therefore, governments in the region will have to change existing rules governing the sharecropping system.

Where land is plentiful and access to it is not restricted, farmers tend to adopt practices that satisfy their immediate needs but that are harmful to the soil. In a 1984 study of the Tamale-Jimle area, 172 of 251 farmers interviewed (nearly 70 percent) rated ease of access to land as the tenure system's major advantage. Yet, in this same sample 179 farmers (71.3 percent) had abandoned rice fields they had previously cultivated, 138 (about 77 percent) because these fields had become infertile and 38 (21 percent) because they had too many weeds. In effect, this system of farming is the modern equivalent of bush fallowing. Modern machinery exposes large tracts of land to the ravages of the weather, leading to soil erosion, land degradation, and desertification.

That settlers in new areas will use, abuse, and abandon land is a major fear of at least one witness who appeared before a government committee on the allocation of farmlands in Builsa District. This area, in the sparsely populated onchocerciasis-freed zone, has attracted large-scale commercial farmers from outside the region. According to the witness, "There is the fear that when the fertility of the lands has been exhausted, the in-migrant commercial farmers will repair to where they came from, leaving the indigenous people to their fate on the land."

To ensure both the rational use of land and the conservation of the soil, Ghana's government clearly needs to enact new land use regulations.

Customary land tenure

Large-scale farming-systems. While large-scale farming could be developed in sparsely populated areas without dispossessing farmers, in densely settled areas (such as parts of the upper-east region) small farmers would be pushed out and a class of landless laborers created.

In order to benefit from economies of scale, small farmers can pool their lands for purposes of ploughing and other mechanized farming operations. But to bring about such farming cooperatives, it may be necessary to coerce those farmers who may decline to join voluntarily. In the Republic of Benin, for example, the law states that where 75 percent of the farmers in an area decide to form such a cooperative, the rest are compelled to join. This prevents the formation of isolated pockets of land in large cultivated areas.

Customary tenure and agroforestry. Although, as it has been pointed out, tree tenure may be quite different from land tenure, agroforestry rights have not been much studied. While the ownership of economically significant trees that grow wild, such as dawadawa and shea nut, has never been in doubt, the land tenure consequences of tree cropping are still unknown.

Women's access to land. Many women are good farmers on fields owned by their husbands and parents; yet, despite the Intestate Succession Law that allows them to inherit land, few own their own land. One way of increasing women's access to land is to organize women into farming groups to which land is allocated. A tradition of women labor gangs suggests that female agricultural cooperatives would probably work in Ghana.

Land-tenure and livestock producers. Policies regarding livestock production in the onchocerciasis-freed zones should seek to increase market output and to conserve rangelands.

The "tragedy of the commons" theory argues that only with individual tenure will herders exercise the self-restraint needed to balance herd size with range carrying capacity, because they have a guarantee that other herders will not be allowed to exploit the area. But while there are advantages in providing exclusive rights to discrete land areas, for the vast majority of cattle producers, circumstances of livestock production require some form of communal tenure.

In Ghana, livestock holdings are typically too small for single production units to be able to capitalize on ranching operations and water supplies, and Ghanaian smallholders are not often commercially oriented.

In addition, livestock production is a land-extensive enterprise that requires quick response to highly variable rainfall patterns—particularly in northern Ghana, which is subject to periodic droughts. Any system of land tenure must take into account herders' need to move cattle to distant pastures in response to seasonal and unexpected changes in resource availability. Individual tenure, however, is not easily compatible with seasonal migrations, especially where dry-season pasture conditions are not predictable. It is therefore reasonable to conclude that—although land tenure options for improving livestock production are limited—circumstances virtually dictate that tenure reform must include some form of communal tenure for herders.

Land Tenure and Settlement in the Onchocerciasis-Freed Zones of Burkina Faso

Club du Sahel

Burkina Faso's experience with land management and settlement provides an exceptional example of the evolution of a top-down strategy, introduced in the 1980s, into a participatory development strategy: community-based land management. This review, based on case studies in the field, reveals the pitfalls and advantages of different settlement policies, as well as their impact on natural resources. The community-based land management approach has moved beyond the experimental stage, and today it can be considered an essential model for development projects—and one that is consistent with sustainable development in the onchocerciasis-freed zones.

The 1980s: Creation of AVV zones

Traditionally in Burkina Faso land rights were held by indigenous heads of families, under the authority of local chiefs. Under this traditional land rights system, the use of natural resources was fairly stable. The population settlement policies introduced by the Autorité d'aménagement des vallées des Voltas (AVV) have hurt natural resource management and the social climate in the AVV zones.

The AVV targeted for development zones that were sparsely populated or unpopulated and that the administration thus considered free of land claims. But in reality, even though the indigenous people had withdrawn, they continued to practice religious rites on land in these zones and to exercise their right of land appropriation. In the Bagré region, for example, two physicians conducting a census in the 1960s considered about a hundred villages along the banks of the Nakambé River to be abandoned (Rolland and Balay 1969). Twenty-five years later, however, a land study conducted before construction of the Bagré dam showed that traditional priests (of the land, the hunt, and fishing) had in fact never stopped performing religious rites on the land that had been considered abandoned. Although they no longer lived on the river banks, which had reverted to forest, they claimed control over the land (Faure 1991).

Two case studies—the first conducted near the Ghana-Côte d'Ivoire border, the second on the Mossi Plateau—show the impact that the AVV settlement has had on land occupation and natural resource management.

UP10/V1 Po-Est (Bougouriba Province, Djipologho)

In Bougouriba, the AVV settled migrants on cleared land (referred to as V1) that covered two territories: Djipologho and Kankanpellé. The migrants, from the Mossi Plateau and Dagara, were from the same ethnic group as the host population but originated from other regions. The host population worked together to fight the settlement of new migrants through a land occupation strategy: the chief of Kankanpellé unilaterally settled a hundred Dagara families, and this destroyed the land reserves. Settlers petitioned the AVV for deeds to their claims so that they could counter the indigenous people's opposition with official title to the land. But they lost portions of the land intended for the future expansion of their fields, and the development program essentially failed.

The traditional land rights system had protected forest reserves, for no one would have dared to settle without asking the traditional chiefs for their permission. By contrast, fifteen years after the AVV began its settlement activities in Bougouriba, the forest retreated and the elephant population began to dwindle.

UP1/Gadeghin pastoral zone (Ganzourgou Province)

The AVV designed the pastoral zone of Gadeghin, on the Mossi Plateau, basing the design on theoretical ideas rather than actual circumstances. The design failed to consider the traditional symbiotic relationship between farming and animal husbandry that is vital in this region with its dense human and cattle population. (For example, herders would enter into informal contracts—"fertility transfers"—to provide farmers with manure for fertilizer in exchange for access to wells and surplus crops.) Instead, when the development plan was implemented, indigenous farmers were chased out of the zone by force of arms. In addition, planners significantly underestimated the number of cattle in the zone; basing their calculations on the area (small at 6,000 hectares), they put the estimated maximum number of cattle at 2,500. But in fact, in 1990 there were more than 6,000 head of cattle in the zone during some seasons. The calculations had failed to take into account that herds are divisible, with unpredictable patterns of movement. Finally, the administration either was unaware of the indigenous people's land rights (some of these people are agropastoralists) or denied their existence.

Ten years later, these results could be observed in the zone: natural resources had been systematically destroyed, and the land had been stripped. Trees had been cut for wood and coal to sell in Ouagadougou, and for branches to feed animals at the end of the dry season. The inhabitants lacked any sense of responsibility for the resources, and soil maintenance was nonexistent. Besides the flagrant destruction of resources, there was competition among factions of herders vying for control of the local store (containing salt, agroindustrial goods, salt, and

Table 1 The Gadeghin pastoral zone under the AVV and under the ONAT

Key features of AVV management (1980s)	Key features of ONAT management (1990s)
■ Indigenous farmers chased out by force of arms ■ Small pastoral area (6,000 hectares) ■ Strict arrangement of zone borders (notably for access to wells) ■ Maximum number of cattle estimated at 2,500; actual number in 1990 exceeds 6,000 ■ Failure to account for "fertility transfers" (manure contracts, crop residues) ■ Unawareness of host population's land rights	■ Ongoing consideration of the essential symbiotic relationship between farming and animal husbandry ■ Group efforts undertaken to link indigenous agro-pastoralists residing in neighboring villages and pastoralists settled by the AVV ■ Anti-erosion and forestry activities undertaken to repair degraded land ■ Pastoralists restrict night grazing to avoid destroying the trees
The results	**The results**
■ Land degradation (due to harvesting of trees for wood and charcoal to sell in Ouagadougou, and of branches to feed animals at the end of the dry season) ■ No communal sense of responsibility for the land; no soil maintenance	■ The results remain inconclusive, but a dialogue has begun between hosts and settlers.

pharmaceutical products) and of the herders association, the interlocutor with the outside leaders in a position to grant credit and food aid.

The 1990s: New migrants and new policies

Fifteen years after the creation of AVV zones, poor crops and the adoption of a domestic land policy (the Agrarian and Land Reorganization Act of 1984) have again transformed land occupation in the onchocerciasis-freed zones and in Burkina Faso's southern and western forests, which had been sparsely populated in the previous fifty years. The government has initiated a national land management program that offers a new approach to integrating new spontaneous migrants.

New waves of "spontaneous" migrants

Ten years after the administrationís official settlement of AVV populations, the southern and western forests of Burkina Faso are being relentlessly thinned out. The causes are varied: migrants have interpreted the revolutionary declaration that "land belongs to the state" as meaning that "chiefs no longer have control of the land," and repeated droughts have transformed the migration patterns of transhumant cattle, which have moved down into the southern forests. Other migrants, prompted by the government's announcement that it will introduce irrigated farming in Bagré and Kompienga, have moved on, hoping to benefit from newly developed lands. The populations' acceptance of migrants varies. Some traditional leaders who have lost control of the land are incapable of reacting.

In Diarkadougou in Bougouriba, fifty indigenous Pugli families remain unaware of the arrival of 150 Mossi families between 1991 and 1993. These families followed their religious leader, a sheik belonging to the Tidjan fellowship of Ramatoulaye. They grow cotton, a result of the experience with that crop that a number of farmers gained while living in Solenzo, and have progressively transformed the forest into cropland. They cultivate a religious-based social solidarity (responsibility for the underprivileged and the sick), and their agriculture-based economy is well developed, thanks to the labor force that the sheik can muster from several hundred students of the Koran. But the Mossi families have no social or health infrastructure (wells, schools, dispensaries) and have made no contact with the indigenous people.

Elsewhere, the power of traditional chiefs is such that no one dares to settle without asking their permission. In Dissanga in Kénédougou, for example, the indigenous people control the prime bottomlands, where they grow bananas

and rice, and they forbid "foreigners" to plant trees. They continue to practice their rites and to maintain their sacred relationship with natural resources. And they benefit from the manpower that migrants provide, including the students whom the sheiks send to work in the fields.

As the forest is destroyed to create new fields for crops, to the detriment of land reserves and traditional pastoral areas, conflicts flare up between farmers and herders in all areas. How should these conflicts be resolved?

The issue of land has become critical as patterns of occupation have been transformed. Some free areas remain in the southwest (Bougouriba, Poni, Comoé, Kénédougou), but elsewhere the concentration of cattle is cause for concern—for example, near the Bagré dam, where 18,000 hectares of grazing land have been lost to flooding. Should pastoral areas be recreated? If so, on what scale and within which institutional framework? How are natural resources to be protected? What must host populations do to achieve participatory, concerted, and sustainable development?

The government's answer: decentralized democratic management within an official institutional framework

The Burkinabé leadership quickly became aware of the magnitude of the issue of the migration into free areas in the early days of the revolution. They proposed trying the land management approach in test villages, and subsequently officially adopted the approach in the Agrarian and Land Reorganization Act of 1991.

To put the land management approach into practice, the Agrarian and Land Re-organization Act (paragraph 107) stipulates that village land management committees be set up. The act also provides for the granting of land deeds, which the AVV settlers had desired.

In 1990, the AVV changed its name to Office national d'aménagement des terroirs (ONAT) and adopted a new policy. Its bureaus began to rely more on indigenous people, who previously were excluded. And their approach became participatory and consensus-based: it involved negotiations among social groups, and local village names replaced registration numbers (V1, for example, became Djipologho). In the former AVV zones, the indigenous people were encouraged to participate in development activities (in V4 Rapadama, among others). In newly developed areas, ONAT practiced "assisted spontaneous settlement" (as in Bouni in Bougouriba, which vacated half its land for new immigrants from Po-Est).

The national land management program

The land management program has two objectives: to structure the land area and to organize producers, who are motivated by the potential gains to exercise their right to manage natural resources.

In the approach adopted for these land management projects, the condition of the land is diagnosed in collaboration with the local population, an inventory of resources and needs is established, a list of priority measures is proposed, financial needs are assessed, a village development plan or a village contract is drawn up, and resource management regulations are established. All of the projects have been accompanied by concrete achievements: grain banks have been organized, transport assistance (trucks and fuel) has been provided for repair of degraded soil, mills have been provided for women, and social infrastructure has been constructed (water supply, schools, dispensaries).

The concept of "zoning"—dividing up the land according to assigned activity—has been highly successful in cotton-growing areas. In Kimi and Sébédougou, for example, the delineation of zones has made it possible to protect cotton crops and to transfer fields from nonfarming to farming areas. The Peuhl population, with the support of the forestry services and the prefect, ensures that land and pastoral reserves are protected by issuing fines to offenders (Faure 1992).

The land management program professionals have also addressed the issue of transhumant animals. In Bougouriba, for example, professionals decided to combine different types of know-how and activity. They trekked up seasonal trails to meet with veterinarians and to identify the animals' routes. This strategy makes it possible to inform herders who plan to cross a developed area where they may cross without difficulty.

Conclusion

Burkina Faso has yet to achieve an official, decentralized, institutional management framework at the most local level, and the land management approach still needs to be diffused throughout the national territory by communicating its principles to professionals, civil servants, and development agents. But the Burkina Faso experience nevertheless shows that it is possible to resolve land issues and natural resource management problems with a program such as the land management program.