

such as fertilizer and insecticides; to ensure that they will be available when needed, these inputs often must be brought into these districts months before the rains begin.

The rainy season may complicate access to district hubs, but it cuts off communities located off the national road system. The sense of being doubly confined—inwardly and relative to the rest of the region—is one factor that prompts young people to strike out for areas with better communication links. Most take up residence near the main trunk roads, particularly the Djougou-Bassila-Savalou, Djougou-Parakou, and Parakou-Dassa stretches, all of which are in the extended OCP area. Rarely do they make it as far as Cotonou, the country's commercial hub. Most of those emigrating from the original OCP area end up in the rural districts of Banté, Bassila, Djougou, Glazoué, Savalou, and Tchaourou.

Bassila District alone has become home to 5,000 emigrants from the original OCP zone. The zone of spontaneous settlement, largely for Otamari and Lokpa migrants seeking farmland, is the triangle formed by three trunk roads: Djougou-Parakou, Parakou-Dassa-Zoumé, and Dassa-Zoumé-Bassila-Djougou. Although proximity to these roadways is one factor in settlement decisions, migratory traditions also influence these decisions—as do the results of past experiments with the settlement of agricultural land.

Migratory traditions of the Otamari and Lokpa. The destinations for most Otamari and Lokpa who abandon poor-quality land in the western settlement zone are the districts of Bassila, Glazoué, Savalou, and Tchaourou. Here they are recruited as farmhands to grow yams, tobacco, and groundnuts.

The migratory flows are organized, with migrants traveling in groups of three to five. Most find work with merchants or on medium-size farms and become integrated into family life or settle on farms. Those who integrate successfully and acquire land for farms put down roots there. Young people who had remained at home hear of their success and follow in their footsteps.

Two settlement programs were attempted in Bassila District (in the OCP extension zone) to ease the constraint of poor farmland in the districts of Boukoubé and Ouaké in the western zone. The first was a 1962 initiative by a pastor of the Sudan Interior Mission to help the Lokpa people of Ouaké. The second, a government-sponsored venture in 1968, was targeted to the Otamari in Boukoubé.

The first program established the new villages of Biguina I, II, and III, which, by the 1979 census, were home to some 3,500 people. The second experiment was less successful. The new village of Diapéni started out with a population of about 1,000 but has seen all but 300 leave. Nevertheless, an estimated 1,500 Otamari settlers are now

permanently established in Bassila, thanks to this state-run program and to spontaneous migration.

The traditional migration patterns in this part of the country and the settlement experiments show that despite the fertile land available in the OCP eastern settlement zone, the Otamari and Lokpa people from the west do not migrate to it spontaneously. The eastern zone is much more cut off than the extension zone; the history of tribal wars may also play a role, as well as the heavy reliance on yams, which are cultivated in rotation cropping and therefore entail itinerant agriculture.

In Burkina Faso, when the spread of onchocerciasis was halted in the Volta valleys, those areas were settled spontaneously by the Mossi people, even though ethnic considerations might have predicted otherwise and even though settlers were not automatically given final title to land. The overpopulation of the Mossi Plateau (120 inhabitants per square kilometer) and persistent drought left residents no choice but to hunt elsewhere for water and land. In Benin such a combination has not been enough to alter traditional migration flows.

The Beninese authorities therefore think it unlikely that any "directed settlement" project would succeed at this time in the valleys of the Mékrou, Alibori, and Sota in the viable (eastern) zone of the OCP area. Those living in the east have available to them vast expanses of agricultural land, and those with insufficient or degraded land are electing to move to areas not yet cleared of onchocerciasis, despite the risk. Under these circumstances, the program should quickly direct its attention toward the extension areas to build on its gains in controlling onchocerciasis.

Cross-border emigration

According to the INSAE survey, 17 percent of Beninese who abandon their homes cross into Niger, Nigeria, or Togo. Because of its more advanced economy, Nigeria holds particular appeal for young emigrants; it was the choice of about 65 percent of those who had emigrated from the villages surveyed.

This outward migration is emptying the countryside. Whether it continues will depend on how wide a development gap persists between Benin, with its farm-based economy, and Nigeria, with its oil wealth. Unless agricultural policies are introduced to help Beninese farmers increase their production and income, this emigration may indeed continue, thwarting efforts to resettle these areas and develop onchocerciasis-freed land.

Settlement of land

The government, having witnessed the slow, sporadic trickle of migrants toward valleys in the eastern zone, has not organized any focused program to settle areas now

protected from onchocerciasis. Instead, given the factors triggering emigration, the objective has been to improve economic and social conditions in the OCP area, particularly in the eastern part, to attract people who will settle there of their own accord and work the land. Such an effort would include upgrading roads, schools, and health care facilities and developing village water supply systems.

The only prospective settlers of the eastern zone, given its poor communications, are those living in this region; it is unlikely to attract many outsiders. But the extended OCP area will continue to attract Otamari and Lokpa migrants in the years ahead. And there is a risk that plans to pave the roads between Dassa and Parakou, Parakou and Djougou, and Djougou and Savalou, the three sides of the triangle of viable agricultural land, will give this already attractive area an even stronger appeal for prospective settlers.

Shaping a development strategy for onchocerciasis-freed areas

To help devise a development strategy for the onchocerciasis-freed areas, officials from Benin's Oncho Unit traveled to Burkina Faso, Mali, Niger, and Togo to examine those nations' efforts and achievements in developing areas once plagued by the disease. They found no single, standard strategy; each country has worked out its own policy, taking into account its features, development goals, and priorities. Benin, too, has set out to fashion its own strategy, with careful regard for the nature of each onchocerciasis zone. It has performed a number of field studies in the program area to assess the regions' development problems, the aspirations of those living there, and their willingness to find, or to help find, solutions. Settlement was one issue these studies addressed before the government opted for an integrated, endogenous development style centering on the current population.

Settlement

One of the ultimate concerns of the Onchocerciasis Control Programme in the Volta Basin is the development of fertile valleys that are underpopulated, if not virtually deserted. An argument often made is that this land was abandoned because of onchocerciasis and that, once the spread of the disease is halted, the original inhabitants should be brought back in, or outsiders should be encouraged to resettle from overpopulated plateaus where already poor land is being overfarmed, or both. But this argument is difficult to sustain.

Return of emigrants. The valleys are clearly underpopulated, but so is northern Benin generally. The districts of Kérou, Kouandé, and Péhunco in the Mékrou Valley, with nine, eleven, and twelve inhabitants per square kilometer

in 1979, were no more sparsely populated than Ségbana, with four inhabitants per square kilometer, or Nikki, with eight. Evidently, then, factors other than onchocerciasis are responsible for the low population density in the valleys. Two possible causes are epidemics caused by guinea worms and tsetse, and tribal conflicts and wars to rebuff colonization. It thus is difficult to affirm that there are people who emigrated from the valleys to the poor plateaus who should now be brought back to the valleys. If there are no such emigrant groups to return to the land, outsiders offer the only possibility for settling it.

Settlement by migrants. The parts of Benin now considered cleared of onchocerciasis constitute roughly half the nation's territory but are home to less than a third of its people. They thus represent significant reserves of land. Southern Benin, by contrast, has a large population and not enough land to satisfy its needs or achieve development objectives. Agriculture could be expanded in northern Benin if some of the population in the south were shifted to empty river valleys in the north; the congestion of densely populated pockets in the north, such as Boukoumbé and Toucountouna, could be eased in the same way.

It is unlikely, however, that such settlement operations would succeed. They would be thwarted by, among other factors, the behavior of population groups, the distance of the land from prospective settlers' home villages, and, above all, the tradition of spontaneous migration. The traditional direction of spontaneous migration in Benin is from north to south, and from the countryside to the towns. Any south-to-north movements that have been observed are seasonal (tied to the growing season of three to six months). Seeking to reverse these flows without first resolving the problems that have prompted them would be unrealistic. Onchocerciasis is but one of these problems; another is the lack of social and economic infrastructure.

Integrated endogenous development

The obstacles to settlement programs, and the recent failed attempts on this front, argue strongly against launching any new organized effort that would entail shifting the population from one area to another. Benin has elected instead to pursue an integrated, grass-roots development strategy to contend with the factors keeping settlers from moving to the onchocerciasis-freed areas and to foster and channel spontaneous immigration to these areas, in order to ensure that they are put to productive use in the medium and long term. The goal is to mobilize rural communities to be partners in development as well as beneficiaries, by exploring and taking account of their motivations and tapping their creativity and their ability to resolve development problems on their home turf.

Table 2 Averages annual rate of growth in production of selected crops, 1981-91 (percent)

Crops	Benin	OCP area	Péhunco
Maize	4.9	29.3	30.2
Sorghum	10.5	13.3	12.7
Yams	7.6	9.3	34.9
Cotton	112.7	114.7	430.0

Note: Because agricultural statistics are usually aggregated by province, data for the country's two northern provinces—Atacora and Borgou—are used for the OCP area.

Source: DAPS/MDR.

The Péhunco pilot project

To test an endogenous, participatory, and integrated development strategy to develop onchocerciasis-free areas, the government of Benin, with FAO support, devised a pilot project for integrated development in Péhunco. Funded mainly by the United Nations Capital Development Fund and implemented by the FAO, the project was initiated in 1987.

Description of the project

The project follows a bottom-up, systematic, and participatory approach in which the broad picture takes precedence over sectoral concerns. Targeted toward communities of small-scale farmers, it looks squarely at their objectives, their techniques and operating know-how, and their initiative. The ultimate goal is to help them develop the ability to solve their problems by bolstering their skills and fostering entrepreneurship.

The guiding principle is to help communities respond to their perceived problems and needs, encouraging them to manage their own affairs. Current difficulties and needs are identified, technical options that make sense in the setting are devised in consultation with those that stand to benefit from them, and measures are planned, implemented, monitored, and evaluated. This kind of grass-roots approach brings people to shake their long-standing habit of looking to the outside for help. But even with its strong participatory element, the project cannot be expected to transform its beneficiaries overnight. Its starting point is the real world: What are the people like? What do they want? What can they do? And what do they know that can help them advance? The project thus accords importance to indigenous know-how and to training. Central to the project's approach are:

- Lessons learned from previous ventures
- Consideration of national rural development policy
- The need to gear activities to the project's setting

- Flexibility to allow the project to adapt as the target population becomes increasingly comfortable with the participatory approach.

The Péhunco pilot project thus looks at the advancement of communities from the viewpoint of their own aspirations, and engages them in a partnership with the state and the international aid community. It calls for modest sector investments with recurrent charges that can be defrayed by the general budget. The chief areas for action are agriculture, water supply, roads, sanitation, education and literacy training, recreation facilities, and loans for farmers, craftsmen, and housing.

The project is considered an experiment because of its innovative nature, the complex issues that come into play in participatory development, and its cross-sectoral approach to the institutional problems that arise in carrying out such a venture.

In its second stage, now underway, the project is developing a "showcase" approach. This should enable the project to become a sphere of action for a number of interdependent projects to attend to the needs voiced by communities. The goal is to optimize the efforts and ensure that they dovetail successfully.

Taking stock of the project

A thorough evaluation of the project exceeds the scope of this report. Instead, we examine a number of milestones relating to its two core objectives: to raise income by increasing farm output, and to accelerate settlement in the area.

Growth in agricultural production in Péhunco. Agricultural output has increased sharply in the Onchocerciasis Control Programme area in Benin. The annual rates of growth in the production of four main crops between 1981 and 1991 were higher than the national averages (table 2)

The Péhunco district also posted remarkable gains. Yearly increases in its production of the main crops, except for sorghum, were stronger than the regional average.

Cotton production in Benin rose after the 1982/83 crop year, thanks to favorable rainfall conditions and the start-up of large-scale initiatives such as the Borgou integrated rural development project. The effects of the pilot project on cotton production in Péhunco can best be illustrated by comparing the performance in 1988-91 with that in 1987 (the year the project began). The average annual growth rate in Péhunco was 82.3 percent, compared with 41 percent in the OCP area and 38 percent in Benin. With this strong increase in output, Péhunco has consolidated its position as an important cotton-growing area. Although the district accounted for only 1 percent of cotton produced in the OCP area in 1981, in 1991 it accounted for 18 percent, with only 2.3 percent of the population.

Because cotton is the leading cash crop, the dramatic growth in its production should translate into a comparable jump in income for the population in Péhunco and thus into improved living conditions, not least because of the project's stress on training and motivation. The integrated development pilot project thus will have helped make the district of Péhunco a better place to live in the eyes of current inhabitants and prospective settlers alike.

Population growth in Péhunco. During 1979-92, Péhunco's population grew at an average annual rate of 3 percent, increasing from 22,880 to 33,727. The national rate and the rate in the OCP area were 2.9 percent. Clearly, then, some specific dynamic was at work in the pilot project area. The stronger growth rate may be linked to falling mortality rates, particularly for children, thanks to expanded health care and sanitation coverage and improved water supplies. But the more likely explanation is the stream of migrants moving into the area. Lending credence to this conjecture is the higher male-female ratio in Péhunco; men traditionally are much more likely to migrate than women. The number of males per 100 females climbed from 98.6 in 1979 to 103.2 in 1992; nationally it increased from 92 to 95; and in the program region it rose from 96.6 to 99.2. With Péhunco situated at a type of crossroads in the program

area, it is not surprising that such a growth pattern would manifest itself there.

Over the past ten years, then, the Péhunco district appears to have gained settlers at a faster rate than the OCP area as a whole. That outcome supports Benin's decision to enhance economic and social conditions in the onchocerciasis-protected areas in order to encourage settlement through voluntary immigration, rather than through organized settlement programs bringing people from densely populated areas. Such settlement programs fail to take into account the balance that often exists between an environment and its population.

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Experience of Burkina Faso in Selecting Settlement Sites and Settlers

Burkina Faso

In Burkina Faso, most of the responsibility for managing Onchocerciasis Control Programme areas designated for resettlement lay initially with the *Autorité d'aménagement des vallées des Voltas* (AVV), although other agencies were later set up to carry out similar activities; for example, *Autorité de mise en valeur du Sourou* (AMVS) and the *Direction Générale de la maîtrise d'ouvrage de la Komienga* (DG/MOK). The AVV was established in 1974 to carry out studies and promotional activities for resettlement and to coordinate and execute (or supervise) operations supporting economic and social development of the OCP areas (covering some three-fifths of the country).

In discharging these functions, the AVV has generally followed a five-step plan of action:

1. Planning (methods, procedures)
2. Construction of basic infrastructure, and recruitment, transfer, and resettlement
3. Period of adaptation, transition, and establishment
4. Economic and social development
5. Transfer of responsibilities.

Site Selection and Preparation

The site selection process consists of several steps. The first is to conduct land management studies to identify the characteristics and potential of each settlement area. This information is then used to determine land management zones and to prepare a land management master plan, which establishes the preferred uses for each area. Topographical surveys are then conducted to show, among other things, where the highest area is outside the areas to be cultivated. This area is selected as the site for the village. The main difficulties encountered during the site selection process are finding nonmarshy tracts of land and estimating the costs and planning the logistics for providing the necessary land and water resources.

Several types of land management zones, have been identified:

- Rainfed agriculture zones, where a large share of the soil is good and villages have already been established and are inhabited by farmers recruited in overpopulated regions or regions lacking cultivable land
- Irrigated agriculture zones, where there are sufficient water resources and appropriate soils for irrigation projects and where fishing in man-made reservoirs offers a secondary source of income
- Livestock zones in the cattle regions of the south,

where ranching and livestock-fattening projects are being or could be developed

- Wildlife reserves, where natural parks and tourist projects could be developed
- Forestry zones close to population centers, where trees will be planted as a source of fuelwood and construction lumber.

Analytical studies have identified eight broad types of land (*milieux*) in the AVV management zones that are suitable for integrated management and determined which uses are appropriate for each type. These uses are divided into three main categories: agricultural, pastoral, and forestry. The proposals for settlement sites take into account the types of land present to evaluate not only what economic activities should be pursued, but also what measures should be taken to safeguard the ecological balance.

Land management studies

To begin the land management studies, basic data are collected for a geographic management unit, a "block," measuring an average of 10,000 hectares, and then for a development unit, itself located within a planning unit (see table 1 for the sequence of studies and activities necessary to establish a settlement). An aerial photography mission provides a physical model of the block on a scale of 1:20,000, showing hydrographic and land use data. Three types of preliminary studies are carried out on key aspects of the land management program: sociological, soils, and hydrogeological studies.

Using simple management criteria (minimal distances between village centers and farmland and between dwelling areas and water points, farming villages comprising twenty-five, fifty, or seventy-five households, with each allocated one 1-hectare plot for its own use), and assuming that the farms will be smallholdings, these studies will yield results that can be used in preparing a master plan for block development. The block master plan shows the location of the villages, the farmland allocated to each village, village access roads, and location of community facilities (schools, clinics, sheds, markets, and housing for extension workers, block supervisors, and other personnel).

This study phase lasts at least two years. The first year is devoted to the basic studies, and the second to prospecting for water on the basis of the results of the soils study and of a joint exercise combining geophysical surveys and test drillings. This phase is completed with the preparation of the block master plan.

Topographical studies and erosion control experiments

If no large-scale topographical studies of a block exist, surveys must be carried out (on a scale of 1:10,000, taking one survey site per hectare) to obtain the information on

slopes, relief, and location of the hydrographic network that is needed to pinpoint the location of the soils recommended by the soils expert and the sites selected for the villages. AVV survey teams perform this work, surveying 1,000 to 1,500 hectares for a fifty-household village. This operation can take place after the block master plan is established, showing the farmland boundaries and the village sites—at the earliest, one year before resettlement occurs.

Work is also done during this phase to assess environmental conditions. Researchers analyze soils in the region to identify precautions that should be taken and mistakes that should be avoided to ensure satisfactory soil conservation in areas subject to severe erosion. By measuring runoff and sediment load, researchers are able to estimate the pace of erosion under different uses of the land (tree cover, cropping, grazing). The results of these studies show the utility of arranging the farm plots to allow for contour planting, of taking steps to avoid leaving the land bare, of planting windbreaks, and, if possible, of practicing strip cropping and protecting fallow lands against brush fires.

The land management plan is then drawn up, indicating the arrangement of the farm plots (based on the ecological considerations), the cropping strips grouped in fields, and the farm roads and anti-erosion drainage systems. The strips are physically established field by field as the farmers become ready to cultivate them.

The next step is to subdivide the area, allocating 1.5-hectare plots to each farmer, who will cultivate only as much of his plot as it is estimated that his own family can handle.

Collective infrastructure

The collective infrastructure works (roads, water supply systems, storage depots) are put into place before the farmers are settled. Housing for the social workers and extension workers who are to receive the settlers is built at the same time. Task forces carry out most of this construction work, using equipment owned by the AVV.

The AVV is responsible not only for building internal roads in its management zones, but also for linking these roads with the existing road system, by constructing connecting roads that may sometimes extend for dozens of kilometers. To simplify construction and ensure durability and ease of maintenance, the AVV has opted for a single type of year-round construction for all roads, the management zone access roads, the main roads within blocks, and the road links to villages. In addition, paths of a more rudimentary nature are constructed within the villages.

The water supply requirements for settlements have been estimated at 400 liters per household per day (20 liters each for eight people, 30 liters each for four head of cattle, and 120 liters for small livestock). These requirements are met through mechanically drilled tubewells 40

meters deep and 15 centimeters in diameter. Because tubewells of this size can be operated only by a hand pump, two are installed in each twenty-five-household village, three in each fifty-household village, and four in each seventy-five-household village.

For durability, settlement buildings are constructed of reinforced concrete, with aluminum roofing and metal fittings. Extension workers (one per twenty-five households) receive a two-room house, as do the members of the socioeconomic survey team (one per 100 households) and the female extension workers (one per fifty households). The block supervisory personnel—the block chief, the manager and storekeeper, primary school teachers, and nurses—receive three-or four-room houses.

Each block also has a three-classroom school, a dispensary, and a central depot (100 square meters) for storing emergency food supplies and inputs. Villages will have smaller storage facilities (one for every twenty-five households, measuring 36 square meters) for food supplies and inputs.

Settler selection

Once the carrying capacity of an AVV project site has been determined, settlers can be recruited and selected. The AVV's transfer and resettlement unit is responsible for selecting and recruiting the farmers to be resettled in the new sites. It gives priority to the host population and spontaneous settlers already living in the block in which the land management program is to be implemented. It then focuses on those areas from which people are already emigrating in large numbers because of overpopulation and the declining fertility of overworked soils. The Sourou project is recruiting settlers in the provinces with chronic shortages of rainfall (twenty of the country's thirty provinces).

Recruitment of settlers proceeds in several phases. Information about resettlement is disseminated in the target provinces, and application forms are distributed. Project planners then travel to the provinces to provide information on the nature and conditions of the resettlement area. Finally, application forms are processed and the settlers are selected.

Dissemination of information

Information on resettlement is disseminated within the subprefectures by recruitment and migration agents (RMAs) with support from the government authorities and the *Organisme Régional de Développement* (ORD). Broadcasts over the rural radio system, anchored by a female AVV agent, discussions with administrative and technical leaders, and informational meetings organized in target areas also provide information.

To ensure that the information is correct, the AVV has

devised an information booklet that it distributes to the RMAs, ORDs, and government authorities. This booklet is designed to inform prospective settlers about the AVV, its areas of expertise and organization, what settlers should expect, and what their obligations and duties would be (this information is also found in the list of requirements, or *cahier des charges*). The AVV works to ensure that the farming conditions in the AVV area are accurately depicted in order to discourage applications from people lacking the necessary motivation.

Registration and selection

Those wishing to apply for resettlement must register with the ORDs or the prefectures. A well-established network of local survey teams (RMAs) contacts each applicant, and a recruiting agent verifies that he meets the required conditions. Each applicant must be the head of a household with at least three members of working age (between sixteen and fifty-five), he must have farming experience, and he must demonstrate the requisite personal qualities (moral integrity, motivation). The recruiting agent also tries to determine the applicant's social standing in his area of origin. Finally, the agent gives the applicant a complete description of his future situation as a settler and explains his rights and obligations.

Transfer and resettlement

Once a settler's application is approved, the settler will receive transportation to the site of his choice as long as the distance is more than 50 kilometers. The AVV will transport his household and goods in a one-time move between January 1 and March 31 of the year of his resettlement.

Upon arrival at the settlement site, the settler takes possession of the concession on which he is to build his house. Extension workers receive settlers, assist them, and provide them with emergency World Food Programme (WFP) supplies to meet their household food needs. Distribution of WFP supplies will cease after the settlers have been in place for two years.

Difficulties encountered and lessons learned

Many of the problems encountered in the settlement process concern differences between customary law and the new land law, and the relationship between the host and settler populations and between farmers and pastoralists. For example, conflict has sometimes arisen between settler and host populations after farming communities, under the new land legislation, requested and obtained administrative autonomy from the traditional villages that originally granted them cultivation rights. Conflict has also arisen over herders' grazing rights. Neither statutory law (*droit réglementaire*) nor customary law (*droit coutumier*) recognized the principle of rangeland rights for herders before the agrarian and land reform, and intervention by project or government authorities has often been necessary to guarantee these rights.

To minimize such conflicts, a sociological study of the area to be settled should be conducted before recruitment takes place. In addition, the information dissemination activities carried out before registration and selection of settlers should include efforts to promote long-term cooperation between the settler and host populations in managing the local natural resources.

Table 1 Timetable of activities before installation of settlers and in early phases of settlement

Activity	Four years before settlement				Three years before settlement				Two years before settlement				One year before settlement				Year 1 of settlement			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Aerial photos (1:20,000)	■	■																		
Soil reconnaissance (1:100,000)		■																		
Hydrological reconnaissance (1:100,000)																				
Agropastoral reconnaissance (1:100,000)				■																
Sociological reconnaissance (1:100,000)				■																
Hydrogeology (1:20,000)				■	■	■														
Soils (1:20,000)																				
Sociology (agrosociology) (1:20,000)				■	■	■														
Photogrammetry (1:10,000)									■	■	■									
Land management master plan									■	■	■	■								
Land management plan									■	■	■	■								
Sociological study of areas of origin									■	■	■		■	■	■					
Layout of cropping strips													■	■	■					
Layout of villages													■	■						
Drilling of tubewells															■					
Temporary roads															■	■	■	■	■	■
Construction of buildings															■	■	■	■	■	■
Permanent roads															■	■	■	■	■	■
Mechanical clearing															■					
Initial plowing, field 1																	■	■		
Installation of settlers																				
Year 1 of settlement																				
Manual clearing (settlers)																				
Initial plowing																				
Year 2 of settlement																				
Initial plowing																				
Fields 3, 4, 5, 6																				

The Land Tenure System in the Settlement Areas of Burkina Faso

Burkina Faso

Agriculture dominates Burkina Faso's economy, providing a livelihood for more than 90 percent of the population and contributing 35 percent of the country's gross domestic product (per capita GDP is about \$320). Thus, land is an essential resource, one that social groups have always sought to control.

Before the colonial period, ethnic or family groups applied land tenure systems that were consonant with their economic and sociopolitical structures. Although these customary land tenure systems differed from one another in some ways, they also shared important characteristics.

Colonization brought with it a land registration system that led to the creation of private property through land titling. The colonialists also instituted a system of property of the state and of constituent subdivisions (*collectivités publiques secondaires*). The post-colonial state thus inherited a dual land tenure structure, in which the customary system (*régime coutumier*) coexisted with the statutory system (*régime réglementaire*).

In the mid-1980s, Burkina Faso's government drastically modified the land laws. *Réorganisation agraire et foncière* (the agrarian and land tenure reorganization, RAF) instituted *domaine foncier national* (national state property, DFN) and determined the appropriate system of land use management.

This paper describes the land tenure systems that prevailed in Burkina Faso's traditional villages and in the state's development and resettlement program areas, and the effects of those systems, and then reviews the changes that have occurred since the RAF was implemented in 1984.

Land tenure in the settlement zones of the OCP area

The Onchocerciasis Control Programme area in Burkina Faso contains two main types of land zones: zones occupied by traditional villages, and sparsely populated zones close to watercourses that are reserved for the state's development and resettlement programs.

Land tenure system in traditional villages

The traditional village is a spatially organized sociological grouping founded on beliefs, clans, and forms of community life. It involves an association between a physical space and the group that inhabits it. Under the customary land tenure system that long prevailed in traditional villages, land was occupied and appropriated in the name of the village or a family group.

The customary land tenure system, the oldest and

most widespread land tenure system, is characterized by the following features:

- A right to collective appropriation of land, so that land belongs to an ethnic group, tribe, or family, but never to an individual.
- A right of eminent domain assigned to the headman, who, as a descendant of the land's first occupant, intercedes on his group's behalf with the supernatural forces linked to the land and who administers all the land belonging to the group.
- Individual or collective rights to farm and use land. These rights are permanent and may be handed down to the heirs by any member of the clan or subclan that holds the collective right of appropriation. For any beneficiary who is not a member of the clan, however, such rights are provisional and the land is provided on loan.
- The customary land tenure system poses several problems for settlements in the OCP area. First, the land is not always assigned to those who would like to farm and are capable of doing so. Second, because of the original abundance of land, the inhabitants have become used to engaging in extensive farming practices that can have harmful results (making anarchic and excessive land claims, allowing livestock to wander freely). Third, the restrictions under the right of temporary use extended to migrants lead to insecurity of tenure and encourage activities that have adverse effects on the land. The migrant is discouraged, either directly by the landowner or by the impermanence of his situation, from undertaking works to improve or maintain the land, such as constructing anti-erosion sites, improving the soil, and planting trees. And fourth, there is an overlapping of rights under customary law. A piece of land that belongs, first and foremost, to a clan or subclan as collective property can be permanently assigned to any family in that group, while the rights to the use of that land can at the same time be assigned to a family member or outsider. This overlappological behavior of the people involved. In search of a more effective approach, a pilot project for integrated development was devised and implemented, to see whether an endogenous, participatory development strategy could open the way to sustainable development of onchocerciasis-free areas.

Land tenure system in state-developed settlement areas

The land laws in force in the state's development and resettlement areas before 1984 were governed by the statutory land tenure system. In colonial times, legislators established special land tenure rights for real estate belonging to legal entities (state, secondary constituent

subdivisions, and statutory bodies) that distinguished between public and private property. Public property is any natural or man-made property that, by its nature or purpose, cannot be considered private property (roads, bridges, ponds, watercourses, and lakes and their beds and surrounding areas).

After independence, other laws were added, among them Law 77/60/AN, promulgated on July 12, 1960, which regulated privately owned land in the country. By organizing a concession system of land occupancy and tenure, the state became the potential owner of all land that was unregistered when the law took effect.

While these provisions defined the general framework for the system of management for developed land, the basic text was Law 29/63/AN, promulgated on July 24, 1963. This law authorized the government to reserve for the state a share of any land that had been specially developed and to declare sparsely populated or remote land the property of the state. This law provided the only legal framework for large-scale rural developments. It is by virtue of this law that the state issued decrees defining land tenure and management procedures within the land management zones, such as basic studies, a land management master plan, a land management-plus-zoning plan, definition and installation of infrastructure, and recruitment, transfer, and settlement of volunteer farmers.

A number of difficulties arose in the application of these regulations, which governed land tenure management in the land management zones until 1984:

- The coexistence of the traditional and statutory land tenure systems caused innumerable disputes between the government and the villagers living near the land management zones; these villagers claimed collective ownership rights to the land.
- Mass migration of people from other regions (farmers looking for better land, herders in search of watering places and pastureland) severely disrupted the development plans for the village lands and resulted in many conflicts.
- The government was unable to enforce its land laws by expelling spontaneous migrations and overriding customary law.
- Lack of land tenure security and of individual or collective land title that could be used as collateral discouraged settlers from investing in, or taking any initiative for, improving or maintaining the soil or undertaking real estate activity.

Agrarian and land tenure reorganization (RAF) since 1984

Agrarian and land tenure reorganization (*Réorganisation agraire et foncière*) was established by Order 884-050/CNR/PRES, promulgated on August 4, 1984, and

implemented by Decree 85-404/CNR/PRES of August 4, 1985. On June 4, 1991, new laws were promulgated to incorporate revisions to the order and decree (Zatu AN VIII-0039 Bis/FP/PRES and KITI AN VIII-0328 TER/FP/PLAN-COOP). A second revision of the RAF texts is planned for 1994. The RAF texts have been the only land laws in force in Burkina Faso since their promulgation and therefore are applicable in the settlement areas, as well as in every other part of the country.

The RAF texts established a national state-owned domain (*domaine national foncier*, DFN) that comprises all land within the national territory as well as land acquired abroad by the state and secondary constituent subdivisions. The texts prescribe how different types of land are to be used and the requirements for use, and include a number of precise stipulations on land tenure, development, and management. Although the DFN is state property, the land may be leased for private use.

In the management of the DFN, a distinction is drawn between urban areas intended essentially for residential and related activities and rural areas devoted to farming, forestry, and grazing. Urban and rural development schemes call for master management plans consistent with provincial, regional, and national land management guidelines.

Developed DFN land is registered in the name of the state; undeveloped land must be registered before it can be assigned. Any occupant of DFN land is required to hold the appropriate right of usufruct (*droit de jouissance*). Use of undeveloped rural land to meet the food and housing needs of the occupants and their families, however, does not require possession of official title or payment for occupancy or use of the land, except in certain specific cases.

Irrigated farmlands are allocated by an ad hoc commission in accordance with the list of requirements (*cahier des charges*) drawn up by an interministerial commission. Occupancy and use of such land by individuals or corporate bodies are subject to the issue of a right of usufruct by the competent authority and may entail the payment of taxes and dues.

Occupancy and use of developed land reserved for rainfed agriculture require a right of usufruct granted by the competent authority and may be subject to taxes and fees. Such land is allocated to individuals or corporate bodies and may be used by associations, groups, or cooperatives.

The effort to implement the RAF has been hindered by a number of problems:

- Many population groups have failed to recognize the legitimacy of the management structures contemplated under the RAF, and many rural groups continue to follow the customary land law.
- The RAF management structures either have not

been put in place or are not operational, leaving a vacuum that impedes the work of many projects and rural development agencies.

- The relationship between the Provincial Land Use Management Commission (CPAT) and the Provincial Technical Consultation Executive (CCT/P) remains poorly defined, leading to duplication of activities and excessive red tape.
- Although master plans and management plans are either ready or under preparation, the provincial, regional, and national land use management plans are not yet in place, a delay that may later lead to problems because of lack of congruity between these different management instruments.
- Both officials and the general population are insufficiently informed about the RAF laws. Officials must be completely familiar with these laws, not only so that they can perform their jobs effectively, but also so that they can keep people well informed.
- Land disputes are on the increase in both traditional and managed areas. These disputes have myriad causes. In the traditional areas, problems often arise because of disputed boundaries of farms, villages, and departments, conflicts between farmers and herders and between settlers and the host population, mass migrations that heighten land tenure pressures, and conflicting claims of different clans. In the managed areas, conflicts often concern land claims by the host population, identification of beneficiary groups, and settlers who use land in ways inconsistent with the management plans.

Strengthening the land tenure system

This review of the successive land tenure systems in Burkina Faso has shown some of the difficulties that they

have encountered and some of the shortcomings of the RAF. It also suggests steps that could be taken to strengthen the current system:

- Avoid creating management structures that duplicate existing structures
- Establish a national land management fund to support appropriate actions
- Widely disseminate the RAF texts, including translations in local languages, and publish the underlying laws
- Increase the effectiveness of the RAF management units
- Devise a rural land registry so as to better handle the issue of land tenure and usufruct rights in rural areas
- Address the problem of insecure land tenure at the state level by issuing land tenure and usufruct titles, effectively implementing the land management plans, creating viable settlements and infrastructure, and devolving authority and at the local level by ensuring that the people assume responsibility for developing their land through participation in the village community land management committees.

Conclusion

The experience in implementing Burkina Faso's land tenure systems suggests that there is room for further adjustments to the current laws, to bring them closer into line with practical realities. This review of that experience also suggests that enforcing land legislation in support of sustainable development in Burkina Faso's onchocerciasis-free settlement zones requires giving priority to training, dissemination of information, and institutional and human resource development.

Sustainable Settlement in the Onchocerciasis Control Programme Areas of the Republic of Guinea-Bissau

Republic of Guinea-Bissau

The Republic of Guinea-Bissau is one of the poorest developing countries. It faces serious economic problems linked both to the structural imbalance left by five centuries of colonial rule and to its distorted economy, which is excessively government-controlled and, although the country's major production activities are agricultural, heavily oriented toward urban production. Situated on the western coast of Africa, the country has an area of 36,125 square kilometers and a population of about one million.

The economy

When it became independent in 1974, the country inherited an economy in disarray. Its officials began the task of rebuilding the economy. The first steps toward economic development were marked by increased centralization and omnipresent government. The international community's support for the country and the determination of authorities to achieve rapid reconstruction led the government to undertake an ambitious investment policy. But poor economic management capacity resulted in programs that were often ill adapted to the country, and its economic choices did not yield the expected fruits. Instead, those choices set the economy on a course toward crisis, with a massive debt that the country has no assurance that it can service. Drought and plummeting world prices for the country's main exports further eroded the situation.

To try to reverse the trend of deepening domestic imbalances, the government launched an economic and financial stabilization program in 1983 with the support of the international community. The program garnered positive results: exports increased, budget revenues covered civil service wages for the first time, and currency issues remained below projected levels. But 1985 and 1986, which should have seen the consolidation of these gains, were instead marked by backsliding. Financial imbalances worsened, and the country's debt grew to critical levels.

Recognizing the gravity of the economic crisis, in 1987 the government implemented a three-year structural adjustment program to attain stability in the medium term and balanced, self-sustaining growth in the long term. Failing consolidation, the program's few positive results faded rapidly. The suspension of the program in 1989 left a void with disastrous consequences for the economy. Debt accumulated to a disturbing level, dragging the country into a vicious circle from which escape has proved difficult. In its search for solutions, the government drafted an eco-

nomical and social emergency program, starting in April 1992, to demonstrate to the international community its determination to fight the economic crisis devastating the country. The expected results of this program should enable the government to reopen negotiations with the International Monetary Fund and the World Bank to design a third structural adjustment program.

Today, there has been a marked improvement in economic performance, but macroeconomic and financial indicators continue to point to numerous weaknesses, revealing the depth and complexity of the crisis. Economic recovery has yet to take off, and the country is experiencing enormous difficulties in generating the resources it needs to honor its domestic and foreign commitments. Fifteen years after its independence, in 1987, the Republic of Guinea-Bissau had a total debt of about \$300 million. In 1992, only five years later, its debt had more than doubled, to \$632 million. Preliminary data for 1994 suggest that the debt is now about \$700 million. Despite the authorities' efforts and their determination to honor the country's commitments, arrears of about \$250 million have accumulated. Annual debt service payments amount to \$50 million. To understand the magnitude of the country's debt problem, it is helpful to compare these figures with some national aggregates. National debt is equal to 241 percent of GDP and debt service payments to about 110 percent of total exports. In 1993 arrears equaled 65 percent of GDP.

The government continues to address this crisis, focusing its efforts in three main areas: economic liberalization, which began in 1987 and is now well underway, modernization of the government; and alleviation of the social costs of structural adjustment. It is giving special emphasis to measures to create a strong capacity for domestic and foreign debt management, tax collection, budget control, monetary policy, and other functions that are crucial to its ability to provide an enabling environment for sectoral policy and private sector initiatives.

The government also plans measures to promote production activities, particularly rural production activities, which employ more than 80 percent of the country's active population. Finally, like the other countries in the subregion, the Republic of Guinea-Bissau has moved toward a democratic system, and it will hold its first multiparty elections in the coming year.

The health sector

The economic and financial crisis and the structural adjustment measures that the government is attempting to implement have had marked effects on health conditions in Guinea-Bissau. The predominant public health problems remain malaria, diarrheal disease, respiratory disease, tuberculosis, leprosy, onchocerciasis, schistosom-

Table 1 Demographic, health, and socioeconomic indicators for Guinea-Bissau, 1991

Population	983,443
Population growth rate (percent)	2.1
Infant mortality rate (per thousand live births)	140
Maternal mortality rate (per 100,000 live births)	914
Births attended by health personnel (percent)	50
Life expectancy (years)	47.1
Population with access to health care (percent)	40
Population with access to safe water (percent)	22.5
Rural population with access to sanitation (percent)	18
Urban population with access to sanitation (percent)	30
Vaccination coverage rate (percentage of infants age 12-23 months)	
BCG	94
Diphtheria 3	54
Polio 3	54
Measles	65
Antitetanus	11
Per capita gross domestic product (U.S. dollars)	198

Source: Republic of Guinea Bissau, Ministry of Health and Social Affairs.

miasis, measles, malnutrition, and neonatal tetanus. The AIDS epidemic also has become a major preoccupation. Complications of pregnancy and birth contribute to high maternal and infant mortality rates (table 1).

To improve health conditions in Guinea-Bissau so that its citizens can lead more socially and economically productive lives, the government is implementing a universal health care strategy based on a primary health care approach. In addition, the government, in its strategic 1992-95 health development plan, has set a number of objectives for strengthening the health sector. These goals include decentralizing health services, strengthening institutions, developing a training and supervision program for health personnel, and improving the coordination of health services. The plan gives absolute priority to maternal and infant health and family planning programs, safe drinking water supply, environmental sanitation, and disease control and prevention. The government faces serious obstacles to realizing its health development goals, however, including insufficient resources, inadequate management skills, the AIDS epidemic and other sociocultural problems, and a deteriorating economic and financial situation. In addition, the country lacks sufficient health personnel, with only 136 physicians, 320 registered nurses, and 141 midwives.

Onchocerciasis in Guinea-Bissau

Onchocerciasis is ravaging the eastern part of the country. The affected areas are situated in the Corubai and Geba river basins, in the provinces of Gabu and Bafata. Together, these two provinces have an estimated population of about 350,000, almost 30 percent of the national population, and an area of 14,000 square kilometers, or 30 percent of the national territory. The provinces are important development poles owing to the fertility of their soil, the abundance of their forests, and the proximity of groundwater to the surface. Moreover, because of their location, they have become centers of trade.

The main economic activities in the region are farming and livestock raising. The eastern region, whose Sudanese-type climate favors cultivation of millet, sorghum, and maize, could potentially supply grain for all of Guinea-Bissau. Its extensive bottomlands, estimated at about 100,000 hectares, and fresh water resources offer potential for rice farming. The region accounts for about 75 percent of the country's livestock. Forestry is also a substantial source of income for the region's peasant population.

Entomological and epidemiological status

The number of people exposed to onchocerciasis in Guinea-Bissau in 1985 was estimated at 140,000, 30,000 of

whom were infected with *Onchocerca volvulus*. About 1,400 persons in the country are onchocerciasis-blind. The latest entomological surveys (December 1988/December 1990) conducted in the Corubal and Geba river basins revealed that the annual transmission potential is quite high in some areas, ranging from 400 to 1,800.

The latest epidemiological surveys recorded an average prevalence of 15 percent of the total population, but small hyperendemic pockets exist. The intensity of transmission, measured by the community microfilarial load (CMFL), was found to be high in twelve villages, with CMFL levels exceeding 10, the value at which the risk of blindness in savanna areas is considered very high. The highest prevalence rates and the highest CMFL values were recorded in the Corubal River basin.

Onchocerciasis Control Programme

The Republic of Guinea-Bissau was an observer state in the Onchocerciasis Control Programme until 1985, when, under a protocol signed in Geneva, it became a member state in the pilot program to control onchocerciasis. The Onchocerciasis Control Programme began activities in Guinea-Bissau in November 1988, with the inauguration of the Gabu base of operations.

The current devolution plan for Guinea-Bissau integrates the onchocerciasis control program with the malaria and schistosomiasis control programs. The strategy to combat onchocerciasis is based on patient chemotherapy, using mectizan. Every aspect of the strategy is supported by a program of training at all levels, as well as the strengthening of health care infrastructure and supervision of operations. Another essential element of the strategy is information, education, and communication activities targeting officials and the population. These activities are conducted both in permanent health care training facilities and by mobile teams and primary health care agents.

The technical body in charge of implementing the program is the National Devolution Committee. This steering committee and the epidemiological and entomological teams make up the Onchocerciasis Control Programme "national team."

Sustainable settlement and development in affected areas

Onchocerciasis has not yet resulted in the depopulation of any areas of Guinea-Bissau. But demographic statistics, particularly on migration patterns, show a shift in the population toward unaffected areas. Thus, if additional measures are not taken soon, there is a good chance that in the years to come, villages in the affected areas of

Gabu and Bafata will be abandoned. Any strategy of sustainable settlement in this area must also include a program to control malaria, which remains the leading cause of illness and death in Guinea-Bissau. Epidemiological surveys of endemic diseases in the Gabu region have shown that the area where onchocerciasis is hyperendemic coincides with the area where malaria is holoendemic.

A strategy of sustainable settlement must not only seek to eliminate onchocerciasis and to improve the population's health conditions, however. It must also include social and economic development activities to make infected areas viable, such as:

- Providing health infrastructure and resources to ensure better health care coverage
- Supervising the construction of socioeconomic infrastructure that will support development
- Helping to improve small farmers' income
- Building main roads and access roads to facilitate the flow of goods to urban centers
- Building and equipping schools
- Undertaking agrarian and land reform and clarifying land users' rights
- Constructing works to develop arable land
- Establishing a credit system
- Supporting off-season activity by developing irrigation systems and dams, water impoundment systems, and bottomlands.

These measures are becoming increasingly urgent. These areas are at risk not only because of disease, but also because of farming practices destructive to the environment. Rice farming on land in the mangrove forests poses an obvious threat to the environment. And deforestation has become a systematic response to the pressing demand for arable land, even as the bottomlands in these regions offer immense potential for farming. If this situation continues, other factors besides onchocerciasis—such as desertification—may cause people to abandon these regions.

Conclusion

The government of Guinea-Bissau is abundantly aware of the urgency of these measures to ensure sustainable settlement, which take priority in the country's strategy for development. But the country has limited domestic financial resources, and it faces growing international debt obligations and significant development financing needs. Thus, the role of the international community will be more than decisive in implementing a policy of sustainable settlement in the Onchocerciasis Control Programme areas of Guinea-Bissau.

Resettlement and Development in Onchocerciasis-Freed Areas in Niger

Republic of the Niger

Before the antivector campaign began in Niger in 1975, the number of people severely infected with the onchocerciasis parasite was estimated at 15,000. In the districts of Téra and Say (in the region of Tillabéry), which cover 17,000 square kilometers, 224,000 inhabitants were exposed to risk of infection.

In the Onchocerciasis Control Programme's early stages there were eighteen capture points for the black fly, the vector of the disease, in the entomological surveillance network of Niger's five onchocerciasis-ridden river basins. The general prevalence of the disease exceeded 60 percent in nineteen test villages, qualifying these villages as hyperendemic. In a number of valleys, including the Mékrou, almost 5 percent of the population was blind as result of onchocerciasis. Some villages were simply deserted.

Today, the results of the OCP's long and tireless struggle are conclusive. The disease is almost under control, with prevalence trending toward zero in all thirty test villages. The affected areas are experiencing a high rate of spontaneous resettlement. The Nigerien government has recently assumed responsibility for recrudescence control within the national framework for integrated primary health care. A devolution program has been designed to undertake control activities with the support of such partners as the World Bank, the PHOEBUS/USA Foundation, the Helen Keller International Foundation, and UNICEF.

Settlement of onchocerciasis-freed areas

The onchocerciasis-freed areas, notably the Say area, are experiencing flows of migration from Filingué and Oualam, as well as shifts in the location of indigenous populations. This resettlement has occurred without any organization, however, and social and environmental problems have resulted in conflict between pastoralists and farmers, illegal grazing in National Park W, and anarchical clearing of forests. The ensuing destruction of the environment and threat to National Park W led Niger to adopt a strategy of natural resource management based on sustainable use of natural resources, conservation of biological potential, and organization of the rural population. The Nigerien authorities have taken a number of measures, including:

- Declassifying part of the reserve in Tamou (Ainoma Zone, 64,900 hectares) to allow the resettled population to conduct farming, forestry, and pastoral activities
- Constructing encampments for the development

of fishing

- Creating rural markets for a rational development of woodland resources
- Planning game reserves for the development of wildlife resources.

National devolution program

Although transmission of onchocerciasis has been virtually halted in Niger, there is still a small risk of recrudescence. A residual parasite population remains, and development and settlement activities in onchocerciasis-affected areas are conducive to human contact with the vector. In its efforts to achieve food self-sufficiency, Niger is giving particular attention to exploitation of the vast agricultural potential in the fertile river valleys in the southwest, regions deserted by entire communities when onchocerciasis was prevalent. And there are large movements of population to the fertile valleys of the Niger River's tributaries, especially in the Say region. Moreover, as farming and herding conditions have become favorable, a steady flow of migration has been observed from Benin and central Nigeria, where onchocerciasis is hyperendemic.

These activities, and the associated risk, call for continued vigilance in epidemiological surveillance to ensure timely detection and control of recrudescence of the disease. Permanent monitoring is essential. In addition, there should be a southwestern extension of Niger's control area to include the districts of Gaya and Boboye (Filmy administrative post) because of their proximity to Benin and northwestern Nigeria.

Niger plans to implement permanent onchocerciasis control activities through its devolution program. This program will also include activities to control other severe endemic diseases, such as schistosomiasis and dracunculosis. The aim is to significantly reduce sickness linked to schistosomiasis and to eradicate the medina worm.

The program's strategy centers on the following basic elements:

- Information, education, and communication
- Epidemiological surveillance
- Ivermectin treatment for migrants with onchocerciasis and for people in areas of recrudescence
- Mollusk control and praziquantal treatment of infected patients for schistosomiasis control
- Distribution of water filters, provision of potable water, and antivector control, including treatment of cyclops-infected water sources to control dracunculosis.

The estimated cost of the program over five years was updated in November 1992 to \$2,904,896. The program was approved by the OCP's Joint Programme Committee in December 1989 at The Hague and submitted to the World Bank for funding in December 1992.

Proposals for development of onchocerciasis-freed areas

Despite the OCP's epidemiological success, it has nevertheless failed to trigger the increased income and economic growth projected by the U.S. Agency for International Development (USAID) in 1986. Development in the onchocerciasis-freed areas would require additional investment and the designing of new activities.

Nigerien government officials, aware of the growing problems linked to desertification north and east of the Niger River, have turned their efforts to capacity building in onchocerciasis-freed areas, with a view to promoting food self-sufficiency and rational management of natural resources. Their plans are reflected in a draft program, "*Projet de mise en valeur des terres libérées de l'onchocercosé*" (development program for onchocerciasis-freed areas), with an estimated cost of about CFAF 11 billion. The project's general objectives are:

- To consolidate the OCP's gains
- To diversify and improve agricultural production
- To improve the pastoral system
- To preserve land capital and control desertification
- To improve access through roads and communication systems
- To install socioeconomic infrastructure (schools, dispensaries, wells)
- To provide training, and information and increase awareness of environmental and natural resource issues.


Before launching this broad-reaching program, however, the government needed to conduct national studies to identify opportunities for development and to specify complementary measures. With the assistance of the Food and Agriculture Organization (FAO), in 1990 the government undertook a project to define development strategies for the onchocerciasis-freed areas. The specific goals of the project were:

To conduct soil surveys, land use studies, and crop suitability studies in order to identify the land's drawbacks and development potential, and to draft proposals for improving natural resource use

- To assess demographic pressure on program sites, and to identify the advantages and disadvantages of traditional land tenure systems, resource development methods, and cultivation practices for supporting the integration of groups of settlers
- To draft proposals for settlement that address the equitable satisfaction of natural resource needs, conservation and protection of the environment, and income generation in the short and long term.

These exercises produced a number of recommendations that the government has adopted to support development in the onchocerciasis-freed areas:

- Integrate the development program for onchocerciasis-freed areas which have real potential for farming, forestry, pastoral, and mining activities into national planning strategies.
- Adapt the new rural code to rural activities through innovations that will ensure optimum use of land assets. The rural code will play an important role in establishing landowners, migrant land tenants, and pastoralists in the framework of the land management approach (*l'approche-terroir*).
- Institute a rural development fund to provide credit for production and marketing activities, and adapt lending conditions to farmers' repayment capacity and risk conditions. Donors could assume the risk on rural lending in order to provide an incentive to banking institutions to invest in the agricultural sector. Rural savings and loan institutions should be promoted as a complement to the rural development fund.
- After appropriate study, promote pastoral activity by creating substantial value added for producers through sheep breeding and fattening programs.
- Strengthen extension services in order to help farmers increase crop yields and thus produce a cash surplus for savings.
- To control the natural resource management problems that may result from the large flow of migrants to the Say region, adopt a mode of settlement guided by village management committees and based on rational occupation of available space and integration of all ethnic groups within effective multi-ethnic social and economic community associations. With government support, these committees would conduct activities to improve access, build well-distributed water points in sufficient number, improve land development methods (through professional training by an efficient extension service using model farmers), and create economic institutions offering a range of services to farmers, such as grainbanks, grain mills, and veterinary product storage centers
- Conduct a pilot test of a land management approach, with a view to drafting a development program with help from the village community. The Ainoma region in the canton of Tamou represents an interesting case of settlement and could be selected as the site for the pilot. An experimental phase of twelve months would enable the pilot program to reach realistic, reliable results and to refine the method before it is extended to all of the onchocerciasis-freed areas.
- Build small dams and develop temporary or artificial watering sites or ponds.
- Encourage grazing and transport activities during



the rainy season in areas inappropriate for farming. To support pastoral activities, it will be necessary to maintain and improve the natural fodder potential, rationalize conditions for livestock watering, and

- organize transport.
- Intensify water conservation and soil restoration efforts by using measures based on national experience.





Agenda

Ministerial Meeting on Sustainable Settlement and Development of the Onchocerciasis Control Programme Area

Paris, April 12-14, 1994

Objective

The objective of the meeting is to highlight the potential for land settlement and development in the OCP area and to facilitate the formulation of effective policies in support of land settlement.

The specific outcome of the meeting will be a set of guiding principles, defined by the participants, which will help establish concrete national strategies for follow-up actions that ensure the long-term social, economic, and environmental success of new settlements.

Tuesday, April 12, 1994

Session 1 10:30-12:30

Opening

Call to Order

Mr. Bruce Benton, *Committee of Sponsoring Agencies,
Onchocerciasis Control Programme*

Mr. Lambert Konan, *Minister of Agriculture and Animal Resources,
Republic of Côte d'Ivoire, and Chair of the Ministerial Meeting*

Welcome by Committee of Sponsoring Agencies of the Onchocerciasis Control Programme

Ms. Ellen Johnson Sirleaf, *Assistant Administrator and Regional Director,
Africa Bureau, UNDP*

Mr. Edward V. K. Jaycox, *Vice President, Africa Region,
The World Bank*

Opening Remarks

Mr. P. V. Obeng, *Presidential Advisor on Governmental Affairs, Republic of Ghana*

President Blaise Compaore, *Burkina Faso*

President Abdou Diouf, *Republic of Senegal*

Dr. Ebrahim Samba, Director,
Onchocerciasis Control Programme

Land Settlement and Environmental Change in the OCP Area

Dr. Bernhard Liese, *Committee of Sponsoring Agencies
of the Onchocerciasis Control Programme*

**Presentation of the guiding principles and their relationship
to deliberations throughout the meeting**

Mr. Lambert Konan, *Chair of the Ministerial Meeting*

12:30-2:30

Lunch on Premises

Session 2

2:30-5:30

Natural Resource Management in Settlement Areas

Resource person: Mr. Jeffrey Lewis, Agricultural Ecologist, The World Bank

Effective and sustainable management of natural resources is vital for the success of settlement. Settlement is often associated with rapid decreases in forest cover, particularly gallery forests, and declines in wildlife populations, grazing land, and water quality. However, settlement in new areas provides an opportunity to prevent degradation before it occurs and to maintain more productive conditions than in sending areas.

Presentations and Documentation

Burkina Faso: Community-Based Land Management in the Oncho-Freed Zones: Experiences from Burkina Faso, Mali and Niger (Prepared by the regional working group on community land management).

USAID: Capitalizing on Success: The OCP and Resource Management Choices

6:00-7:00

Evening Reception

Wednesday, April 13, 1994

Session 3

9:00-12:30

Land Tenure in New Settlement Areas

*Resource persons: Dr. Hartwig de Haen, Assistant Director General, FAO
Mr. Gérard Ciparisse, Land Tenure and Settlement Officer, FAO*

While much of the area becoming available due to onchocerciasis control is sparsely populated, almost none of it is unclaimed. Attempts by national governments to override existing land tenure systems will almost certainly lead to conflict between host and settler populations. Insecurity of tenure resulting from conflicting national and local land tenure systems will inhibit long-term investments in productivity, something that is crucial if new settlements are to be sustainable.

Presentations and Documentation

FAO: Land Tenure Policy Outlook in the OCP Areas

Dr. George Benneh, Vice Chancellor, University of Ghana: Issues of Land Tenure in Settlement Areas

Club du Sahel: Land Tenure Disputes and Community Land Management in Newly-Settled Areas

12:30-2:00

Lunch (own arrangements)

- Session 4** 2:00-3:30 **Policy on Administrative Structures and the Provision of Services**
- Resource person:* Mr. Alioune Sall, *Poverty Alleviation Manager, UNDP*
- The policy guidelines strongly recommend adopting a policy of assisted spontaneous settlement to minimize government costs and to take advantage of the initiative of spontaneous settlers while maintaining input into the settlement process. The OCP countries have experienced a wide variety of types of settlement from government-sponsored to completely spontaneous, and they have used many different institutional structures to deal with settlement areas. This session will examine the different types of settlement and different administrative structures, as well as the types of services that need to be available.
- Presentations and Documentation**
- Senegal: *Senegal's Experience with the Terres Neuves Project*
- Ghana: *Policies on Administrative Structures and Provision of Services in the Settlement Areas*
- WHO: *Health Aspects of Natural Resource Development in Settlement Areas of the Onchocerciasis Control Programme*
- Session 5** 4:00-6:00 **Policy on Settler Participation in the Settlement Process and Selection of Settlement Areas**
- Resource Person:* Ms. Cynthia Cook, *Environment and Social Policy Advisor, The World Bank*
- Settler participation in all aspects of the settlement process—from site selection to provision of services—is required for sustainable settlement. This session will examine settler participation in the settlement process and its relation to the sustainability of settlements. In addition, it will examine the impact of policy on the composition of settler groups and who, in the end, benefits from settlement.
- Presentations and Documentation**
- Ms. Aminata Traore: *Settler Participation in the Settlement Process: An Examination of the Settlement Experience from the Point of View of the Settlers, Based on Research done in Mali*
- Dr. Della E. McMillan, Deputy Director, Land Settlement Review: *Capitalizing on Diversity: Gender Issues in the Settlement Process*
- Mali: *Development of the Onchocerciasis-Freed Zones*

Thursday, April 14, 1994

Session 6 9:00-12:00

Sustainable Agricultural Production: Issues in the OCP Areas and Policy Requirements

Resource Persons: Dr. Hartwig de Haen, *Assistant Director General, FAO*
Mr. Cyril Groom, *Assistant to the Assistant Director General, FAO*

Sustainable and diversified production systems are central to the success of settlement in the OCP area. Initially, settlers produce mainly for subsistence. When they are convinced that subsistence production is assured, they diversify rapidly into other crops and, just as important, into other income generating activities. This means that extension messages need to shift over time. Agricultural extension systems need to understand the role that diversification plays in household income generating strategies. In addition, extension systems must be able to provide advice on sustainable production systems that are financially viable for small farmers.

Presentations and Documentation

FAO: *Sustainable Agricultural Production: Issues in the OCP Area and Policy Requirements*

France: *French Support for Sustainable Development in the Onchocerciasis-Controlled zones: Experiences and Perspective*

Guinea: *Strategic Plan for Sustainable Settlement in the Onchocerciasis-Freed Zones*

12:00-2:00

Lunch on Premises

Session 7

2:00-4:00

Closing

Adoption of Guiding Principles

UNDP: *Mechanisms for Follow-Up Activities: Coordinating Government and Donor Activities in Support of Sustainable Settlement*

Closing Presentations

Ms. Katherine Marshall, *Director, Sahelian Department, The World Bank*

Dr. Hartwig de Haen, *Assistant Director General, FAO*

Closing Statement by Chair



ANNEX 3

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Cover design by Beni Chibber-Rao



ISBN 0-8213-3515-4