7

SEEING THE FOREST WHILE PLANTING THE TREES: AN ANTHROPOLOGICAL APPROACH TO AGROFORESTRY IN RURAL HAITI

Gerald F. Murray

This chapter describes an anthropological approach to environmental restoration that is currently being implemented in rural Haiti, and that has stimulated an historically unprecedented level of voluntary tree planting by Haitian peasants. The overall design of the Agroforestry Project has been described elsewhere (Murray 1984). In keeping with the theme of this volume, the discussion focuses upon the underlying design principles and institutional dimensions of the Project.

To begin, the characterization of this approach as "anthropological" deserves a word. A growing number of international development projects around the world are being designed, managed, and/or evaluated with the assistance and guidance of anthropologists. The project described here has gone somewhat further. The basic design concepts of the Project were derived directly from anthropological research on the land tenure and domestic economy of the Haitian peasant. A fairly large corpus of ethnographic literature on the socioeconomic dimensions of village life was already available (for example, Bastien 1951; Comhaire-Sylvain 1952; DeYoung 1958; Erasmus 1952; Herskovits 1937; Metraux et al. 1951; Schaedel 1962; Simpson 1940; Underwood 1964. Compare also Courlander 1960; Moral 1961; Renaud 1934; and Wood 1963). My own fieldwork, carried out in the Cul-de-Sac Plain in the 1970s (Murray 1977), documented a smallholding land tenure system and cash-cropping orientation that was a variant of the same basic themes that the earlier research had uncovered.

Much of the above-listed body of research was basic in character, though some of it had been carried out in conjunction with the Marbial Project funded in the 1940s by UNESCO. In the 1970s, however, a new body of applied studies emerged. After approximately a decade of absence, the U.S. Agency for International Development recommenced operations in Haiti. The problem of deforestation was singled out for attention (see Earl 1976; Ewel 1977), and though ideas on how to deal with the problem were vague and abstract, USAID made a preliminary decision to formulate a project. USAID invited me to provide anthropological background information and anthropologically informed project design recommendations (see Murray 1978a; 1978b; 1979), work I carried out concurrently with the work of other researchers (Benge 1978; Conway 1979; Voltaire 1979; and Zuvekas 1978).

The Project was designed largely on the basis of the recommendations made in one of the above-cited reports (Murray 1979). Some additional pieces of supporting analysis were undertaken to finalize the design (Smith 1980; Smucker 1981; Murray 1981), and the Agroforestry Project began operations in early 1982.

The anthropological character of the Project derives from its roots in earlier ethnographic literature and from the above-mentioned inputs from anthropologists in the conceptualization and design of the Project. In addition, anthropology has played a salient role in project implementation as well. I served as Project director during the first two years of the implementation of the largest portion ($4 million) of the grant. The current occupant of this position is also an anthropologist. Furthermore, the USAID/Haiti Project officer slot was initially held by an anthropologist.

The use of anthropologists in both design and implementation has endowed the Project with several theoretical characteristics and a particular action orientation that depart somewhat from standard international development practice. These are highlighted in the chapter discussion that follows.

DEFORESTATION IN HAITI: SUMMARY OF CAUSES AND CONSEQUENCES

Beginning with a discussion of the problem itself, the deforestation that is occurring in most of the tropical

regions of the earth has taken on particularly grave proportions in Haiti. As is true of other world regions, there have been three major causes for the disappearance of most of the island's trees:

- The cutting of trees by rural agrarian groups to open up new land for agricultural cropping.
- The commercial extraction of wood by lumber firms (which accounted for most of the wood-cutting in nineteenth-century Haiti).
- The more recent growth of a charcoal market, and the reliance of large numbers of cash-needy families on income derived from cutting trees to supply this market.

Whatever its causes in a particular region, the ecological and economic consequences of the resulting deforestation have been devastating for rural Haiti. The exposed, denuded hillsides are vulnerable to soil erosion. The irretrievable loss of uncounted thousands of tons of topsoil that wash down each year into the Caribbean Sea is directly due to the removal of the island's tree cover. During the rainy seasons, visitors arriving by airplane can see rivers of brown mud streaking out into the blue waters of the surrounding ocean. Officially Haiti's major export is coffee. Unofficially and tragically the most significant export of this tiny island nation is this rich potentially food-producing topsoil lost forever to human use.

The disappearance of arboreal vegetation furthermore impedes the organic restoration of the soil, which in traditional tropical farming systems takes place principally through the mediation of secondary tree growth. The same economic pressures that encouraged the initial cutting of trees prevent their full regeneration. The result has been the conversion of thousands of hectares of former forests into barren savanna. When this grassland has conquered a region, productive agriculture becomes a thing of the past.

Haitian farmers' land has become increasingly impoverished. Crop yields have declined, and with them peasant family income. This increases the economic pressure on farmers to cut more trees for sale as charcoal, thus keeping a vicious cycle going.

Rainfall levels have diminished. The disappearance of the forest canopy removes a major vehicle for the upward

transfer of moisture into cloud buildup, and thus interrupts annual rainfall cycles. The peasants all over Haiti point out that the rains have become scarcer. Some attribute it to an angry God, but most know well that the demise of the "rain-drawing" trees has also played a role. Yet another nail is driven in the coffin of Haitian agriculture as irrigated croplands constitute only a minor percentage of total agricultural production.

Such food as is produced, though, must be cooked. Extensive tree-cutting has produced in Haiti--as in other developing countries--a scarcity of fuelwood. Peasants must search farther from home for firewood, and the charcoal on which the urban populations depend becomes more expensive. In some cases, families must restrict themselves to one cooked meal per day, not because of lack of food, but because of the high cost of fuel.

This doomsday scenario need not be elaborated. The point is that the interlocking economic and ecological crises that deforestation has unleashed in other parts of the developing world have reached an advanced stage in Haiti. The rural economy is in serious trouble, and with it the Haitian peasantry. No attempt is being made to oversimplify; the causes of this crisis are multiple. The disappearance of Haiti's trees, however, is one of the causes.

APPROACHES TO SOLVING THE DEFORESTATION PROBLEM

Deforestation and its effects have created problems: for the physical environment, for peasants, for townspeople, for administrators, for the national economy. Solutions chosen will be heavily influenced by the vantage point from which the problem is perceived and analyzed. One way ethnographers can help people define their objectives and organize their activities is to observe the manner in which various human groups solve their problems. The conventional workplace of ethnographers in Haiti is the peasant settlement; their standard output is a description and analysis of the varied ways that peasant communities strive to solve the gamut of problems that confront any human grouping.

Deforestation, however, is one of a category of problems addressed by international donor agencies. The usual workplace for donor agency problem solvers is not the

peasant village, but the offices of their agency with periodic visits to the offices of their counterparts in the recipient country government ministries. It will be instructive for a moment to turn the ethnographic lens toward the development project planners employed in an international donor agency, occupied with the task of project design.

Exposing a Conceptual Straightjacket

There are several ethnographic generalizations that are widely valid concerning the organizational subculture into which project planners have been socialized. First, they have been taught, and generally accept, the premise that a major development task is "institution-building." Second, they have come to equate the concept "institution," at least for programmatic purposes, with "public-sector bureaucracy." Development assistance is treated as something that, in its standard mode, takes place "government to government." Third, the prevailing conditions of career advancement place a high positive emphasis on the ability to design projects with a high degree of "surface certainty," and to move large amounts of money in a timely manner with proper accountability.

These three features of international development agency subculture, particularly the incentive structures in which agency careers unfold, influence the characteristics of project designs. They generate a semiimplicit design model in which project planners take as a given the placement of project activities either within or attached to a host country public-sector institution that appears appropriate to carry out the set of activities proposed by the planners. This model does not pay sufficient attention to whether the institution selected has the capacity to produce the intended outputs and benefits.

Further, by taking as their starting point the selection of a sectorally appropriate public-sector entity, the project planners usually work out the technical content of the project in concert with their developing country counterparts. The resulting design often reflects a technician's view of the problem and its solution, which is subdivided into particular components according to preexisting institutional or sectoral areas of responsibility.

With respect to reforestation and soil conservation projects, this operating mode often results in a problem definition that envisions two discrete tasks: protecting the forests that still remain, and restoring the environment in those regions where deforestation and soil erosion have occurred. For the former task, campaigns may be launched to convince peasants to stop cutting down trees, and enforcement mechanisms may be added to back up these exhortations. For the latter, the typical action unit of environmental restoration is the "watershed," the hills surrounding the upper regions of larger rivers, particularly those on which there are downstream irrigation systems or hydroelectric plants being clogged and silted.

As will be discussed below, from a technical point of view these strategies appear to have serious flaws. The accompanying institutional placement assumptions, however, can constitute an even more basic weakness. The conventional project planning strategy in reforestation or environmental restoration is to focus on building and strengthening the public-sector institutions responsible for those sectors. That is, the solution of ecological problems is implicitly treated as a second-order effect to be achieved through improving the intervention capacity of one or another public-sector bureaucracy.

The project design model sketched out above, when dogmatically adhered to in situations where public-sector institutions have very weak performance capacities, constitutes a conceptual straightjacket. It risks producing projects in which large amounts of funds are spent on organizational strengthening with little immediate performance payoff. By emphasizing the institution-building aspects of development, by equating institution with public-sector bureaucracy, and by measuring their own performance in terms of timely and properly accounted for funds disbursement, donor agencies have misplaced their efforts in seeking to produce sustainable benefits for the rural poor.

There is little that is original in the above observations. These and similar criticisms have been made by various students and practitioners of development. The task is to go beyond head-shaking and finger-wagging to develop mechanisms for redirecting resource flows along channels that have the capacity to transform donor inputs into tangible benefits for rural residents.

Unzipping the Straightjacket: An Anthropological Focus

The approach to tree-planting described in this chapter was undertaken with precisely the above purpose in mind. The strength of the dominant model in USAID/Haiti required a well-articulated alternative in order to convince USAID decisionmakers to deviate from the standard modus operandi of the Agency. The articulation of alternative principles, and of specific alternative program measures derived from these principles, was presented in several of the previously cited research reports (especially Murray 1979). Though the anthropologically generated principles were not universally accepted within USAID/Haiti, the recommendations found sufficient support there and in the USAID Latin American Bureau in Washington to result in an $8 million project designed on the basis of the recommendations.

The rethinking and reprogramming entailed first and foremost a fundamental redefinition of the problem. It was formulated in terms neither of this or that government institution nor even in terms of the denuded, eroded hillsides. Rather, it was approached from the point of view of the rural settlement and its inhabitants. Within the standard model, peasants emerge as enemies of the environment. Either explicitly or implicitly they are accused of ecological "misbehavior." More than one reforestation project in Haiti was based on a plea to the rural population to stop cutting down the last few trees in their region and to begin planting new trees with a view to the future. This approach has generally proved futile in most parts of the world.

The approach taken by the Agroforestry Project, in contrast, is one that views the harvesting of wood as an acceptable positive type of economic behavior. The Project explicitly acknowledges the peasants' right to expect reasonable short-term returns from their economic activities. The basic premise of the Project is that wood can be treated as a cash crop, a product that peasants can plant and harvest in the same fashion that they plant and harvest corn, millet, sugarcane, and other traditional crops. The Project intentionally deemphasizes appeals to patriotism or to concern for future generations as the underlying motivation for tree planting, stressing instead the returns

to land and labor that even the small farmer can expect from planting fast-growing trees.

The Project in effect attempts to forge an alliance between two traditional enemies: the tree and the urban charcoal and lumber market. Conventional analysis suggests that the market for charcoal and lumber is contributing to the destruction of the few remaining stands of trees in Haiti. This market, by motivating people to cut down the last trees, is seen as being the mortal enemy of the Haitian environment.

In the analysis presented to USAID, precisely the opposite was argued. It is this market for charcoal and lumber that, with proper planning and management, can be used as the major engine of reforestation. The task is to assist cultivators to grow the wood to supply this market, rather than simply scavenge trees that nature supplies. Stated differently, the core problem definition adopted in this anthropological approach was one that perceives peasants not as villains to be punished or blind people to be educated, but rather as rational, goal-oriented economic actors already involved in production for cash markets. Tree planting is defined, not as an ecological gesture on their part, but as an economic maneuver, a new type of cash-generating land use behavior.

In terms of organizational placement, we rejected an a priori assumption that the Project had to be administered by a government agency. A critical component of the design task was to identify implementing agents who would be most effective at channeling resources in a manner that would catalyze new tree-related economic energies among Haitian peasants.

The Haitian public sector had given evidence of its ineffectiveness in this regard. The Ministry of Agriculture was already the recipient of heavy USAID financing for an Integrated Agricultural Development Project, of which watershed control and reforestation were important components. This project was viewed by most observers as a multimillion dollar failure. In view of the weak performance of the Ministry of Agriculture in this and other projects--a performance that was eventually criticized publicly in the Haitian press, ordinarily quite favorable to government programs--the recommendation was made to channel the new project through private voluntary organizations.

Strong protests were voiced at this recommendation, not only from the ministry, but more articulately from

several USAID officials who felt that this effort to channel resources directly to peasants would violate the sovereign right of the Haitian government to use (or misuse) donor resources as it sees fit. After months of bureaucratic debate, USAID adopted a nongovernmental implementing mode for the Agroforestry Project.

PAST EFFORTS AT REFORESTATION

This was not the first time that solutions had been attempted. For decades appeals had been issued by the Haitian government to protect the country's trees, appeals buttressed by laws and decrees, generally ignored. More concretely, the Ministry of Agriculture had set up a nursery at Damien, and government agronomists attempted to start smaller nurseries in other parts of the country.

In addition, numerous donor organizations had supported efforts to take steps toward reforesting one or another region. There is by now a substantial list of local tree-planting projects undertaken over the past four decades. Also, a variety of PVOs have financed or managed small tree-planting efforts. All these efforts for the most part have failed. The dilemma can be stated quite easily:

- The only group that can reforest Haiti is the peasantry,
- But it has proved difficult to enthuse peasants at the prospect of tree planting, and
- It has been found even more difficult to prevent them from cutting trees whose sale provides desperately needed cash.

More than one well-intentioned project director has muttered in frustration at the apparently obstinate lack of interest of peasants in newly introduced trees. And more than one nursery expert has watched in dismay as his carefully produced seedlings have been allowed to die in the nursery, their overgrown roots bursting through the polyurethane bag containers, despite offers of free seedlings to peasants. In most cases, frustrated project personnel have relied on one or another wage-labor or Food-for-Work remuneration arrangement. In such cases peasants energetically spring into action and plant thousands of seedlings. More often than not, however, they then

neglect the young trees and in many cases turn them over to free-ranging goats. The Haitian peasants, in short, have not made life easy for designers of reforestation projects.

THE CAUSES OF FAILURE: PEASANTS OR PLANNERS?

Regarding reforestation problems, there are those who are quick to point an accusing finger at the peasants themselves. Are they cutting down trees for sale as charcoal or lumber? Then they are called shortsighted and/or ignorant of the value of trees. Do they refuse to plant the trees provided by well-meaning development projects? Then, of course, they are lazy or indifferent. Have they planted trees for payment and subsequently let their goats eat the seedlings? Then they are termed irresponsible or even dishonest.

The Agroforestry Project has adopted a contrary position in these matters. The direction of the accusing finger should be reversed. The problem has been not with the peasants, but rather with the weaknesses of the planning that has informed the design of tree-planting interventions. Previous efforts show flaws in at least three critical design areas.

Maladapted Technical Choices

The trees provided to peasants have in general been ecologically appropriate. However, they have been grown in large containers, which for the peasants are prohibitively difficult to transport in any large number to their fields, and whose planting entails laborious ground preparation. More seriously, trees have generally been slow-growing wood varieties for which commercial returns are too far down the road to be of interest to small farmers. If the intent is to encourage peasants to plant trees, they must be provided with trees that will be of use to <u>them</u>, and not only to their grandchildren.

Inadequate Microeconomic Analysis

These poor technical choices are closely related to another flaw: the launching of massive projects that rest

on faulty microeconomic premises. No matter how technically sound the project's offering, no matter how ecologically suited the particular tree to the hillside, if the trees are perceived by peasants as neutral to their own survival needs, they will be politely ignored. If the trees are seen as negative to their cash-flow interests, they will be firmly rejected.

At least some reforestation planners appear to wish away the existence of the rural population on Haiti's hillsides. They talk of recreating forests and stopping cultivation in those regions. To propose this as a real solution for Haiti, though, is to speak nonsense. But even planners who recognize that trees must be of interest to peasants frequently seem to have a naive view of the roots of that interest. The most common messages given to peasants are to plant trees for their country, for their grandchildren, or for the sake of preserving the soil of their plots of land. These messages emphasizing long-term payoffs are simply unconvincing for peasants with serious short-term food and income needs.

However, the most common and most serious microeconomic error committed by reforestation projects is to leave unaddressed the issue of ownership and future rights to exploit the trees. In numerous projects throughout Haiti, the peasants have been informed that the trees being planted are pyebwa leta, Haitian Créole for "the government's trees." They are threatened with sanctions if they cut down the trees. Under these circumstances, far from valuing and loving the trees, the peasants rightly fear them as pieces of alien vegetation whose presence on their land may eventually lead to the expropriation of the land itself.

The fear of expropriation is particularly frequent when foreigners are leading the tree-planting effort. Rumors circulate that the blancs will one day return to take the land on which "their" project trees have been planted. These misgivings act as a strong disincentive to tree planting by peasants. Most planners, though, are completely unaware of the existence of these widespread fears.

Thus the standard reforestation project has failed to take the necessary programmatic and informational steps to assure peasants that they will be the owners and beneficiaries of the trees. In short, the emphasis has been on ecologically sound technology for the hillsides, rather than on microeconomically sound incentives for peasant cultivators.

Inappropriate Institutional Placement

A central weakness that impedes the effectiveness of most reforestation efforts is a failure in the domain of institutional placement. Time and time again donors have committed resources to public-sector institutions that have proved their inability or unwillingness to use donor funds for the purposes intended. Even a technically sound project with proper microeconomic incentives for beneficiaries will fail if placed in the hands of institutional intermediaries who have strong organizational incentives to divert project resources to other ends. This means that an essential part of the design process is the identification of institutional vehicles that can effectively transform donor-provided resources into outputs that succeed in making their way out to the rural population. This raises two questions: Who will receive the funds? Who will implement the project?

Summary

In sum, it is being suggested that the failure of reforestation projects should not automatically be blamed on the Haitian peasants. A fuller explanation would advance the hypothesis that project failure has probably been due to faulty planning and design, either in the technical, the microeconomic, or the institutional dimensions of the projects--and possibly in all three. The Agroforestry Project has attempted to deal with these three domains. Its preliminary results indicate that when appropriate planning and design for tree planting takes account of these dimensions, projects can succeed and trees end up enthusiastically planted by peasants on their plots of ground.

INSTITUTIONAL PLACEMENT FOR THE AGROFORESTRY PROJECT

In the preceding section the institutional dimension of tree-planting projects was discussed after the technical and microeconomic ones. In the design of the Agroforestry Project, however, the first and the most difficult choices were the institutional. Who would manage the donor resources? Who would be selected as the implementing agents in the rural areas?

The Basic Choice: Nongovernmental Channels

The task was to find organizational transfer vehicles that would ensure the flow of resources and technical assistance provided by USAID to the peasantry. The most important decision taken in this regard by USAID was to try out new, nongovernmental routes to reaching peasants. A two-level arrangement was devised where three PVOs were awarded grants totaling $8 million. One of these was to produce easily transportable seedlings and do technical research. The other two were to be responsible for the organization, tree delivery, extension and training, and follow-up tasks. One of these PVOs restricted its activities to the Northwest; the other, the recipient of the largest grant, was to carry out reforestation throughout the other regions of the country. This chapter focuses upon the activities of this latter group, whose field office is named "Proje Pyebwa," Haitian Créole for "the tree project."

Proje Pyebwa, headquartered in Port-au-Prince, has subsequently established collaborative relationships with numerous local PVOs located in the rural areas and in contact with the peasants who would actually plant the trees. The second level constitutes the direct operational arm of the project in getting benefits to the peasant target group.

Working Through Local PVOs

The term PVO is loosely applied to a variety of nongovernmental organizations. The PVOs receiving direct funding from USAID for the implementation of the project have headquarters in the United States. There are, however, large numbers of local PVOs functioning throughout Haiti, involved in various types of local-level development action.

In Haiti the vast majority of these local PVOs are affiliated with one or another church. The Catholic Church has the largest number of adherents in Haiti, including not only those Catholics who distance themselves from the rituals of Haitian folk religion (Voodoo), but also the practitioners of this latter ritual complex who nonetheless continue to label themselves as Catholics and to utilize the Catholic priest for the major rites of passage (baptism, marriage, burial). Perhaps to a much larger degree than is true in

many other Latin American countries, local affiliates of the Catholic Church are involved in development activities all over Haiti. The major internal distinction is between the diocesan structure and the structure of religious orders. The former is under the direction of the bishops, all of whom are now Haitian, and has as its major development arm a series of diocesan CARITAS organizations. The latter is represented by several religious orders, most of which have heavy contingents of foreign missionaries, generally of Canadian or European extraction, and virtually all of which provide some form of local development service as part of their activities in Haiti.

Most of the numerous Protestant denominations, in contrast, receive the bulk of their material support and personnel from the United States. These too are heavily involved in rural development. Catholic-supported rural development activities tend to place high emphasis on education and the formation of small peasant associations. Protestant-supported activities, in contrast, perhaps in consonance with their source, tend to involve more sophisticated and expensive technological inputs and have a heavier emphasis on goods as opposed to services.

Whatever their resource levels or specific program objectives, most of these PVOs are in contact with local peasant groups, and most have long recognized the high priority of reforestation as a necessary prerequisite for restoring the ecological base of the rural economy. These organizations have generally lacked resources. Even those that have obtained the resources have for the most part lacked clear operational ideas on how to undertake effective reforestation, and how to interest impoverished peasants in an activity whose benefits to them seem so far in the future.

Proje Pyebwa reaches the peasants principally through the mechanism of these PVOs. The Project also collaborates with several nondenominational projects and unaffiliated community groups. In some situations, the Project has worked directly with peasant communities where there is no PVO intermediary and no structure of formal peasant organization. This diversity of outreach modes was consciously built into the Project's design. The aim was to generate empirical information on whether one type of organizational approach is more effective than another in assisting peasants to plant and take care of trees.

Field Operating Procedures

The most common operational arrangement activating the provision of seedlings to peasant communities is as follows. The local PVO meets with Project staff to familiarize itself with the philosophy, goals, and procedures of Proje Pyebwa. Project staff in turn familiarize themselves with the PVO's activities, the ecology of the region, and the types of trees that would be appropriate. In concert with the PVO, Project staff contact as many peasants as possible and explain the Project. Based on these meetings, a joint decision is made on whether or not to proceed with a local subproject.

If the decision is positive a formal, contractual agreement is established between the Agroforestry Project and the local PVO. This agreement specifies each party's contributions and responsibilities, the number of trees to be planted, the number of peasant participants, and the follow-up to be carried out to monitor the survival of trees planted.

An agreement is also entered into with the peasants, in which the conditions for participation are clearly spelled out; guarantee is given that any trees planted belong to the peasants and that they have the harvesting rights.

The Project generally agrees to furnish technical assistance, seedlings, transportation of seedlings to the region, and a modest budget of recruiting local animateurs to assist in the motivational and follow-up work. The PVO agrees to identify appropriate candidates for the animateur positions, to ensure that the agreed-upon number of peasants are invited to plant trees, to inform the peasants of the date of tree delivery, to assist with the delivery of the trees, and to carry out follow-up activities for one year after planting to determine how many trees survive their critical first 12 months.

Summary

The Agroforestry Project has addressed the issue of institutional placement by adopting an approach that is nongovernmental and "private sector" in an expanded sense of that term. Of prime importance, there is no formal financial or operational link between the Project and the Ministry of Agriculture. The Project chose nongovernmental

channels because they offered the best chances that donor resources would be converted effectively and rapidly into trees standing on Haitian peasants' land.

TECHNICAL CHOICES FOR AGROFORESTRY

An effective institutional strategy ensures that resources reach their destination. However, effective tree planting also entails the technically sound choice of trees ecologically adapted to the region where they are planted. In order to enhance the probability that peasants would indeed plant and maintain the trees, the Project found three additional technical decisions to be essential.

The Choice of Fast-Growing, Drought-Resistant Trees

If the trees are to be planted by the peasants, they must be of use to them in a reasonably short period of time. Further, their utility is enhanced even more if the trees are drought-resistant. This permits peasants to plant and harvest them in areas where there may be too little rainfall for food production. With this feature in mind, the Agroforestry Project has emphasized the planting of trees that, with decent edaphic and orographic conditions, can be ready for harvest in four or five years, and under harsher conditions can produce valuable wood after a longer period. Species initially selected by the Project include:

- Leucaena leucocephala (ipil ipil)
- Azadirachta indica (neem)
- Cassia siamea
- Casuarina equisetifolia (Australian pine)
- Eucalyptus camaldulensis

All of these trees can be converted to marketable charcoal. The price for charcoal made from these trees may not be as high as that from certain well-known local trees, principally "gayak" and "bayaonn"; but the charcoal is marketable. These trees' wood is also utilizable for at least some construction purposes, and two species (leucaena and neem) have been found in other settings to produce

decent sawed boards as well. In short, these are all trees of good potential commercial value to peasants.

Intercropping of Trees with Traditional Food Crops

Trees will be of use to the peasants only if they do not interfere with their traditional agricultural pursuits. With this in mind, the Project has taught peasants several technical options for combining trees with food production.

Woodlots

On plots that are no longer useful for food production, peasants are encouraged to plant a woodlot, that is, a closely spaced stand of trees. One approach is for trees to be planted in rows two meters apart, with each individual tree planted one meter from its neighbor in the same row. After a year or two peasants can begin culling the less productive trees to leave more growing space for the superior trees. In this manner at least some income can be generated rapidly from the sale of the wood from these culled trees. Peasants continue food production on their other plots. The woodlot option is recommended only for agriculturally marginal land.

Border Plantings

On good agricultural land that can be cropped on a continuous basis and is sufficiently flat to be less vulnerable to erosion, the Project recommends that farmers plant trees only along the borders of the fields. This permits continued allocation of the land to food crops. Eventually the shade from these border trees will cause a slight decrease in crop yields at the border. However, the increase in income from the harvest of wood is expected to more than offset the potential income loss from the marginal shade competition at the fields' borders.

Rows of Trees in the Field

On land that is agriculturally productive, but whose slope renders the plot vulnerable to erosion, the Project recommends that farmers plant widely spaced rows of trees in the center of the field in addition to border planting. The trees in each row can be close together (as close as

one meter at the start, with eventual culling to permit fuller growth), but the rows themselves must be far enough apart to permit cropping in between. The trees thus serve not only an income-generation function but a soil conservation one as well.

Trees Intercropped with Food

Much of the land currently under cultivation in Haiti has been so overcropped, or is on such steep slopes, that there should be an ample fallow period every several years. On such plots peasants are encouraged to plant their food crops, but then to intercrop trees over the entire plot. The trees are spaced at two meters by two meters to permit at least two or possibly three food-crop harvests, depending upon the rapidity of the trees' growth and the concomitant spread of shade. Subsequently the plot is allowed to rest for two years, and during this period the tree growth contributes to the organic restoration of the soil while providing farmers with substantial cash income from the sale of wood after four years.

Thus the Project goes beyond merely furnishing fast-growing, drought-resistant trees. In addition it has developed and promulgated various technical options that permit even peasants with small and medium-sized holdings an appropriate and commercially profitable integration of food and tree production. In all cases the final technical choice is left to the peasants themselves. The Project's staff merely make recommendations. It is the peasants, as owners of the land and owners of the trees, who make the ultimate decision on how to plant the trees.

The Use of Small-Container Seedlings

A major barrier to the widespread planting of trees by peasants has to do with the physical bulkiness of the seedlings traditionally furnished to them in tree-planting projects. Most current reforestation efforts grow seedlings in polyurethane bags, which are extremely difficult to transport. Even a pickup truck can carry only about 250 in a single load. The peasants can carry only five or six at a time.

To solve this problem, the Project has adopted a new type of seedling grown in a tiny container, known as a "root trainer," which channels the seedling's root growth

in such a way that the nursery soil mix clings to the roots after the seedling has been removed from the container. A pickup truck can transport approximately 15,000 of these new "microseedlings" at a time. This innovation has dramatically increased the Project's delivery capability, and has made it possible to supply large quantities of seedlings from a centrally located nursery to peasants all over Haiti. And more importantly, peasants can carry at least 500 of these seedlings at once, and can plant them all in a single day. This has relieved a major constraint, the transportation barrier, not only for the Project but also for the peasants.

In the first few planting seasons Proje Pyebwa relied almost exclusively on the seedlings produced in the central nursery set up with the USAID grant funding. In subsequent seasons, seedling production was decentralized by making several of the local PVOs seedling producers. The initial function of the local PVOs had been that of distributor and monitor of the seedlings. At first Project staff had some concerns over whether the local PVOs could effectively fulfill the technical and logistical tasks necessary to manage a nursery. However, the results of this experimentation were astounding; the local PVOs were soon producing seedlings of a technical quality superior to those grown in the central Port-au-Prince nursery.

Summary

The Agroforestry Project's technical content is based on three elements: use of high-growth, drought-resistant species; emphasis on intercropping of trees with food production in ways that minimize interference with peasants' agricultural activities; and the use of small-container seedlings, which facilitate transportation of trees both by the Project and by peasant farmers.

ADAPTATION TO MICROECONOMIC REALITIES

The solution of technical problems alone gives no guarantee of project success. For new technologies to diffuse, they must be of interest and adapted to the target group for whom they were designed. New tree-planting technologies will be accepted in Haitian peasant communi-

ties only insofar as they offer some probability of increased income to households in a reasonably short time span.

The Project could not have achieved success were there not a potential fit between peasants' current economic behaviors and those proposed by the Project. The possibility of this fit could be inferred from the presence in the Haitian peasant livelihood repertoire of two preexisting economic habits that play themselves out somewhat separately in the traditional rural economy, but had the potential to be merged (compare Murray 1984).

Livelihood Patterns: Cash-Cropping and Wood Exploitation

The first of these habits, or patterns, is the strongly entrenched orientation toward cash-cropping, documented throughout Haiti. Peasants in all regions allocate substantial percentages of their land to production for local markets. They know that they can earn a significant cash return from food crops.

The second pattern is the widespread practice of chopping down trees for sale, either as construction material or as charcoal. Lumber extraction is found wherever there are trees that can be sawed into boards. Charcoal-making tends to be restricted to the more arid regions where trees do not grow as large, and to poorer members of the rural population.

These two patterns have simply never been linked in traditional practice. Peasants have grown crops for sale, but have relied on trees provided by nature for the wood they chop and sell. Therefore, what the Project has tried to introduce is not a revolutionary new set of behaviors alien to existing livelihood patterns. Rather, it has attempted to forge a gentle, evolutionary link between two preexisting behavior patterns. The task becomes that of making it technically feasible and economically attractive for peasants to grow wood for sale.

The Underlying Project Hypothesis: Wood as a Cash Crop

This anthropological definition of the nature of the problem appears simple, almost a matter of common sense,

when stated outright. But it is a radical departure from the typical approach to reforestation. Most tree projects in Haiti, as noted above, have relied on altruistic messages--trees for the nation, trees for future generations, or the like--and have eventually been pushed to recognize the need for economically relevant messages. The most common incentive strategy has been to induce peasants to plant trees by some form of wage payment, either in cash or in kind.

The Agroforestry Project accepted as a basic premise the peasants' right to expect economic returns for project participation. It, however, rejected the provision of wages for planting trees. When tree planting is done only for cash or food payment, peasants have little subsequent interest in the care and survival of the trees. Trees planted under such arrangements rarely survive to maturity.

The Project took as its starting point the inherent commercial value of trees to the peasants. As was stated above, the aim has been to introduce the concept and practice of planting and harvesting wood as a cash crop. Thus incentives for participation derive not from a wage payment made by an external development organization, but from the economic return obtained from the sale of the wood crop, either in the form of charcoal or construction materials. This incentive structure is much more likely to induce peasants to care for the trees planted, and to sustain this new set of behaviors once the project ends. The underlying Project hypotheses are that when peasants are given the opportunity to plant fast-growing trees as a crop, they will:

- voluntarily plant substantial numbers of trees on their land,
- take care of the trees until the expected harvest, just as they tend their other commercially valuable crops, and
- spontaneously replant the trees (or permit the trees to regenerate) following the initial harvesting.

Already the first two hypotheses have been strongly validated. During the planning phase, designers were hesitant about setting quantitative goals. Initial estimates were a 1 million-tree goal for four years. When a USAID economist indicated that this would produce an insufficient internal rate of return, the output goal was

raised to 3 million trees. This target has been met and exceeded. Peasant demand has far outstripped the Project's capacity to supply seedlings.

Peasant Ownership of the Trees

The premise of wood as a cash crop makes sense only if the peasants retain economic control over the trees they plant and tend. Peasants have feared reforestation projects where they are expected to plant, on their land, trees whose ownership status is ambiguous. To avoid the behavioral consequences of such fears, the Agroforestry Project specified from the start that the peasants are the sole owners of the trees they plant. This point is emphasized from the first day of contact with any peasant community. Project staff are keenly aware that if there is any doubt about the trees' ownership, peasants will be justifiably hesitant to plant them on their land. Nobody wants to cover their land with permanent vegetation that may end up belonging to somebody else.

Planting Trees on Peasant-Owned Land

Current law and custom in Haiti assign ownership rights over trees only to the owner of the land on which the trees are planted. The Project set as a precondition for participation that peasants be willing to plant Project-supplied trees on their own land. The Project defined ownership using the same criteria that the peasants themselves employ. Though this was stated as a precondition, the peasants saw it as a common-sense assumption. Once the key concept of the cash-cropping of wood was communicated, peasants found it natural to assume that trees must be planted on land to which they can claim legal ownership, otherwise they would not own the trees.

Planting a Minimum Number of Trees

There was an additional condition the Project placed on peasants' participation. In order to assure that the peasants make a genuine economic commitment to the trees, and that they will in fact generate substantial income from

their trees, the Project specified that trees would be furnished only to peasants willing to plant a minimum of 500 trees on their land. This requirement surprised most outside observers, who assumed that Haitian peasants do not have enough land to plant 500 trees without seriously reducing their food crop production levels.

The peasants were shown that trees can be planted at a two-by-two-meter distance on most plots. This leaves space for food production during at least a year and a half under Haiti's prevalent growing conditions. Using this spacing, a hectare of land can hold 2,500 trees. Thus peasants need only allocate one-fifth of a hectare to plant 500 trees, and they can still grow several harvests of food while the trees are small. The average holding in Haiti is about 1.5 hectares; this means that 500 trees would occupy only one-seventh of the average peasant holding. From these 500 trees, assuming a reasonable survival rate, peasants can expect several hundred dollars of income, even if they use the trees for charcoal, their cheapest commercial product. Most peasant participants have no trouble making space for 500 trees and in several instances expressed regret that they had not requested larger numbers.

Exceptionally poor individuals who do not have sufficient land to accommodate the 500-tree minimum have been permitted to "associate" with another similar peasant to be counted as one individual. However, maintaining the principle of a minimum tries to ensure that peasants, in planting the trees, make not a symbolic gesture but rather a serious economic commitment to a new type of land-use behavior.

To adapt the Project to well-organized communities where peasant groups already maintain small collective gardens, Project trees are allowed to be planted on group-held land as long as there are group members who are simultaneously willing to plant trees on their own individually held land as well. The aim has been to ensure that the trees become considered as an ordinary crop, and consequently to combat the efforts of certain rural development ideologues to make trees a special object to be planted only in a collectivized, cooperative mode. To avoid monopoly of Project-supplied trees by the wealthy, the Project placed an upper limit of 1,500 trees to be furnished to any single individual. In short, careful attention has been given to the land-tenure arrangements under

which Project trees are planted, with a view to channeling the majority of the trees onto the land of small and medium-sized peasant landholders.

Subsequent Rights to Harvest the Trees

All of the above microeconomically adapted provisions would be of little avail unless peasants have the right to harvest the trees. Consequently the Project carries the message--quite unusual in reforestation circles--that tree-cutting can be as valid an activity as the harvesting of millet or corn. What is wrong with the current charcoal and lumber economy, the Project insists, is that people are cutting down trees that were provided by nature. Once they have prepared their land, planted the trees, and cared for them for several years, people have every right to harvest them.

In this light, the Project informs prospective participants that, when the trees are grown, they need not come to ask for Project authorization to cut them down. If there are local forestry agents who enforce government tax laws on tree-cutting, then individuals must deal with them as they have traditionally done. It is explained in no uncertain terms that the Project cannot help in that regard; but neither does the Project demand any separate authorization for tree harvesting by the farmers who have planted them. Trees are handled as the peasants' property, to be cut when they wish and as they wish.

This insistence on the inherent validity of tree cutting strikes some planners as a dangerous departure from the more traditional exhortations against it. Many of the peasants, in fact, have been surprised when during initial contact meetings the field team has stressed their right to cut trees. The message has always been couched, however, in the context of tree cutting in which they themselves are the ones who have planted the trees.

PRELIMINARY PROJECT RESULTS

Project results have been surprising, even to those who had participated with optimism in planning and design. The Project had a goal of planting 3 million trees in four years (by September 1985). The 3-million-tree goal

was achieved by September 1983. The multiplication of decentralized nurseries, combined with the field team's success in finding sources of supplementary funding, have permitted an implementation pace that has consistently exceeded initial targets. The anthropological approach to the Project's design and implementation has produced an intervention that has been not only free of the time delays and cost overruns that have become standard fare in many donor-funded activities in Haiti, but in which trees have been planted much faster than anticipated and at a much lower per-seedling cost than had been budgeted for.

During implementation the field team made several midcourse corrections to respond to certain problems that arose. For example, it had originally been planned to offer on an experimental basis an incentive payment to participating peasants for trees surviving past nine months. The incentive plan was introduced only in selected regions; in other regions peasants were merely offered the trees. When it became clear that there were no apparent differences in enthusiasm for participation or in the care given to trees after planting between cash incentive and no-incentive settings, the payments were quickly phased out, permitting the allocation of those funds to the production of more seedlings. The peasants were more interested in the trees than in cash incentives. They have planted millions of trees simply because they want the trees themselves, without any wages for planting them or any "bonus" for keeping them alive. This situation has been the dream of many reforestation projects.

INSTITUTIONAL DEVELOPMENT ISSUES

The preceding discussion has emphasized the unusual design features of the Agroforestry Project, and the high level of preliminary success that the Project has enjoyed. These results have been presented in terms of the number of trees planted, the number of local nurseries established, and--above all--the number of Haitian peasant families that have been given access to and have voluntarily planted fast-growing tropical wood trees. There are, of course, a number of problems facing the Project: unanswered questions concerning its future, and the issue of the survival rates of the anticipated 20 million seedlings that the Project aims to have planted by its scheduled termination in

September 1985. The remainder of this chapter focuses on issues dealing with institutional development and the Project.

As noted above, the Agroforestry Project was conceived and designed not with the aim of developing public-sector institutions in the forestry sector, but rather to intervene as directly as possible to address the ecological and economic problems of deforestation in Haiti. The Agroforestry Project's theoretical underpinnings derive from a set of anthropological concepts, the key ones being the need for wood to become "domesticated" as a cultivate in the same way that food was domesticated some 12,000 years ago in human prehistory, and the utility of making wood a "cash crop" in the context of contemporary Haitian peasant economic behavior. The Project was thus informed primarily by the work of anthropologists rather than the predominantly organizational literature on institutional development reviewed in Chapter 2.

ID in Haiti has constituted a prime example of the weaknesses associated with presupposing that the public sector is the logical and proper location for development interventions. The Project's anthropological focus oriented it toward beginning with the peasants' livelihood needs and strategies and working upward toward an institutional and technical response mechanism that would accomplish reforestation in a way that adapts to rural reality and helps to alleviate poverty. The more standard design mode, as discussed earlier, is to take the public sector agency with the appropriate official sectoral mandate and work downward. This approach, at least in the Haitian context, sacrifices results for administrative "rectitude" and convenience.

Institutional Impacts of the Agroforestry Project

Four sets of institutional impacts can be identified that the Agroforestry Project might have. These are: (1) facilitating of changed local-level behaviors that will be sustained after project termination, (2) strengthening of the problem-solving and managerial capacity of local organizations to fill the needs of their members, (3) building the capacity of nongovernmental organizations (PVOs) to serve the development needs of rural populations, and (4) strengthening the capacity of the Ministry of Agriculture.

Local-level Behaviors

With respect to this impact category, all depends upon whether peasants are successful in deriving cash income from the planting and cultivation of trees. The current strong market for charcoal and construction materials and the low likelihood of a turn toward imported fossil fuels and lumber give reasons for optimism. If these cultivated trees prove to be a reliable source of income for peasants, then it is unlikely--extremely unlikely from an anthropological perspective--that people will not continue to plant trees, or to care for the trees that coppice from the stumps of cut trees, even after Project activities cease.

This could conceivably take place even if there were no single organization, or set of organizations, public or private, promoting tree planting. Peasants grow and market corn, beans, millet, rice, and other crops without the benefit of assistance from any intermediary organization. There is no inherent reason why wood could not be handled in a similar fashion. If peasants sustain this behavior on their own, there would be a shift in the technology of seedling production. They could produce their own seedlings from seeds culled from the first tree crop.

Peasants could have done all this before the Project began. Its contribution, however, has been to demonstrate the feasibility of a new cash-cropping approach to wood. Once this proof has been given, peasants are capable of taking things into their own hands.

Local Peasant Organizations

The Project has not attempted to create new local peasant groups; it has rather linked up with preexisting groups, taking care to avoid entanglements with those community councils that represent the interests of wealthy townspeople instead of small and medium peasants. Of particular interest for the Project have been the groupmans: small farmer groups of 7 to 12 members that now exist in many parts of the country. Though precise data have not yet been generated, the impression is that the spread of Project benefits is smoother, faster, and more equitable when action can be channeled through these preexisting organizational mechanisms. The Project's approach has been to provide these groups with concepts, resources, and technologies in order to create the conditions where it is possible and advantageous to engage in an activity that up until then had been a pious ideal: massive tree planting.

Private Voluntary Organizations

Perhaps the Project's most impressive institutional impact has been on the behavior of the numerous PVOs that have participated. Virtually all of them had previously engaged in, or had intended to engage in, tree planting. The Project has strengthened their capacity to do this by assisting them to shift from:

- an altruistic to a cash-cropping approach to reforestation, an approach that has motivated tree planting on a scale that had been deemed unthinkable;
- an unexamined assumption that peasants would plant only fruit trees to an awareness of the economic and development potential of wood trees;
- the use of cumbersome large containers to the use of small containers that increase the ability of a project to transport trees and of peasants to plant them; and
- the haphazard distribution of trees with no follow-up to a highly organized system in which postplanting tree counts are carried out and survival rates become a key monitoring variable.

The Project has probably had an irreversible impact on the manner in which many of the participating PVOs conceive of and carry out reforestation. This is demonstrated not only by the proliferation of dozens of small-container nurseries throughout Haiti--directly related to participation in the Agroforestry Project--but also by the replication of the Project model being carried out by some PVOs with independently secured funding. That is, the Agroforestry Project could disappear tomorrow as an organized entity and its underlying principles and operational procedures would survive, embodied in the activities of numerous PVOs and, through them, in the tree-planting behavior of Haitian peasants. If this assessment is correct, then the Project has already had profound institutional impacts.

The Haitian Public Sector

Two years into implementation, there was no evidence that the Ministry of Agriculture had altered its own modus operandi for tree planting as a result of the demonstration effects of the Agroforestry Project. Ministry personnel have

been aware of the existence and achievements of the Project. Their verbal response, at least during the period when I served as Project director, was not an interest in learning new technologies or outreach procedures, but one of criticism of the Project for not having gone through what they considered "proper" channels. This criticism emerged from the perspective not of Haitian peasants being served, but of their own administrative and financial prerogatives being ignored.

The Project has developed technologies and procedures that, if adopted by the Haitian government (or any other government in similar ecological or economic settings), could result in vastly improved performance in peasant-based reforestation. In theory, this could be one way institutional spread effects could take place from nongovernmental development efforts to public-sector agencies with development responsibilities. This spread presupposes, however, an openness on the part of the public-sector organization to modifying its practices and behavior. This openness is clearly present in particular individuals in the ministry. Whether these individual sparks of interest can bring about any change in ministry behavior remains to be seen.

Despite an absence of enthusiasm for the Project, the Haitian government made no attempts to terminate or encumber it. No tries to stop Project operations or to reroute its funding through the ministry were made once the nongovernmental implementing channel was selected by USAID. During the Project's second year Jean-Claude Duvalier, Haiti's President for Life, made a speech in which he congratulated the Ministry of Agriculture for planting several million trees. Since the only project that had planted that number of trees was Proje Pyebwa, the suspicion arose that the ministry was claiming in-house credit for the achievements of the Project. In the opinion of amused Project staff, this was a modest price to pay for the hands-off attitude that the Haitian government had adopted toward the Project.

Conclusion: Reorienting the Nature of the ID Task

This chapter has framed its discussion around the argument that, in Haiti, standard approaches to institutional development rarely lead to effective rural develop-

ment. It has demonstrated how the Agroforestry Project's conceptual foundation and design explicitly favored rural development over widely accepted notions of ID. This anthropological perspective led the Project to concentrate upon identifying the changes needed at the local level in order to make reforestation a reality. Thus the Project's ID focus was also locally oriented.

Its achievements are to be seen, therefore, not only in the trees planted on Haitian hillsides, but also in the strengthening of the capacity of local peasant groups and PVOs to carry out widespread tree planting under socioeconomic conditions that were formerly thought to be incompatible with such an activity. This strengthening of local groups and organizations constitutes peasant-relevant ID. Further, this ID took place as a secondary side effect of implementing a well-conceived and microeconomically appropriate rural development project.

In this sense there may be an important analogy to be drawn. Though the Project hoped to achieve ecological restoration of the hillsides, it worked toward this through promotion of activities with an immediate and direct economic payoff for its intended beneficiaries. Haitian peasants plant trees for economic survival reasons; any ecological benefits come as secondary side effects of behaviors engaged in to earn a livelihood. The Project's implementation experiences suggest analogous implications for ID. In a project that follows this analogy to its logical conclusion, ID would not be conceived of as a primary project goal. Planners would instead focus their vision on desired beneficiary behaviors. Institutional development would take place, if the Agroforestry Project is an appropriate model, as a secondary side effect of taking suitable managerial steps to ensure that donor-provided inputs are transformed into outputs that support intended change in target group behaviors.

What these suitable managerial steps are raises an important, and in Haiti controversial, issue. That is, which are the appropriate institutional channels for projects with rural development objectives: public or private? The Agroforestry Project poses an effective challenge to any automatic assumption that rural development is best done by public-sector agencies. Neither theoretically nor pragmatically can a valid argument be sustained for the exclusive suitability of government channels. In Haiti an effective government service delivery presence in the rural

areas is weak to nonexistent. In most cases, PVOs constitute the main source of services available to the peasantry.

On the whole, the evidence from Haiti seems to point to the superior effectiveness of nongovernmental implementation modes where the objective is to provide immediate benefits to the rural poor. Those who have argued against this mode almost invariably resort to philosophical arguments. One rarely hears arguments as to the superior efficiency of the Haitian public sector in managing development projects; what one hears are philosophical statements about its sovereign rights and the like. Those concerned with the expeditious flow of resources and services to peasants generally opt for nongovernmental channels.

Another argument frequently heard in favor of choosing public-sector implementation routes is that government channels have a higher potential spread effect in the long term than do PVOs. The Agroforestry Project, however, provides evidence of the spread effects of nongovernmental modes. Furthermore, the Project demonstrates that it is possible to build capacity and generate genuine benefits at the same time. It has been argued throughout this chapter that institutional strengthening with no concern for performance empties ID of any useful meaning.

Nonetheless, the philosophical and practical dilemma of public versus private institutional choice is real; and in Haiti, as elsewhere, either one poses some problems. To have committed the Agroforestry Project's funds to the Ministry of Agriculture would have, based on most donors' experience with ID in that agency, meant sacrificing any near-term reforestation results for the tenuous promise of some future ability to intervene in the sector. The Project's bypassing of the ministry and the government, however, has been criticized in some quarters as a neocolonial intrusion--a charge that has sometimes been leveled generally at PVOs in Haiti.

When confronted with such a dilemma, the anthropologist has access to a highly reliable source of information and recommendations: the peasants themselves. The unanimous response of the Haitian peasants consulted in the Project's design stage was a plea to keep the Agroforestry Project away from the government. In the final analysis, it is the judgment of this particular tribunal that carries the most anthropological weight. In opting to listen to their plea, the Project explicitly sought to honor the preferences of the rural Haitian people. They have reciprocated

our gesture and "validated" the Project's hypotheses by voluntarily channeling unprecedented rivers of green life onto their scarce and precious land.

REFERENCES

Bastien, Remy. 1951. La Familia Rural Haitiana. Mexico City: Libra.

Benge, Michael. 1978. "Renewable Energy and Charcoal Production." Port-au-Prince: U.S. Agency for International Development.

Comhaire-Sylvain, Suzanne. 1952. "Land Tenure in the Marbial Valley of Haiti." In Acculturation in the Americas, edited by Sol Tax, pp. 180-184. Chicago: University of Chicago Press.

Conway, Frederick J. 1979. "A Study of the Fuelwood Situation in Haiti." Port-au-Prince: U.S. Agency for International Development.

Courlander, Harold. 1960. The Drum and the Hoe. Berkeley: University of California Press.

DeYoung, Maurice. 1958. Man and Land in the Haitian Economy. Gainesville: University of Florida Press.

Earl, D. E. 1976. "Reforestation and the Fight Against Erosion: Haiti--Charcoal as a Renewable Resource." Rome: Food and Agriculture Organization.

Erasmus, Charles J. 1952. "Agricultural Changes in Haiti: Patterns of Resistance and Acceptance." Human Organization 11: 20-26.

Ewel, Jack. 1977. "A Report on Soil Erosion and Prospects for Land Restoration in Haiti." Port-au-Prince: U.S. Agency for International Development.

Herskovits, Melville. 1971 (orig. 1937). Life in a Haitian Valley. New York: Anchor.

Metraux, Alfred et al. 1951. Making a Living in the Marbial Valley. Paris: UNESCO Occasional Papers in Education.

Moral, Paul. 1961. Le Paysan Haitien. Paris: G. P. Maisonneuve et Larose.

Murray, Gerald F. 1984. "The Wood Tree as a Peasant Cash-Crop: An Anthropological Strategy for the Domestication of Energy." In Haiti--Today and Tomorrow: An Interdisciplinary Study, edited by Charles R. Foster and Albert Valdman, pp. 141-160. Lanham, Md.: University Press of America.

_____. 1981. "Peasant Tree Planting in Haiti: A Social Soundness Analysis." Port-au-Prince: U.S. Agency for International Development.

_____. 1979. "Terraces, Trees, and the Haitian Peasant: An Assessment of 25 Years of Erosion Control in Rural Haiti." Port-au-Prince: U.S. Agency for International Development.

_____. 1978a. "Hillside Units, Wage Labor, and Haitian Peasant Land Tenure: A Strategy for the Organization of Erosion Control." Port-au-Prince: U.S. Agency for International Development.

_____. 1978b. "Informal Subdivisions and Land Insecurity: An Analysis of Haitian Peasant Land Tenure." Port-au-Prince: U.S. Agency for International Development.

_____. 1977. "The Evolution of Haitian Peasant Land Tenure: A Case Study in Agrarian Adaptation to Population Growth." (2 vols.) Ph.D. dissertation, Columbia University.

Renaud, Raymond. 1934. Le Régime Foncier en Haiti. Paris: Les Editions Domat-Montchrestien.

Schaedel, Richard P. 1962. "An Essay on the Human Resources of Haiti." Washington, D.C.: U.S. Agency for International Development.

Simpson, George E. 1940. "Haitian Peasant Economy." Journal of Negro History 5: 498-519.

Smith, Ronald. 1980. "The Potential of Charcoal Plantations for Haiti." Port-au-Prince: U.S. Agency for International Development.

Smucker, Glenn R. 1981. "Trees and Charcoal in Haitian Peasant Economy: A Feasibility Study of Reforestation." Port-au-Prince: U.S. Agency for International Development.

Underwood, Frances W. 1964. "Land and Its Manipulation Among the Haitian Peasantry." In Explorations in Cultural Anthropology, edited by Ward Goodenough, pp. 469-482. New York: McGraw-Hill.

Voltaire, Karl. 1979. "Charcoal in Haiti." Port-au-Prince: U.S. Agency for International Development.

Wood, Harold A. 1963. Northern Haiti: Land, Land Use, and Settlement. Toronto: University of Toronto Press.

Zuvekas, Clarence Jr. 1978. "Agricultural Development in Haiti: An Assessment of Sector Problems, Policies, and Prospects Under Conditions of Severe Soil Erosion." Washington, D.C.: U.S. Agency for International Development.

POLITICS, PROJECTS, AND PEOPLE

Institutional Development in Haiti

edited by

Derick W. Brinkerhoff

Jean-Claude Garcia-Zamor

PRAEGER

PRAEGER SPECIAL STUDIES • PRAEGER SCIENTIFIC

New York • Philadelphia • Eastbourne, UK
Toronto • Hong Kong • Tokyo • Sydney