



SOCIAL FORESTRY NETWORK



LAND TENURE AND AGROFORESTRY IN THE DOMINICAN REPUBLIC

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I. INTRODUCTION

In this paper I propose to outline the land tenure systems in the Dominican Republic, the agroforestry and silvopastoral systems and how the latter are related to the former. In addition I will present the experiences that rural development and natural resource management programs have had in establishing agroforestry systems. Finally, the paper will point out what the key factors are that ought to be taken into account when designing agroforestry programs in Caribbean and Central American countries.

Caribbean and Central American countries are facing the urgent need to improve their production systems in order to guarantee food, fibre and energy for their growing populations. The increasing pressures these countries face to produce export goods, often using costly imported technology, have displaced the small farmer to more ecologically fragile zones. These zones require a more rational exploitation from an ecological and economic point of view.

To group Central American and Caribbean peasants by land tenure systems would be an extremely complex task. Nevertheless we can point to several common characteristics among these systems:

- The greatest number of private agricultural holdings have an average size of one hectare. The greatest amount of land is in the hands of a few large landowners.
- There is a considerable number of peasants who do not own land. Thus when we talk of land tenure we must consider not just owners, but occupants, usufructuaries and sharecroppers.
- Agroforestry systems are a priority for the smallholders. This is not the case for large landowners who are in a position to dedicate their holdings exclusively to commercial forestry exploitation since they do not have the same urgent need to generate income in the short term as the smallholders.

- The concept of agroforestry, although not a formally or systematically understood concept, is utilized in the majority of smallholdings. The producer and his family intuitively recognize the benefits generated by this system: short cycle or permanent crops for food, animal production, trees for timber and firewood and medicinal or curative plants.
- It is essential to study the systems utilized by the farmers themselves so as to be able to design and introduce improvements through the use of new or improved species.

This paper will discuss the main issues on land tenure and agroforestry in the Dominican Republic to illustrate the situation in Central America and the Caribbean.

II LAND TENURE PATTERNS IN THE DOMINICAN REPUBLIC

A. The Distribution of Land

The Dominican Republic has 6.2 million inhabitants living in an area of 48,297 km² of which 55 per cent or 2.66 million hectares is comprised of farms or holdings. These 2.66 million hectares are divided into 385,000 properties. Eighty-five per cent of these properties have less than 5 hectares occupying 12 per cent of agricultural lands: the minifundium or smallholding. In addition, 16 per cent of the farmers, work in holdings with less than 0.5 hectares. Eighteen per cent of the producers own 88 per cent of the lands forming in this way the well known bimodal land distribution pattern of "minifunium-latifundium" so typical of the Central American and Caribbean region.

Between 1971 and 1981 the number of holdings with less than 5 hectares has increased, which indicates a tendency towards greater fragmentation of property. This phenomenon has not been as marked in holdings between 5 and 1,000 hectares.

In 1971, 71 per cent of the holdings was legally farmed while one per cent of the land was rented and 10 per cent illegally farmed (8).

The largest groups of non-owned small farms fall in the categories of "occupants or free beneficiaries" and "occupants under concession", most of whom are squatters on government land or private holdings. They do not have to pay any kind of rent or tribute. Sharecropping is the next most prevalent form of tenancy, followed by rented land (1).

Short cycle crops are planted mostly in small farms. Those with more land dedicate it to planting sugar cane, forestry or grazing. The smallholdings are producers of rice, cacao, coffee, tobacco and roots and tubers.

The control of the irrigated lands is also in the hands of large landowners. Nine per cent of the large holdings had, in 1971, 64 per cent of the irrigated land while 91 per cent of the smaller farmers controlled only 36 per cent of the irrigated land (1).

The land is used more intensively in the smaller holdings. The amount of land per worker increases from 0.27 hectares in the small units to 1.54 hectares in the family size units to 13.2 hectares in the multi-family large holdings.

The distribution of the land influences the type of crop planted more than the form of tenancy. Though there are no detailed studies of cattle lands, it is known that the great majority of large landowners dedicate their holdings to raising cattle, and in some instances goats, without applying any type of controlled management practices.

Sixty-one per cent of the cattle properties have herds comprising less than 6 head of cattle; and 14.7 per cent of these farmers, of which 85 per cent have holdings of less than 5 hectares, have only one head of cattle. The majority of herds consisting of 2 to 5 head of cattle also belong to producers with less than 5 hectares.

The large landowners specialize in raising bovine cattle. For example, 69 per cent of the farmers owning 200 to 500 hectares possess bovine herds and only 18 per cent of those farmers with less than 5 hectares raise cows (9).

This concentration of land and resources in the hands of a few producers and the growing need to answer the claims for increased social justice put forth by the peasants themselves has led to land distribution and redistribution schemes, or agrarian reform, in almost all Central American and Caribbean countries.

The reforms of the land tenure systems have as their prime objective to provide, for the peasant and his family, access to the main means of production, land.

The forms and strategies used in land reforms differ according to the political systems and social movements prevalent in each country.

B. Agrarian Reform: The Case of the Dominican Republic

In the majority of Latin American countries the modern history of agrarian reform movements had its origins in the international pressures brought about by the Alliance for Progress programs pushed by the United States government beginning in 1961. Nevertheless, in the Dominican Republic the elimination of 30 years of tyranny had more to do with the rise of the agrarian reform process than international demands (5).

Dominican agrarian reform has sought to achieve four basic objectives:

1. To protect the frontier from the growing encroachment of Haitian nationals in border lands. This programme was one of colonization and the beneficiaries of these colonization schemes along the frontier were called "colonos" or colonizers. The economic and social impact of these programmes was minimal.
2. To act as a mechanism for creating a political support base. In order to institutionalize this process after the fall of the dictator the Dominican Agrarian Institute (IAD) was created in 1962.

3. To act as a mechanism to arrest the increasing social unrest in the countryside due to the large number of landless peasants.
4. To act as a mechanism to assure self-sufficiency in rice without increasing the price of this grain.

Until 1972, all agrarian reform settlements were comprised of individual holdings. The state distributed on average properties between 3.13 and 4.69 hectares. The beneficiary was only granted a provisional title and had the right to the usufruct of this property, but could not sell or transfer the property rights.

After 1972 we see a new form of agrarian reform settlement, the collective. These settlements were under the direct control of IAD and the beneficiaries working in them were to divide the net income generated in equal parts. In the collective, the beneficiary's family can inherit the right to the usufruct in case of his abandonment of the plot or his death. In the beginning, this type of settlement only applied to rice lands. After 1979, all land distributed by the IAD was in the form of collectives.

At the moment, we see a third model for agrarian reform settlements emerging, the associative. This model permits the beneficiary the right to manage his own parcel in association with other reform beneficiaries in the settlement. The farmers form an association which has the legal right to obtain credit, contract machinery, and obtain other inputs from independent providers. In general, each beneficiary works only his own land. His family may help him and the benefits derived correspond to the production of his parcel. This reform model shows the great capacity for organizing that exists among the peasants.

The associative model has emerged in two forms, depending on whether they were formerly individual or collective agrarian reform settlements. Congress has yet to approve the law which would give IAD the right legally to adjudicate land to associations.

C. The Forestry Situation in the Dominican Republic

Ten to fifteen per cent of the forest land in this country is privately owned and extensive areas of deforested land exist under no legal ownership status. These lands are used for migrant agriculture and extensive dairy or beef production. The increasing rate of the deforestation process in the country has been of such magnitude that, while in 1947 it was estimated that 60 per cent of the national territory was covered by forest, at this time only 26 per cent is covered by forest, including species in dry forests (areas with an annual rainfall below 1,000 mm.). Much of the forest has been destroyed in the process of producing timber, firewood and charcoal. The consequence of this process has been that almost 300 native species are threatened with extinction. The main river basins are in poor state due to the constant destruction of forest vegetation. The number of dry rivers has increased and there are grave problems with soil erosion.

The production of timber as fuel is about 2,000,000m³/year of which 65 percent is consumed as firewood and 35 per cent as charcoal (12).

Ninety per cent of the firewood consumption takes place in rural areas which generally exist outside the market economy. Of the total timber that is processed, some 80 per cent goes to urban homes.

The wood that exists today has an average yearly production of 10m³/ha. This implies that 200,000 hectares are exploited annually to satisfy the demand. In the last 14 years, however, only 3,157 hectares of forest have been established.

The low per capita income in the Dominican Republic (RD\$450 to RD\$600) lends itself to migrant agriculture because people tend to provide themselves with charcoal, firewood, and other raw materials from the forest. Charcoal-making had been a sporadic economic activity, but with an increase in rural demand, it is becoming a full-time activity for some farmers. Of all migrant agricultural practices, charcoal-making generates the principal income and agricultural products are mainly for household consumption.

The lack of professional advice, technology, land ownership patterns and low income per capita are factors that lead the small farmers to practice migrant agriculture. Migrant agriculture is being practiced here in one of its variant forms, recurrent agriculture, rotating the land periodically but living permanently in the same area. There is a rotation of forest followed by rotation of agricultural production. The cycle includes tree cutting, charcoal and fuelwood production, crops, grass planting, abandonment and forest regrowth. The crops grown are plantains, beans, potatoes, and pigeon peas. Low land broad-leaved forest trees have been deforested by slash and burn agriculturalists and charcoal-makers.

The national forest service, FORESTA, has the responsibility to enforce the 1967 law which closed saw-mills and prohibited the cutting of trees (7).

This forestry law and the 1983 law on utilization of wood produced locally, constitute an obstacle to the rational use and establishment of forest species.

The forestry policy of the country should be oriented towards providing:

1. Security that what is planted may be harvested;
2. Credit incentives;
3. The establishment of agrarian reform agroforestry settlements in those lands apt for forestry;
4. Rational exploitation of the natural forests and plantations;
5. The establishment of farms that produce firewood and charcoal given the fact that a rural family needs 0.33 hectares per year to produce its firewood. It is estimated that a peasant family can manage adequately 10 hectares of Leucaena leucocephala and could generate from it some US\$3,000 per year from firewood production (12).

III Agroforestry Practices and their Link to Land Tenure Systems

Agroforestry includes the management of agricultural or forage species in combination or stratification (vertical or horizontal) with forest species in the same plot of land in order to achieve a better use of the soil, water, light, and the farmer's labour in a sustained fashion.

Forestry activity in this country faces a series of obstacles and contradictions: the farmer's rationality, the spatial distribution of benefits, the lack of an agricultural culture that fits the environment and incentive policies (11).

a) The Farmer's Rationality

Forestry activities differ from agricultural activities in that the return on investments and the flow of benefits occur in the long term. But in general, people tend to give little value to future income.

The income yielding capacity of a forest plantation will oscillate between 6 and 20 per cent annually. But capitalists wish to invest in economic activities whose return on investment occurs within a fairly brief period of time.

In order for capitalists to find it attractive to establish a forestry enterprise, they will need to receive incentives which increase the rate of return on investment and assure a secure and stable future.

For a peasant toiling in the mountains, the argument that a hectare of pine trees will produce in 20 years one hundred times more than what the same hectare will produce today if he plants beans is meaningless. His basic needs are immediate and a stream of income occurring 20 years from now cannot satisfy those needs today. Thus for him the present value of this stream of income is zero. Given his present conditions the peasant cannot afford to wait. The inevitable result is to plant now and plant crops whose cycles will be as short as possible.

The rationality of the capitalist and the farmer argues against a socially optimal use of nature.

In order to modify this situation one must offer financing which makes it affordable to wait (for the capitalist) and redistribute land in such a way that each family has enough land to sustain itself above a level of absolute poverty. It will require the design and transfer of a technology apt for the environment so that the peasant family may produce its own food and fuel without harm to the soil. The hope that is placed on agroforestry systems to solve this problem is great, but in order for these to work one must first determine the income yielding capacity needed to motivate the capitalist to invest and to develop compatibility between short cycle crops and the environment to motivate the peasant.

b) The Spatial Distribution of Benefits

The spatial distribution of benefits also affects the establishment of permanent crops. The people who in order to protect the dams and rivers must change their behavior vis à vis nature are not the same people who will benefit from such a change.

The increase of productivity achieved through irrigation, the greater availability of electric energy produced at lesser costs and the improved operation of aqueducts are without exception benefits received by those who live downstream, in the valleys. On the other hand, the change from short-cycle to permanent crops (the sacrifice in waiting this entails) and the soil conservation works that consume so much human energy must be undertaken by those living on the hillsides. It is possible that agroforestry systems may redress this imbalance by allowing those in the hillside to combine their short cycle crops with permanent crops and by forcing those living downstream to compensate somehow the hillside inhabitants through low cost credit, distribution of land and plants, health, education, roads and other public works.

c) Lack of Agricultural Culture

Another obstacle facing forestry activities is the lack of an agricultural culture that fits the environment. Historical reasons in many countries have forced the immigration of inhabitants of flatlands onto the hillsides. Since one cannot hope to relocate all hillside inhabitants in the flatlands we will have to create a generation of forest agriculturalists through schooling and technology transfer.

d) Policies and Political Aspects

The political aspects in our country are also very influential. Given the fact that democracies are far from institutionalized in the Third World, to sustain them is a constant struggle. Governments fight for their own survival and thus their activities (including investments and expenditures) are directed towards maintaining themselves and the system in power. Long term investments whose benefits will not be forthcoming during their term of office are unlikely to receive top priority.

In addition, credit and technical assistance policies tend to favour the establishment of single crop systems of short cycle.

Agroforestry is not just a technical or a logistical problem. Reforesting is above all a problem of lack of adequate survival and exploitation techniques for hillside inhabitants. It is a problem of subjective low income yielding possibilities given time lapse and uncertainty factors. Finally, it is also a problem of accepting that it is impossible to stop the deforestation process without solving at the same time the problem of the inhabitants of these areas.

Various forms of agroforestry exploitation exist in the Dominican Republic. However, these have neither been systematically established nor have their efficiency and profitability been thoroughly verified.

A study conducted by Mercedes (6) indicates that hills with slopes of up to 75 per cent could support fruit crops such as Anacordium occidentaleis (cashew), Annona spp, and Mangifera indica (mango). According to the author's scheme, shrubs and herbacious species would be part of the second canopy and used for grazing. Hills whose slopes fall between 24 and 74 per cent can be used for producing forest crops to supply poles, firewood and charcoal. Herbacious species and shrubs are used to protect the soil against erosion and provide forage. Agricultural crops can be established between the rows (corn, beans, pigeon peas, pineapple, tomatoes and eggplants).

Farmers who own land or who have occupied state lands without title utilize this system (consisting of planting fruit trees, coffee, cacao, and citrus). Some agrarian reform settlements consisting of individual holders also use this system. Nevertheless, the occupant of private lands will hardly dedicate his time to this type of exploitation which requires permanency and security. Farmers and peasants with small holdings cannot use the system at all given that it conflicts with their prime need to assure their survival in the short run.

The systems of coniferous trees with pasture and pasture with Gliricidia are commonly used by medium to large holders who do not face the same urgent need to plant short cycle crops. The grazing lands in the flatlands are surrounded by Gliricidia sepium as a live fence.

There exists as well a type of agroforestry system specific to sharecroppers. In the majority of cases sharecroppers must share their harvest with the owner. Yet in some parts of the country, one finds instances where the sharecropper only has the responsibility to clear the forest, cultivate it for his own benefit and at the end of the contract return the land to the owner planted with pasture. In these cases, it is very difficult for the sharecropper to establish an agroforestry system since in the long run he will not be able to benefit from this effort and his contract demands that he return a one crop plot (pasture).

The farmer who occupies private land is less stable or permanent than those who occupy state-owned lands. Thus they will be less disposed to establish permanent crops. Yet in the case of sharecropping, leasing or illegal occupation the owner must pay for the improvements the farmer has brought to the plot, including trees planted. Some farmers could then use these permanent crops as a way of claiming improvement payment rights.

In the new forestry plantations belonging to the state, agro-forestry systems are not at all considered. The interest of the government in these lands is to keep the farmer as far away as possible as a means of preserving the forest.

The management of grazing goats and bovine cattle is being studied in plot plantations which produce firewood and charcoal so as to determine what species used for firewood and forage permit ample grazing without undergoing total destruction, or what species have a high degree of regeneration or re-sprouting capacity. The most immediate concerns of these studies are to determine what number of grazing animals is viable and optimal and what is the optimum grazing time for the pasture ground.

IV EXISTING FORESTRY PROJECTS AND THEIR AGROFORESTRY COMPONENTS IN THE DOMINICAN REPUBLIC

A. Plan Sierra

Plan Sierra is a rural development programme which began operating on April 1, 1979. The objective of this programme was to improve the degraded condition of the forest and soil in an area where 14 rivers, the source of water for the northeast region of the country are born. It also sought to relieve the state of critical poverty in which the majority of inhabitants in the region lived. It hoped to introduce activities and techniques which would allow the inhabitants of the Sierra to live with nature without destroying it. Supported by the Ministry of Agriculture, Plan Sierra has received donations from W.K. Kellogg Foundation, the Swedish Government and other international institutions.

The owners or occupants of the Sierra lands can be divided into two groups: that group which consists of the poor peasants who barely produce enough to feed their families, and the group of the peasants or large landowners who can afford to invest in production. The former group has no possibility to reforest since they cannot dedicate the land they use to produce food to feed themselves and their families, to planting trees which would then take another 15 or 20 years to yield benefits, even if these trees are planted by volunteers free of charge.

On the other hand, the latter group considers that it is far more profitable to dedicate their lands to primitive cattle raising or simply to let them lie fallow than to plant them with trees for which they would need a minimum investment of RD\$800/ha in the first three years, an investment which could not be recuperated for the next 15 or 20 years.

The only means of stabilizing the ecosystem is to stabilize the social system. To solve the reforestation problem one must solve the poverty problem.

The distribution of land in Plan Sierra has led to the design of two models of reforestation. These are presented in Figure 1.

The models which affect neither the distribution nor the land tenure system have two fundamental weaknesses: one is that the socioeconomic solution to the plight of one particular family depends in large measure on the amount of land at that family's disposal; the second weakness is that reforestation depends on the will of the land owners and not on the objective necessity of reforesting in that particular tract of land (10).

B. MARENA

The Management of Natural Resources Project (MARENA) being carried out by the Subsecretariat of Natural Resources has at its disposal RD\$21 million. It was started in 1982 and its objectives are to increase the income and standard of living of the poor peasant who works on the hillsides, through soil and water conservation and

Figure 1: Models of Forestry Production According to the System and Distribution of Land. Plan Sierra, Dominican Republic, 1984.

A. Models which Affect the Tenancy and the Distribution of Land

A. 1. For each family of 6 members with 3 hectares of land (50,000 hectares)

- a) 0.062 ha for orchard
- b) 0.625 ha for food for self-consumption and grain to feed 10-15 chickens
- c) 1.75 ha for permanent crop (i.e. coffee)
- d) 0.25 ha for forage to sustain one cow
- e) 0.31 ha for forest to obtain firewood

A. 2. Organization of Forestry Enterprises (112,500 hectares)

These enterprises will be state owned and would utilize peasant labour. Models A1 and A2 are complementary.

B. Models which Affect Neither Land Distribution nor Land Tenancy

B. 1. Each family according to the extent of its land will be given assistance to establish a model A1 farm. If the family has more than 3 ha. the objective will be to motivate it to plant wood producing species.

B. 2. Contract families to reforest 19-25 ha. in return for a salary and for helping it establish model B1.

B. 3. Reforestation of lands given by the owners with paid labour with the legal requirement of reimbursing Plan Sierra the costs once the trees have been harvested and sold.

B. 4. Nurseries in schools in order to establish school-run forests and create a forestry culture.

institutional strengthening. It counts on the technical and financial support of the U.S. Agency for International Development (USAID).

One of the most important areas of influence of the MARENA project is the Ocoa River basin which cover some 500 km² and includes about 5,000 producers, most of whom are untitled and have one hectare farms. The project's activities in this area concentrate basically on conservation, basin protection, investigation of agricultural systems appropriate for hillside farming and credit incentives (including loans for soil conservation and reforestation) and improvement of the quality of the water and soil.

The investigation of hillside agricultural systems includes the establishment of live barriers using different species: limoncillo, supermerker, alfafa, sorghum and guatemala (Tripsicum lasum) all of which may be used as medicinal plants and forage and which at the same time improve the soil. In addition, conservation or forage strips consisting of one or 2 rows of Leucaena leucocephala are being established to impede erosion and as a source of firewood.

The project has programmed a census to categorize the agroforestry systems in the area, but this has yet to be started. At this time the project is busy studying the profitability of plots where fruit trees are planted in combination with short cycle crops (figs and beans).

One common type of agroforestry system in the area is the cultivation of potatoes (Solanum tuberosum) in Pinus occidentalis farms. This system has not been studied. In the majority of cases it is practiced in lands of very pronounced slopes (over 35 percent) strictly apt for forestry. Though this system is widely practiced it should not be tolerated or encouraged since the region's topography requires permanent crops and not crops which like the potato cause the soil to be overturned during harvest time.

MARENA is also considering establishing species in farmer's lands which can be used to fill energy needs.

C. Wood as Fuel

The Wood as Fuel Programme is a component of the Project for the Utilization of Energy Resources presently being directed by the National Commission for Energy Policy with USAID financing. The programme is being implemented by the Instituto Superior de Agricultura (ISA) since 1983 in a 1,000 hectares dry wood forest in Mao.

The Wood for Fuel Programme's main objective is to study the native dry forest species (where the annual rainfall falls below 1,000 mm) which have good energy use qualities. The programme also investigates the plantation management systems and searches for the best methods to convert firewood into charcoal.

One of the Programme's interests is to initiate agroforestry investigation. In particular, it hopes to determine which dry forest species are apt for use in goat raising and as firewood. Goat raising in private or state owned land is a common practice by small producers whose plots are not large enough. Grazing in this irrational manner consumes the species apt for use as firewood and accelerates the impoverishment of the soil.

The programme wishes to determine the best species for grazing and firewood, the optimum number of animals grazing per hectare and the optimum rotation period.

The planned or installed experiments in agroforestry to be undertaken by the Wood as Fuel Programme include:

1. Plantations of Azadirachta indica and Leucaena Leucocephala with interplantings of beans and corn. There is another plot plantation in Santiago; with Eucalyptus citriodora and beans in the first year, it saved considerable money.

2. Silvo pastoral experiments at ISA pasture land:
 - (a) Forage tree species for grazing and cutting
 - (b) Grazing under control beneath plantations of different spacings
3. Grazing trials as a means of control of weeds and competition in native dry forests (to start in 1986)
4. Enclosures to determine impacts of goats on heavily grazed dry forest at ISA.

Growth rates of the dry forest are not known, due to the heavy grazing and harvesting pressure in virtually all of its extent. One of the values of the large forest research property that ISA maintains in Mao is that the area contains about 500 hectares that are to be preserved in natural condition, with some included silvicultural plots, without the presence of livestock.

The state and privately owned lands consisting of dry forest are utilized by communities to extract firewood and graze goats and bovine cattle. As the means to manage old plantations and new plantations are established their access to these forests will be limited, forcing farmers to buy firewood or to produce it in their plots.

The scarcity of firewood for domestic use or for making casabe (a bread made out of Manihot esculentum) represents an additional burden which must be borne by thousands of peasant families. Rural women, more than any other member of the family, will suffer from the lack of fuel. At this time a peasant roams through about 2.2 kms daily in order to obtain firewood to prepare his meals (2). The distance roamed has increased which indicates that the sources of firewood near the home are being exhausted (4).

Rural communities which do not have firewood at their disposal must buy it. Charcoal represents a major cost for these families since gas as fuel is used mainly by urban families. I estimate that 13 per cent of a farmer's basic income is used in buying energy to cook his meals.

Some women's associations have asked for the establishment of communal forests as a source of firewood for domestic use and for making casabe. Agroforestry systems represent a unique alternative for providing firewood and food, in particular if forage species can serve as firewood.

Communal forests represent an option. Nevertheless, the State, though it may donate land for this purpose would have to regulate access to production. These types of arrangements could be established in collective and/or associative land reform settlements for the use of the beneficiaries.

V FINAL OBSERVATIONS

Though land tenure systems in Central America and the Caribbean are characterized by private property, a great number of peasants are still landless. Landless farmers go on to become occupants of private holdings or state lands, sharecroppers (sharing their benefits with the owners) or leasing lands when their income allows it. Landless peasants represent a constant pressure for social and agrarian reforms. The tenancy structure established by these reforms is characterized by granting the farmer the usufruct to the land for agriculture use, but not allowing the beneficiary the right to tax or sell his plot.

Even if an efficient agrarian reform system existed there would not exist enough land to give to all farmers a sufficiently large plot that would allow him to satisfy his basic needs and generate a surplus. Thus the survival of those who live in the countryside and that of the natural resources themselves for continuity of production to be assured, will require that special attention be paid to the system of property rights, the distribution of this property and the geographical location of the same.

Agroforestry systems in conditions of extreme fragmentation of the property are exceedingly difficult to establish and sustain. In these cases the establishment of communal forests is required.

The experience of rural development programmes in the Dominican Republic shows that the distribution of the land plays a more important role than property rights in establishing agroforestry systems. The small farmers or peasants who only have a small plot with which to provide for their families cannot dedicate their lands to plant long cycle crops, except in the borders, as fences. The medium-sized producers are more susceptible to the introduction of conservation practices. Finally, large landowners, generally absentee landlords, have neither the financing nor the time to care for short cycle crop plantations and prefer to apply extensive farming practices which generally require low capital investment.

The strategies devised to establish agroforestry systems must be designed according to the size of the holding worked by each farmer.

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