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MADAGASCAR AGRICULTURAL
SECTOR ASSESSMENT

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PREFACE

This agricultural sector assessment was financed by the U.S. Agency for International Development (USAID) under a contract with Devres, Inc. of Bethesda, Maryland. The assessment team assembled by Devres consisted of Dr. Carolyn Barnes, social scientist; Lawrence Dash, co-team leader; Dr. Eugene Grasberg, economist; Roy Hagen, natural resource management specialist; Cao Quan, agronomist; and Charles Steedman, co-team leader. Messrs. Dash and Steedman shared the team leadership position by pre-arrangement, the former serving for the first half of the period in Madagascar and the latter for the second half. Mr. Dash initiated field work on 29 September 1989, and the remaining team members departed Antananarivo on 10 December 1989.

The team was aided immensely by several collaborators. Ann McDermott, serving as an intern at USAID/Madagascar, assembled a number of useful documents on the agricultural sector and compiled an excellent annotated bibliography. She also drafted most of section I of this document and acted as a member of the team until her departure in November. Dr. K.B. Paul, Regional Agricultural Advisor of REDSO/ESA, spent two weeks with the team and made a number of invaluable contributions both to the report and to the team's thinking about final recommendations.

Devres engaged three Malagasy counterparts to work with the team. All three are professors at the University of Madagascar. Rene Rabezandrina, agronomist, was an indispensable guide and companion to team members in their travels, not least because his former students are now agricultural field officers throughout the island. He also contributed greatly to the team's deliberations. Janine Ramamonjisoa and Ranovona Andriamaro, both sociologists, wrote valuable papers as their contribution to the team's work. Their working documents, along with Professor Rabezandrina's, are in French and are available at USAID Madagascar. Brief sections of this report are based on the working documents and are so identified.

The USAID mission in Madagascar was exemplary in its openness and willingness to support the assessment team. We owe a debt of gratitude to everyone who helped, but in particular to John Thomas, Agricultural Development Officer and supervisor of the assessment; Baudoin deMarcken, mission Director; Dr. Richard Harber, Program economist; and Perline Rasoanoromalale, ADO secretary. At the end of the field work, Thomas Hobgood of AFR/ANR in AID Washington and Dr. Richard Edwards and Dr. K.B. Paul of REDSO/ESA provided a valuable critique of the first draft of this document. Any deficiencies herein are the responsibility of the team, not of our USAID Madagascar and other AID colleagues who spared no effort to assist us.

The assessment responds to terms of reference drafted by USAID Madagascar, which appear as an appendix. With one or two exceptions, the table of contents follows the outline in the terms of reference.

ABBREVIATIONS AND GLOSSARY

| | |
|--------------|---|
| ACP | African, Caribbean and Pacific countries which are partners with EEC countries in the Lome Convention |
| AfDB/F | African Development Bank/Fund |
| BFV | State commercial bank |
| BMOI | Banque Malgache de l'Océan Indien |
| BNI | State industrial bank |
| BTM | State rural development bank |
| CASA | Agricultural sector structural adjustment credit |
| CAVAGI | Marketing board for coffee, vanilla and cloves |
| CCCE | Caisse Centrale de Coopération Économique (France) |
| CNCC | National Coffee Marketing Committee |
| CNRE | National Center for Environmental Research |
| COROI | Parastatal commercial importer-exporter |
| CIRVA | Agricultural extension district (circonscription de vulgarisation agricole) |
| CRS | Catholic Relief Services |
| DGP | Direction Générale du Plan (now Ministry of Plan) |
| DVA | Directorate of Agricultural Extension, MINAGRI |
| EAP | Environmental Action Plan |
| EDF | European Development Fund |
| FAC | Fonds d'Aide et de Coopération (France) |
| FANALAMANGA | pine plantation parastatal in Mangoro |
| FAO | Food and Agriculture Organization of the United Nations |
| faritany | province |
| FCACD | Formation de Cadres animateurs pour les Collectivités Décentralisées |
| FIFABE | regional development authority for the Lower Betsiboka Plains (Marovoay) |
| firaisana | canton |
| fivondronana | sub-prefecture |
| FMG | Malagasy Francs |
| FMR | Financement du Monde Rural |
| FNDE | national development budget (Fonds National pour le Développement Économique) |
| FNUP | Fonds National Unique de Péréquation |
| FIFAMANOR | Crop and livestock production project supported by Norway (Fiompiana Fambolena Malagasy Norveziana) |
| FOFIFA | National Center for Applied Research on Rural Development |
| fokontany | village or small group of villages |
| GDRM | Government of the Democratic Republic of Madagascar |
| GTZ | German Agency for Technical Cooperation |

| | |
|-----------|---|
| HASYMA | Malagasy cotton parastatal |
| IBRD | International Bank for Reconstruction and Development |
| ICA | International Coffee Agreement |
| ICO | International Coffee Organization |
| IDA | International Development Association, an affiliate of the World Bank |
| IFAD | International Fund for Agricultural Development |
| IRNT | Inventory of Terrestrial Natural Resources |
| IRRI | International Rice Research Institute |
| ISNAR | International Service for National Agricultural Research |
| KOBAMA | Flour milling company |
| LIR | Liberalized import regime |
| MALTO | Subsidiary of STAR brewery, produces barley malt |
| MAMISOA | Soya extraction plant and refinery (parastatal) |
| MINAGRI | Ministry of Agricultural Production and Land Resources (formerly MPARA) |
| MPAEF | Ministry of Animal Production, Water Resources and Forests |
| MPARA | Ministry of Agricultural Production and Agrarian Reform (now MINAGRI) |
| MRSTD | Ministry of Scientific and Technical Research |
| MT | metric tons |
| NARP | National Agricultural Research Program |
| NGO | non-governmental organization |
| NORAD | Norwegian Développement Agency |
| OCA | Opération Café Arabica |
| OCPG | Opération Café-Poivre-Girofle |
| ODASE | Opération de Développement Agricole du Sud-Est |
| ODR | Opération de Développement Rural (formerly Rizicole) |
| ODRI | Opération de Développement Rural Intégré |
| OFMATA | state tobacco monopoly |
| OGL | open general license |
| PASAGE | Economic Management and Social Action Project |
| PE | public enterprise |
| PEM | Programme Engrais Malagasy |
| PEP | Public Expenditure Program |
| PIP | Public Investment Program |
| PPI | Small irrigated perimeters |
| SAFAFI | Agricultural department of Malagasy Luthern Church |
| SAMANGOKY | regional development authority for the Lower Mangoky |
| SEPCM | commercial parastatal |
| SIDEMA | Société Industrielle pour le Développement du Machinisme Agricole |

| | |
|-----------|---|
| SINPA | agricultural marketing parastatal |
| SIRAMA | Sugar parastatal |
| SOAVOANIO | Coconut plantation and processing parastatal at Sambava |
| SOMALAC | regional development authority for Lac Alaotra |
| SOMAPALM | Palm oil processing and refining parastatal |
| soudure | pre-harvest hungry season |
| tanety | non-irrigated slopes on which food crops are cultivated |
| tavy | slash-and-burn agriculture |
| UNDP | United Nations Development Programme |
| USAID | U. S. Agency for International Development |
| WWF | World Wildlife Fund |
| ZODAFARB | Zones délimitées d'action en faveur de l'arbre |

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EXECUTIVE SUMMARY

A. Procedure and Scope of Assessment

1. Purpose

After years of decline and mounting economic crisis Madagascar, early in the 1980's, faced up to its difficulties and initiated deep political and structural reform, with the assistance of the World Bank Group, France and other Western donors. A.I.D. resumed its activities early in that decade with program, balance of payments and food aid, rapidly disbursed resources to facilitate restructuralization and supply essential inputs. As the crisis eases A.I.D. is reorienting its program to long-term development. The purpose of this assessment is to analyze the problems of agriculture, identify the potential and devise recommendations for the optimal role for USAID/Madagascar in assuring the best possible evolution of Madagascar's agricultural production during the next seven years, 1990-1997.

2. Procedure

The assessment is the result of the authors' approximately ten weeks of field research in Madagascar in late 1989. The team adhered closely to the detailed scope of work which had been prepared by A.I.D. and modestly modified in cooperation with the team. (The Scope is attached as an Annex.) The work entailed the typical mix of literature review, interviews, site inspections, data collection and analysis, discussions and ultimate USAID review of preliminary draft and conclusions prior to preparation of this final report.

3. Scope of Work

In summary, the work entailed, (a) a general description of the factors of production, the economic and institutional context and the production potential; (b) a description and analysis of the organization, private and public, of the agricultural sector; and (c) identification of the constraints to development and (d) a strategy with recommendations for the USAID program.

B. Findings

Madagascar has considerable agricultural potential. The island has several advantages: a propitious climate and rainfall on central plateau, east coast and far north; a variety of microclimates allowing production of both tropical and temperate zone products: barley and wheat as well as rice and sorghum; strawberries and peaches as well as mangoes and litchis; a location in the Southern Hemisphere and thus its ability to produce contra-seasonal export crops; good valley bottom soils with potential production for over 2 millions tons of paddy annually; enough isolation from the African continent to have a much lower incidence of plant pests and diseases; open, sparsely populated rangelands allowing the husbandry of a national cattle herd in excess of 8 million head; a hardworking, comparatively literate workforce;

progressive liberalization of macroeconomic and sectoral policies since 1983 and an encouraging supply response to liberalization on the part of producers, small enterprises and merchants.

The economy has responded rather slowly to reform, largely because of many constraints, such as: highly weathered, inherently poor upland soils with low activity clays and a very poor capacity to retain essential soil nutrients; low levels of capital stock and income at the farm level; low producer prices for most agricultural products; limited-to-no availability of modern inputs, of improved varieties, of high quality seed and of credit; very small size of lowland rice parcels the result of a multiple of subdivisions; lack of means of transport to bring produce to market on roads in very poor condition; lack of security in rural areas and high incidence of cattle theft; uncertainty over land tenure because of administrative complexity and cost of surveys and titling; and inadequate extension, research and other services.

Soil erosion and loss of soil fertility are major problems. Large areas of cropland and potential cropland have already been permanently lost as a result of Madagascar's unusual form of gully erosion. Sheet erosion is decreasing the productivity of most upland crop soils and threatens the long term sustainability of rainfed agriculture.

Maintaining soil fertility of cultivated upland soils is one of the most difficult problems of tropical agriculture and is probably more difficult in Madagascar than in most other countries. It poses the greatest threat to the preservation of the island's famous biodiversity. Nearly all upland, rainfed fields in Madagascar simply cannot be cultivated continuously year after year with traditional cropping practices without crop yields dropping to unacceptably low levels.

Very serious damage was done by the Government's policies of the period 1974-1985, during which time many enterprises were nationalized, prices and marketing were controlled, the currency was overvalued, imports were rationed to well-connected groups, and a number of unwise investments were made. The disincentives to agricultural production were considerable. Madagascar, which had been an exporter of rice, was importing 350,000 tons by 1982. Peanut production is another good example. A record was set in 1976 when 54,000 tons were produced and peanut oil was the principal locally produced edible oil. Peanut development was strangled when a parastatal was given a monopoly over purchase of the crop. Producer prices were kept very low, and payments were made late or not at all. There was a significant shift of farm resources into cotton, which was not similarly constrained. In recent years peanut production hovered around 31,000 tons.

Agronomic research on peanuts, cassava (the second most import foodcrop) and other crops simply stopped dead for ten years after the French research institutes departed in 1974, taking their research results with them. Research and extension were in the doldrums for a decade. Even contact with IRRI was lost until the World Bank and A.I.D. helped re-establish it after 1982. The effects of the lost decade are now evident on all fronts but are most keenly felt in the lack of improved varieties and of good quality seed.

With the partial liberalization of the rice sub-sector in 1983, the Government began a slow but radical change of course. A former Minister of Rural Development, who started the whole process, describes the difference between the present situation and the nadir of 1980-82 as that between day and night. Madagascar is now on the verge of exporting rice again.

Foodcrop pricing and marketing have been decontrolled. Monopolies have been abolished and marketing boards dissolved. The Ministry of Agriculture no longer distributes inputs. Private companies vie with parastatals to supply fertilizer, implements and seed. Farmers can purchase small quantities from private stores in market towns. Anyone can export coffee or litchis or other products.

The World Bank, with its policy-based lending, has been the leader in inducing the Government to implement structural adjustment measures. There is still some concern among well-informed Malagasy that the GDRM will backslide if pressure is not maintained from the outside, but that can be done in concert with the Bank and the other major donors in the agricultural sector-- France, the EEC and the UN. A.I.D. has played a role to date with a PL-480 program, rice research, agriculture infrastructure, training and conservation activities.

C. Conclusions

One may find reassurance from the recent years of reform and redirection for the economy of Madagascar. The process of reversal of the long years of decline is now several years underway. Although improvement had been disappointingly quite slow initially there are good indications of continued and possibly accelerated progress. Most of the major sectoral policy changes that could be made have now been made.

The question is: what can now be done to induce higher levels of production and greater productivity? Madagascar needs both, as it needs an immediate push for export development. Given the relatively good natural and human resource configuration of the country the prospects are favorable, in the near term. Hence it is necessary to assure that those resources, institutional reforms, training, finances and other inputs are provided in order to exploit the very clear opportunities which have emerged from the restructuralization.

Further into the future, adequate agricultural production will again be jeopardized as a result of environmental degradation unless large scale preventative measures are initiated fairly soon. For this, the Environmental Action Plan proposal now under review may be the appropriate step. A.I.D. is advised that soil conservation may be the single most important measure required to sustain agricultural production and that an effective EAP or a suitable alternative must be implemented.

D. Recommendations

A desirable role for A.I.D. would be to focus on specific domains where there are immediate needs or opportunities that are not being addressed by

other donors (cassava research, animal traction) or where there is so much to be done that A.I.D. can work productively with others (soil erosion, seeds, rural credit). There is need for project, regulatory and institutional initiatives and therefore opportunity for any desired mix of project and program assistance in support of increased agricultural production and greater productivity in the sector. The list below summarizes the team's recommendations in five areas of the most useful actions USAID/Madagascar could undertake at this time:

1. Domestic food crop expansion
 - a. Enhance rice varietal research and extension
 - b. Develop cassava research capability
 - c. Implement the national seed plan
 - d. Research and promote the production of grain legumes
 - e. Expand the use of animal traction
 - f. Expand farming systems research to include
2. Export expansion
 - a. Promote the production of Arabica coffee
 - b. Undertake study of the potential for exports of wood products
3. Private and public institutional strengthening
 - a. Create credit and savings systems for small farmers
 - b. Increase higher school and university training in rice technology
 - c. Develop export promotion capability
4. Natural resource conservation
 - a. Undertake sustainable rainfed agriculture techniques
 - b. Resolve issue of ministerial responsibility for soil conservation
 - c. Develop an effective range fire control system
 - d. Resolve land survey, tenure and titling issues
 - e. Promote reforestation by farmers and communities

5. Other

- a. Construct feeder roads
- b. Implement critical socio-economic surveys and data collection initiatives.
- c. Invest in renewable energy: biodigesters

I. BACKGROUND: THE CHARACTERISTICS OF THE SECTOR

Within its total land surface of 592,000 km², Madagascar exhibits a tremendous variety of ecosystems. The island's resource endowment, particularly the moderate climate of the highlands and the ample rainfall that covers much of the island, allows the cultivation of a wide variety of tropical and temperate-zone crops. Barley and wheat are grown as well as rice and sorghum. In the markets of Antananarivo, mangoes are followed by strawberries, litchis and peaches. Vanilla and cloves are traditional exports along with coffee. The main occupation of the large rural population, however, is the production of staple foodcrops, notably rice, for local consumption.

Madagascar's natural promise is tempered by the island's hilly topography, heavy regional rainfall which contributes to severe soil erosion, the menace of cyclones on the East Coast, and natural obstacles to the establishment of a nationwide transportation network.

A. Agricultural Production

1. Production activities

a. Food crops

Although per capita consumption has declined recently, rice remains the national staple, supplying on average more than 50% of daily caloric intake. Production is primarily for home consumption; no more than 15% of total production is marketed. Production shortfalls have forced Madagascar to import rice since 1971. Imports peaked at 250,000 tons in 1982 (20% of the total value of imports). They declined rapidly after market controls were lifted. Falling in a range of 60,000 to 80,000 tons from 1987 through 1989, rice imports were projected to end in 1990.

With paddy production for 1989 estimated at 2.38 million tons, the GDRM's goal of 2.71 million tons by 1990 is probably unattainable but could be reached soon thereafter. Gains equivalent to those achieved from 1985 to 1989 would suffice. Paddy output grew by almost 16% in the four years, with most of the increase coming in the 1989 harvest after a slight decline in 1988. Because of the recent sharp decline in rice consumption, production in 1990 might well be enough to meet local demand. (Per capita rice availability fell from 133 kg/year in 1984 to 112 in 1988, forcing consumers to switch into other foods.)

The present upward trend in production is a clear improvement over the lackluster record of the 1970s but still below the growth rates seen in the 1960s, which averaged 4.7% per year. The question is whether 1989's gains can be sustained and repeated. If so, Madagascar is poised to become a net rice exporter once again.

The enviable increases of the 1960s were the result of major investments in irrigation, expansion of cultivated area and a strong extension effort.

Since then, growth has been largely through increases in area (to 1.2 million ha in 1989). Average yields have fluctuated around 1.8 tons/ha for two decades.

The major non-rice food crops are cassava (2,277,000 tons produced on 950,000 farms), sweet potatoes (477,000 tons on 400,000 farms), maize (220,000 tons on 400,000 farms), bananas (220,000 tons on 350,000 farms), and potatoes (270,000 tons on 120,000 farms). Production of cassava and potatoes has increased sharply since 1975. Increases in production are generally the result of expanding the area under cultivation. Purchased inputs are rarely used on these crops.

Cassava (manioc) is the most common substitute for or complement to rice in the Malagasy diet. Production grew at a rate of 4.7%/year from 1975 to 1985 but growth has since slowed. Cassava plays an important role in food security, providing calories during the pre-harvest soudure period and in cases of rice crop failure. Its leaves are also widely consumed. Frequently cultivated as the last crop before the land is left in fallow, cassava's yields vary widely but yields between 15 and 20 tons/ha are quite common.

Maize is cultivated island-wide both as a substitute for rice during the pre-harvest hungry season (soudure) and as an ingredient in animal feed. Production rose by 57% between 1984 and 1989. This increase, as is the case with other food crops, appears to be more through expanded planting than improved technologies. Yields remain about one ton/ha. There was a very successful campaign in 1986/7 to encourage farmers in the far-northern Antsiranana region to plant maize. The surge in production allowed Madagascar to export some of its crop to Reunion in 1987 and 1988.

Despite the importance of edible grain legumes in the human diet, especially in third world countries, little information is available on the cultivation of these crops in Madagascar. The total national production of dry beans is estimated to be 35,300 tons (1984-85 data), of which 58% is produced in the Faritany (province) of Antananarivo, and another 24% in Fianarantsoa. Eighty percent of the crop is grown in association with other crops. Present yield is estimated to be between 700 and 1,000 kg/ha.

b. Industrial crops

Industrial crops include cotton, sugar cane, sisal, tobacco and groundnuts. Large private plantations are important producers of several industrial crops, especially sisal and tobacco.

Cotton production and the textile industry it supplies comprise one of the most valuable economic activities in Madagascar. Cultivated on over 10,000 farms, cotton is ginned locally and gains more than 36% in value added in the industrial sector. In 1988, roughly 5% of export revenue came from cotton textile exports totalling 5,000 tons.

Seed cotton production for 1989 is estimated at 40,000 tons on 30,000 ha, a good performance after a period of poor harvests in the mid-1980s. Cotton is cultivated under three systems: flood-recession, irrigated and

rainfed. The flood-recession system, centered around Mahajanga in the Northwest, has a tight planting schedule and is thus quite capital intensive. Average farm size is very large at 170 ha and yields are also high at 2.3 tons/ha. Irrigated production is centered around Toliara in the Southwest and is practiced by smallholders. Yields average 0.8 tons/ha. Rainfed cultivation, also centered in the Southwest and suffering from low yields, is the fastest growing system in this sector. Between 1980 and 1988, its share of the area planted in cotton grew from 21% to 58%, while its share of output increased from 9% to 32%.

Sugar cane is cultivated by roughly 230,000 farmers on 45,000 ha along coastal areas in the East, where it is a rainfed crop, and the Northwest, where it is irrigated. Most sugar production comes from five large industrial complexes with smallholders producing only about 13% of total production. After falling steadily between 1975 and 1984, marketed sugar cane production has picked up in recent years, averaging about 1.4 million tons from 1986 to 1988. Yields have dropped as the seed base has deteriorated and fertilizer has been in short supply. In 1987 and 1988, sugar production averaged 100,000 tons, of which roughly 20,000 tons were exported.

Oilseed crops in Madagascar include groundnuts, cottonseed, copra, and oil palm.¹ Sunflower varieties have been tested in Madagascar since 1966 but yields have been disappointing. Oil mills are nonetheless interested in the crop. With the striking exception of cottonseed, oilseed crop production has fallen in the 1980s with the result that domestic oil production has also declined. Any further expansion of cottonseed production is limited by domestic demand for cotton fiber since Madagascar is not an exporter. Furthermore, cottonseed oil is not very well liked by consumers.

Current domestic production of edible oils is about 2,650 tons/year, almost all of which is cottonseed oil. Over 1,700 tons/year are produced by the SIB mill at Mahajanga. Local production must be supplemented by annual imports on the order of 7,000-10,000 tons. The high cost of edible oil effectively limits demand to roughly one kg/capita/year.

Groundnuts have historically been the most widespread smallholder oilseed crop. Some 120,000 farmers still grow groundnuts to some extent on about 35,000 ha. Since 1976 production levels have plunged from that year's record high of 54,000 tons to 19,000 tons annually. Yields are down and the area cultivated in the mid-1980s was almost 20% less than what it had been in 1969. The decline in cultivation came about as a result of low producer prices, the disruption of a well-established seed and credit delivery system, and poor organization of the buying campaign on the part of parastatals with a monopoly. Many farmers switched out of groundnuts into cotton. Reestablishing production will depend first of all on making seed available.

¹For a recent study of the oilseed sector see the FAO report Productions Oléagineuses: Rapport de Pré-formulation, prepared by Moktar Tall. August 1989.

Over the long term, two perennial oilseed crops, copra and oil palm, could play a significant role in edible oil production. Both crops are cultivated mainly along the East Coast. Coconut palms are planted on roughly 10,000 ha, about half of which belong to SOAVOANIO, an agro-industrial parastatal, with the rest belonging to smallholders. Coconut oil is produced both industrially and artisanally. Oil palms are currently cultivated on 1,800 ha owned by SOMAPALM, another state enterprise. SOMAPALM has a large refining capacity but its crop was only enough to produce 1,300 tons of oil in 1986. Output fell to 500 tons in 1987 after a major cyclone devastated one of its plantations.

c. Export crops

Products of the agricultural sector, including fisheries, generate more than 80% of Madagascar's export revenues. Export performance in the 1980s has been poor, however, and has taken a turn for the worse. The major export crops are traditional ones: coffee, vanilla, cloves and pepper. Their lackluster performance in recent months is cause for concern.

Historically, these commodities have combined to account for about 70% of total export receipts. In 1988, this share dropped to 52% due primarily to a decline in coffee prices. So-called "non-traditional" exports grew by 40% between 1986 and 1988, increasing their share of total receipts from 11% to 21%. The list of non-traditional exports is varied and includes seafood, tropical fruits, butter beans, essential oils, beeswax, cashews, medicinal plants and cinnamon.

Green robusta coffee has traditionally been the largest single source of export receipts in Madagascar. As its price fell from 1986 to 1988, its share of receipts declined from 41% to 27%. The collapse of the International Coffee Agreement (ICA) in July 1989 has decreased its share further. It is estimated that coffee receipts in 1989 will be one half of those received in 1988.

Ninety percent of coffee production comes from smallholders. Current annual production estimates range from 66,000 (ICO) to 85,000 tons (MINAGRI). Robusta coffee is planted on roughly 220,000 ha and cultivated by 420,000 farmers, usually in a mixed cropping system. Planting densities average out at roughly 1,000 trees/ha. Yields are low, averaging 250-300 kg/ha on smallholder parcels. Robusta coffee is produced along the East Coast and along a section of the Northwest Coast.

Although recent efforts have encouraged farmers to cultivate arabica coffee on the High Plateau, production is only about 3,000 tons/year. Madagascar's coffee production has been at best stagnant over the past decade. The sector is suffering from the combined effects of a decade of low producer prices, problems in harvest transport, a very old tree stock, and minimal stand maintenance with little fertilizer use. Nominal producer prices tripled between 1983 and 1988 without any noticeable increase in marketed production, indicating the importance of non-price constraints.

Madagascar holds an 80% share of the world vanilla market, marketing its crop in a cartel arrangement with the Comoros. While vanilla is Madagascar's second most important export crop, long-term market prospects are poor as a result of competition from the artificial substitute vanillin and from new producers in Indonesia. The world price of vanilla fell from \$72/kg in late 1988 to only \$40/kg in late 1989.

Export volumes are low because of the nature of the product and limited demand for pure vanilla. The average has been 900 tons/year, most of which go to the U.S. and current stocks are estimated equivalent to 2 to 3 years' demand. An estimated 27,000 ha are planted in vanilla, primarily in the Northeast, yielding roughly 1.0-1.4 tons/ha. Some of the harvest is lost during drying, which takes 3-4 years in total. Low prices and low demand keep cultivation a spare-time pursuit. Cultivators are reportedly paid below the official floor price due to the high costs of crop transport.

Cloves suffer from a different marketing problem. Indonesia is the major consumer of cloves, representing 75-80% of global demand, but has recently achieved self-sufficiency in production subject to weather conditions. Madagascar divides the rest of the market and any shortfalls in Indonesia's production with Zanzibar and Brazil. Consequently, Madagascar's exports fluctuate wildly from 3,000 to 14,000 tons and stocks tend to be high. Cloves are another smallholder crop cultivated by roughly 80,000 farmers on 45,000 ha, usually on degraded hillside soils with planting densities of 200-500 plants/ha. Harvesting takes place from mid-November through December.

Pepper, black or green, represents Madagascar's smallest but most dependable revenue source in the traditional export sector. It is another smallholder crop cultivated primarily along the East Coast and in the northwest (where a number of larger pepper plantations also exist). Demand for pepper, especially green pepper for which Madagascar is a leading supplier, is fairly stable. Since 1972, area and production have also remained stable at about 6,000 ha and 2,500 tons although production may have risen above 3,000 tons in the past year or two. Planting densities are roughly 730 plants/ha. Exports of black pepper are on the order of 2,000 tons/year (representing 2% of the world market), while green pepper exports average 600-900 tons/year. Most shipments go to Europe.

d. Forestry

Madagascar depends upon wood as a fuel and a construction material. Although most wood is harvested from natural forests, there are 265,000 ha of plantation forest and a number of projects underway to increase the total. Plantation tree crops are mostly eucalyptus or pine. Current fuel wood consumption is on the order of 6 million tons annually, while another million tons are used for construction purposes. There is some export of wood products but receipts declined by 75% between 1977 and 1987. The decline is due primarily to a reduction in the external market for natural fibers (e.g. raffia and kapok).

Farmers play only a minor role in forest production. Government-sponsored programs at the local level have failed until recently because they

relied heavily on coercion and because of generally depressed wood prices. In 1985, the GDRM introduced a new program known as ZODAFARB (Zones delimitées d'action en faveur de l'arbre) built upon the principles that tree planting should be a profitable investment, that the trees should belong to the planter, and that title to designated areas of state land should be given to individuals or groups who plant and maintain trees on them. Response to the program has been somewhat encouraging, if spotty. Disputes over land tenure issues threaten its long-term success.

e. Livestock

Livestock, especially cattle, are an important component of many Malagasy farming systems and meat is important in local diets. The national cattle herd is quite large, estimated at 10 million head. The 1984/5 agricultural census found 8.1 million head of cattle, 745,000 goats, 736,000 pigs, 14.4 million chickens, and 2.7 million ducks. These numbers are for declared animals only. SEDES, a French research bureau, estimated the national cattle herd at 10.2 million head in 1988, with 3.1 million in the Faritany (province) of Toliara and 3.3 million in Mahajanga. There had been only a one percent increase in the size of the national herd in ten years.

More than 80% of farms have some poultry; half cattle; one in five has pigs. Cattle herding is a traditional vocation, concentrated in the West and South, with an average herd size of 20 head. Only Toliara in the Southwest has a significant herd of sheep and goats. Pigs are concentrated in the Faritany of Antananarivo and Fianarantsoa on the High Plateau. Intensive steer and hog fattening and some dairying is found around the main cities and towns and on the High Plateau.

Unlike other livestock, cattle play an important social role, often held as a store of wealth and slaughtered only for ceremonial needs. Most cattle graze on common pasture land or harvested fields. The most common cattle breed in Madagascar is known as the Zebu Malgache, a sturdy animal, well-adapted to rather difficult living conditions. Drawbacks to the breed include its small size and low milk production.

Various other breeds have been introduced and crossed with the Zebu. The most successful new breed, now found scattered throughout the central highlands, is known as the Renitelo, a cross of Limousin, Afrikander and Zebu. Its average weight is nearly twice that of the Zebu, making it a much better source of meat and better adapted for field work. Madagascar is free of the major cattle scourges of the African continent, such as rinderpest, tse fly, and hoof-and-mouth disease, but anthrax, blackleg, gastro-intestinal parasites and liver fluke exact a heavy toll.

The cattle herd is old. Forty-nine percent of the herd is in the 4-9 year age bracket, and 28% is females in this group. Overstocking in older cattle is due to the risk of theft of younger animals, marketing difficulties and official prohibition on the slaughter of females.

The SEDES study estimated annual offtake from the national cattle herd at 9.7%, composed of 583,000 males and 409,000 females in 1987. This rate was 5% lower than the rate prevailing nine years earlier. Average carcass weight was 127.5 kg. Meat has been entirely consumed locally. None has been exported

since 1985, although there have been some exports of live animals to Reunion and Mauritius.

In the 1960s and 1970s, beef exports were an important source of foreign exchange, accounting for as much as 10% of export receipts. Although Madagascar has had a quota of 10,000 tons for the European market, beef exports collapsed in the 1980s for lack of slaughterhouse certification by the EEC. Past problems have been corrected through rehabilitation of slaughterhouses at Morondava and Mahajanga. Certification by the EEC is anticipated in early 1990.

f. Fisheries

Shrimp, Madagascar's most important non-traditional export, are harvested primarily off of the West Coast by five commercial enterprises whose boats are equipped with sonar and freezers. There are about fifty boats in all, operating out of the ports of Nosy Be and Mahajanga. The annual catch varies between 7,000 and 9,000 tons, 90% of which are landed by the companies.

Exports of about 5,000 tons/year accounted for roughly 11% of export revenue in 1987 and 1988. About three-quarters of exports go to Japan with the remainder destined for France, the US, the UK and neighboring islands. It is thought that the maximum sustainable harvest is roughly 8,000 tons/year. There is an experimental shrimp farm, projected to cover 21,300 ha, which was created in 1988 with assistance from the UNDP.

2. Land use

It is believed that roughly 3% (1.8 million ha) of land area is under cultivation while another 3-10% is usable for cropping. The 1984/5 agricultural census estimated that within the area under cultivation paddy production accounted for roughly 1.1 million ha, other food crops 650,000, coffee about 150,000, sugar 46,000, cotton 18,000, and cloves, pepper, and vanilla about 85,000. (The figures do not add to 1.8 million ha because of intercropping and double cropping.)

The potential for increasing the area of irrigated croplands in Madagascar is relatively limited. New lands to be brought under cultivation will largely be on the uplands. Most upland soils in Madagascar have extremely low natural fertility and are highly erodible. Large areas of cropland and potential cropland have already been permanently lost as a result of Madagascar's unusual form of gully erosion (see section A.9 below). Sheet erosion is decreasing the productivity of most upland crop soils and threatens the long term sustainability of rainfed agriculture.

Sixty percent of land is used as pasture while approximately 17% remains under forest cover. Only 14% of this area (1.3 million ha) is considered to be high density, non-degraded forest. Forest land is cleared for agriculture, firewood, and timber at a rate of 150,000 to 300,000 ha/year. About 260,000 ha of plantation forest helps relieve the pressure on the remaining forest cover.

3. Plant varieties and production technologies

Current rice cultivation practices vary from the mechanized farms of the parastatal development authorities to shifting, rainfed systems. Eighty percent of rice is grown under some form of irrigation. Rice harvesting is almost entirely by hand and losses are roughly 15%. Farmers in the central highlands tend to use more intensive techniques, including fertilizers and pesticides. Double cropping of rice is fairly common in the Morondava region in the West, but has not been more widely adopted due to poor water control, the cold winters of the central highlands, and generally thin soils. Around Antsirabe, where there are better soils, there is some double cropping of wheat or barley with rice.

There are hundreds of rice varieties planted in Madagascar, many of which are in urgent need of replacement. Some improved varieties were introduced in the 1960s, but for a period of about ten years (1974-1984), Madagascar was cut off from advances in varietal research at the International Rice Research Institute (IRRI) and elsewhere. The rice sub-sector has paid dearly for the hiatus. Current rice research, which is being supported by USAID, is focused on breeding varieties with high levels of altitude and cold tolerance, improved yields, and the ability to resist certain weeds and soil deficiencies.

Cassava is cultivated island-wide but is especially important in the provinces (Faritany) of Toliara on the West Coast and Fianarantsoa. In Madagascar, both the sweet and the bitter types of cassava are grown, but the sweet varieties are preferred as these can be eaten raw. In contrast to the poor protein content of cassava roots, the leaves contain about 14% protein. Chopped cassava leaves cooked with pork is a favorite Malagasy dish.

The agricultural extension department (DVA) of the Ministry of Agriculture (MINAGRI) has general responsibility for providing crop extension services to smallholders except in areas where responsibility has been delegated to parastatal authorities or regional agricultural projects, known as "operations". A number of NGOs and donor-sponsored projects provide extension services.

MINAGRI's extension staff numbers 2,000-3,000 and is organized in the field into 21 extension districts known as circonscriptions de vulgarisation agricole (CIRVA). Since the mid-1970s the service has suffered from unclear objectives, inadequate training, low budgets, little mobility, poor logistical support and low morale. Above all, it has been hampered by a lack of viable technical packages to extend. Current efforts to improve extension services focus on the pilot use of the Training and Visit system in four CIRVA.

4. Water resources and irrigation

Irrigation systems in Madagascar fall into three categories:

- o Grands perimeters classes: There are five systems totalling about 84,000 ha CCA (canal command area, i.e. area below canal levels). These systems have major works such as

concrete dams and reservoirs. They are managed by the parastatal development authorities: SOMALAC (Lac Aloatra), FIFABE (Marovoay), SODEMO (Morondava), SAMANGOKY (Mangoky), and SOAMA (Andapa).

- o Petits périmètres classes: These are systems covering 200 to 2,500 ha CCA each with an aggregate potential of 200,000 ha CCA. Public resources built the deviation dams and the primary and secondary canal networks while the tertiary canals and on-farm installations were installed by users.
- o Traditional irrigation schemes totalling up to 700,000 ha CCA: These are small systems irrigating from a few to 200 ha, developed by individual farmers or farm communities. They range from earthen deviation dams with an unlined principal canal to simple river diversion schemes and usually offer only partial water control.

These networks combine to cover roughly half of all cultivated area, but only a quarter of the systems offer year-round water control. The rest are basically gravity-based systems to channel rainwater runoff into bunded fields. Rice, sugar, and cotton are the major irrigated crops. Many systems fell into disrepair in the 1970s and 1980s. There have been significant rehabilitation efforts 25 years ago, 12 years ago and again today. Rehabilitation is now the top priority for agricultural investment, but the question of maintenance remains. Can user groups be induced to take responsibility for maintenance and/or to pay adequate user fees? The outcome is uncertain despite major donor involvement, but irrigated agriculture is well on the way to recovery from the low point of neglect and decay of the early 1980s.

5. Agricultural research

National agricultural research has suffered from a lack of focus and a general irrelevance to on-farm needs and conditions. The national research institute, FOFIFA (National Center for Applied Research for Agricultural Development), replaced French institutions which departed in 1974. There have been managerial problems, and funding has been both unreliable and inadequate for its mission. Some of the large parastatal enterprises, such as HASYMA for cotton and SIRAMA for sugar, conduct research on their crops.

FOFIFA is under the Ministry of Scientific and Technological Research for Development (MFSTD) rather than the Ministry of Agriculture (MINAGRI). Research efforts are split between six departments: Crop Production, Animal Production, Forestry and Fish Production, Technology, Farming Systems, and the soon-to-be-inaugurated Rice Research Department. FOFIFA operates 31 research stations with 12,500 ha of land, but in 1987 only 924 ha of station land were cultivated and only part of this was for research. Of a total research staff of 110 scientists with a BSc or above, 72% live and work in Antananarivo with negligible funding available for travel.

Most of FOFIFA's laboratory and agricultural equipment is out of date. Exceptions are donor-supported facilities in Antananarivo, Mahitsy, and Lac Aloatra. Until recently, researchers have been cut off from international research centers while domestic research results have been poorly disseminated to farmers.

FOFIFA has recently developed with World Bank assistance a 15-year master plan for agricultural research. The plan identifies 17 priority research areas and outlines programs and staffing needs. Of the 17, only 6 are currently fully funded: rice, meat and milk, farming systems, soil conservation, fuelwood and industrial wood.

6. Major production zones

Five principal agricultural production and climatic zones can be distinguished within the island:

- o The High Plateau, or central highlands, runs along most of the length of the island and consists of numerous hills interspersed with small cultivable plains and valleys. The cultivated areas lie mostly at elevations between 1,200 and 1,400m. Rainfall averages about 1,500mm per annum, falling almost exclusively in the summer months of October to April. Winters are cold with an average minimum temperature of 6 degrees Celsius and a maximum of 21 degrees Celsius. Average minimum and maximum temperatures in the summer are 14 and 27 degrees Celsius respectively. Rice, manioc, maize, wheat, and potatoes are grown in this area.
- o The East Coast is a narrow belt of very broken country falling steeply from the High Plateau to the Indian Ocean. There are many short rivers from the Plateau to the coast and cultivation takes place along the river valleys and on scattered coastal plains. Rain falls throughout the year, reaching 2,000mm in the north and 1,500mm in the south. The region is prone to hurricanes. The average minimum and maximum temperatures in the summer are 22 and 30 degrees Celsius and in winter, 15 and 24 degrees Celsius. Many export crops are grown in this area.
- o The West Coast is a wide area sloping gradually from the central highlands to the sea. It consists of broad plains separated by areas of broken country and is traversed by numerous rivers; some of them quite substantial, others of which run dry for part of the year. Rainfall, which falls primarily in the summer months, reaches about 1,500mm in the north, declining to 800-900mm in the southwest. The average daily maximum temperature is 30-32 degrees Celsius throughout the year, with minimum temperatures averaging 23 degrees Celsius in the summer and 13 degrees Celsius in the winter. Livestock, rice, and cotton are the principle agricultural pursuits in this area.

- o The relatively small Northern Zone is a tropical, fertile area, but so cut off from the rest of the country as to constitute almost a separate island. Rainfall ranges from 1,000-3,000mm; on the east coast this falls through the year, but on the west coast virtually it all falls during the summer. The average minimum temperature throughout the year is 20-23 degrees celsius and the maximum between 29 and 32 degrees celsius. Export crops and essential oils are cultivated here.
- o The South is Madagascar's driest and least developed region. The area is relatively flat except on the east coast where there is rolling topography rising to 500m. Rainfall is low (400-600mm) and is characterized by a long dry season of 8-9 months. Temperatures average 20 degrees Celsius. Traditional livestock, cotton, and manioc production dominate here.

Madagascar has been described as more of an archipelago than an island because of fragmented transportation network. The major production zones are only weakly linked with the main marketing network which serves Antananarivo and the major port at Toamasina. The economic costs of this isolation are immense: cash crops grown in some areas of the north and east are sometimes left unharvested since they cannot be evacuated. Industrial crops and livestock often cannot economically be transported to the production facilities they are meant to supply. The main physical influences on the development of this network are the rugged topography of the country, its climate, and its low population density with concentrations in a few dispersed regional centers.

The current transport network consists of:

- o 4 major ports and 18 secondary ports plus a navigable intra-coastal canal;
- o 52,000 km of roads of which only 5,200 km are paved and 5,300 km are of graded laterite and gravel;
- o 2 railway lines totaling 860 km of track but unconnected to each other (Toamasina-Antananarivo-Antsirabe and Manakara-Fianarantsoa); and
- o 56 airports of which 17 are all-weather and 5 are international.

The lifeline of the island is the road-rail corridor that links the port of Toamasina with Antananarivo and the rest of the central highlands. Despite considerable investment in roads, much of the rest of the system is in poor repair. Some stretches of road linking major towns are in very bad shape. Peripheral areas suffer from their isolation from the High Plateau and from each other.

7. Agricultural inputs

With the possible exception of irrigation, all of the key producer services and inputs for agriculture are in very short supply in Madagascar. Chemical fertilizers are used mainly in modern agricultural enterprises involved in cash crop production and to a lesser extent for intensive rice cultivation in the central highlands. In the last two decades, chemical fertilizer use has fluctuated between 20,000 and 30,000 tons/year, limited by foreign exchange shortages, poor distribution, and the high cost of fertilizers relative to farmgate crop prices. There is no production of chemical fertilizers in Madagascar and no blending facility. In the early 1980s costly public investments were made in a urea plant (ZEREN) and an organic fertilizer plant (ZEMA). Neither has ever operated.

Until 1985, commercial fertilizer imports were subject to licensing and quotas. Fertilizer imports and distribution have since been opened to private sector participation. As producer prices increased and foreign exchange became more accessible, fertilizer use picked up rapidly. In 1987, fertilizer imports and consumption reached record levels of 60,000 and 40,000 tons respectively. This favorable response was dampened by 1987's devaluation. In 1988, fertilizer use plunged to 23,000 tons and a number of private suppliers and distributors left the market.

In general, large private farmers and parastatals use single fertilizers while smallholder farmers prefer NPK compounds such as 11-22-16, which is common, for their easy handling and application. Since availability is still quite limited, however, choice is very restricted, and those who can afford fertilizer tend to take what they can get.

Non-chemical fertilizers are more widely used, especially in the High Plateau. A total of 1.2 million tons are applied annually against an estimated potential supply of 60 million tons. Cattle manure is spread on rice nurseries and fields and on tanety. A mixture of grass and rabbit, chicken or duck manure is used on vegetable plots. Rice straw is also composted with grass cuttings. Dolomite is used in some areas of the Plateau to correct for mineral deficiencies and to counter the effects of soil acidity.

8. Environmental conditions, soils and pests

The most common soils of Madagascar are well-weathered, generally depleted ferruginous or ferralitic soils of low potential in their natural state. These soils, generally found on hillsides, cannot sustain production on an annual basis. Intensive agriculture is usually carried out only on the more fertile valley bottom soils. Alluvial (baibofo) soils comprise no more than 3% of total land area and are principally used to produce rice, cotton, sugar or tobacco. Soils in the arid south are sandy and not very fertile. The western section of the island shows a mix of calcareous, volcanic, and alluvial soils.

Madagascar is relatively well protected from pests that ravage crops on the African mainland, but it is not totally immune. Rice yields are lowered

by pests such as stem borers and aphids and by diseases such as sheath rot, damping off, and pyriculariosis. Major insect and disease problems for maize include stem borers, polyphages, and streaking. Cassava in Madagascar is susceptible to leaf mosaic and root rot. Post-harvest losses of cassava are high due to a lack of technologies for transformation or storage. (Once harvested, cassava roots should be consumed within three or four days or dried to avoid rotting.) Major disease problems for groundnuts include rosette, rhizoctonia, and cercosporiosis.

Cassava is a good crop for Madagascar since it can be grown under a wide variety of soil and climatic conditions, except that this crop cannot withstand frost and water-logged conditions. Rich, deep and light soil is ideal for cassava production.

Major diseases and pests for vanilla include anthracnose, Phytophthora palmivora, root rot, and snails. The major pest problem for cloves is posed by Chrysotopis mabilianum. Major black and green pepper diseases and pests include damping off, Phytophthora palmivora, and cochineals.

9. Impact of environmental degradation

Soil erosion and loss of soil productivity are the principal natural resource constraints to the sustainability of agriculture in Madagascar. These problems are centered primarily on upland rainfed agriculture, although soil erosion also threatens the productive bottomlands. Erosion deposits coarse, infertile sediments on rice fields, causes siltation of irrigation reservoirs, increases maintenance costs and even destroys irrigation canals.

a. Soil erosion

Several different factors contribute to the exceptionally high soil erosion hazard in Madagascar. These include:

- o The steep hilly-to-mountainous terrain over most of the island;
- o The high erosivity of torrential rains;
- o The peculiar convex shape that characterizes the hills on the High Plateau;² and
- o The incredible depth of the highly weathered, unconsolidated soil profile over the igneous and metamorphic bedrock of the High Plateau.

²This means that the footslopes are also the steepest slopes. After bringing all available bottomland and colluvial toeslopes under cultivation, farmers typically extend their tanety fields onto these steep footslopes.

Even on steep hilly topography, the soils are often over 40 meters deep over bedrock. Furthermore, the texture and structure of the subsoil commonly makes it more easily erodible than the lateritic surface soils that characterize the High Plateau. Gullies can and do erode right through this entire soil profile down to the bedrock. This is one of the most spectacular types of gully erosion in the world, the lavaka. Like most of the native plants and animals, lavakas are nearly unique to Madagascar. A lavaka generally starts out as a small gully and can be triggered by any of the classical causes of soil erosion. But where soil conditions are favorable, the lavaka rapidly extends both up and down slope as well as laterally. The upper portion of the lavaka is characterized by a shear vertical headwall with a generally hemispheric-to-lobed form. Lavakas can devour entire hillsides, often eating their way right through the crest of a hill.

Soil loss in areas of active lavakas would probably be measured in hundreds of tons per hectare. A single 10-year-old lavaka west of Antananarivo has lost an average of over 4000 t/ha/yr. Even when stabilized, the lavaka itself can probably never again be cropped because of its rugged microrelief.

Lavakas commonly develop on both cropland and on pastureland in areas of schist or mica-schist bedrock. The traditional farming practices that contribute to lavaka formation in particular and soil erosion in general are the following:

- o Widespread practice of burning the hillside pastures in the dry season to promote sprouting of perennial grasses for livestock pasture or for other reasons;
- o Rainfed hillside (tanety) cultivation without soil conservation measures;
- o Cutting into toeslopes to expand rice paddies, particularly in narrow valley bottoms (the saturated soils of rice paddies cut into the foot of a hill very commonly cause slumping and lavaka formation); and
- o Development of any kind of bare, erodible path where runoff concentrates, e.g. a livestock trail, a footpath or a cart track.

The ditches dug around hilltop ring forts were a very common cause of lavakas in past centuries. Inappropriate road construction techniques commonly cause them today.

Average annual soil loss on the uncultivated tanety grasslands of the High Plateau is about 10 t/ha/yr. This astonishingly high loss for permanent grasslands is due to frequent dry season grass fires and the very sparse soil cover these grasslands afford. Soil organic matter and most soil fertility is

concentrated in the upper 10 to 15 cm of soil. These soils probably cannot sustain average losses that exceed 5 t/ha/yr.³

Measures of soil loss on tanety fields on the High Plateau that are cultivated with traditional, non-soil-conserving techniques show great variability, but the average is in the neighborhood of 80 t/ha/yr or about 8mm of soil. Ten cm would be lost in just over 12 years of cultivation. The continuing decrease in the productive potential of these soils is a critical problem because the main potential for increasing the land area under cultivation is on the tanety slopes.

One other common agricultural practice contributes to soil erosion. This is the slash-and-burn cultivation in forested areas (known as tavy), which converts lush forest into unproductive grasslands. When rain forest is cleared for the first time, the dried slash is always burned to prepare the field for planting. When secondary forest (savoka) is cleared, the slash is almost invariably burned. The slash is burned to clear the field, to mineralize the nutrients in the slash and the litter, and to minimize resprouting and weed competition.

Most erosion occurs shortly after the bare, newly burned soil is exposed to rain. Thirty to 50 tons of soil loss per hectare per year is common during the period of cultivation. However, most tavy fields are surrounded by densely vegetated savoka fallows. Most of the soil lost from the tavy fields is recaptured by the downslope vegetation and relatively little reaches the streams in the valley bottoms.

b. Soil fertility

Most upland soils in Madagascar are highly weathered, inherently poor soils with low activity clays and a very poor capacity to retain essential soil nutrients. Although it was not possible to verify, much of the upland, grass-covered tanety soils of Madagascar would probably rank among the least fertile soils in the world.

Cation exchange capacity (CEC) is a measure of a soil's ability to hold soil nutrients that are essential for plant growth. A cornfield in Illinois may have a CEC of 40 to 100 milliequivalents. Tanety soils on the High Plateau commonly have a CEC of 1 to 5.⁴ Under these conditions, soil organic matter is especially critical to soil fertility, but organic matter breaks down very rapidly under cultivation, especially with high temperatures and rainfall. Soil fertility of cropland decreases quickest on the hot, humid East Coast, even though the initial fertility of the forest soils is generally much higher than that of the tanety grasslands.

³Personal communication, Jean Louis Rokotomanana, FOFIFA.

⁴Personal communication, Jean Louis Rokotomanana, FOFIFA.

The traditional method of restoring fertility of upland soils is through fallowing. Soil organic matter builds up, plant roots bring nutrients up from the subsoil, and soil structure and chemistry are improved. Wooded fallows are generally much more efficient in restoring soil fertility than grass fallows. Woody plants exploit a much deeper soil horizon and, in most areas, continue producing biomass throughout the year. Most of the root systems of the grasses on the High Plateau are concentrated in the upper 10 to 15 cm of soil.

The bottomland soils where rice is cultivated are inherently more fertile than tanety soils due largely to their higher clay content. Soil organic matter breaks down more slowly under the water-saturated conditions. Crop residues are generally left in place and nearly all the animal manure that is used to enrich soil goes onto these rice fields rather than onto tanety. This seems to be based more on a cultural preference for rice than on anything else. Rice fields may also be periodically enriched by fine sediments deposited by flood or irrigation waters.

Continuous cultivation of bottomland soils without fallow is possible. But in Madagascar nearly all land suitable for rice cultivation that can be developed without major investment has already been brought into production. With little possibility of intensifying production in recent years because of economic conditions and the policy environment, farmers have had to rely primarily on expanding the area of rainfed agriculture.

c. Fire

Probably the single most important factor controlling the vegetative cover of Madagascar is fire. Nearly all parts of Madagascar are perfectly capable of supporting forest cover and probably did before the arrival of man, yet forests cover only about 17% of the country. Grasslands are the predominating cover type on the island, and fire seems to be the major factor in both the continuing conversion of forest to grassland and in the maintenance of this grass cover. Fire is intimately linked to the subsistence-level production systems of Madagascar. Yet for all its ecological and economic importance, it has been little studied and the reasons for burning are not well understood.

Nearly all fire is caused by man; among the reasons for burning are the following:

- o The "green bite": Pastures are burned by herders, usually near the end of the dry season when the palatability of the grass cover from the previous rainy season reaches a minimum. The perennial grasses resprout (soil moisture permitting) and provide a minimal but highly palatable bit of forage for livestock. Most pastures in Madagascar become virtually unusable for cattle if they are not periodically burned. This is generally, but not universally, recognized as the main reason for burning.
- o Improve fertility of bottomland fields: Farmers with valley bottom or footslope fields may burn the hillsides directly upslope from their fields. The first rains carry the nutrient-rich ashes downslope and deposit part of them in the valley bottom fields.

- o Increased runoff: Farmers cannot transplant rice until their fields are flooded. In general, the later the rice is transplanted, the lower the yield. Flooding of most fields depends on runoff from the first rains. Twice as much runoff can be expected from grasslands burned every two years as from grasslands that are protected from fire (MRSTD, 1987). Farmers reportedly realize that burned hillsides have more runoff, but it is not known how important this factor is in burning practices.
- o Expression of political discontent: It has long been a widespread custom in Madagascar to express political discontent by illegal burning.

Some of the environmental effects of fire are the following:

- o Nutrient loss: Much of the nutrients that are present in the above-ground portion of the grass cover are lost. Nitrogen is volatilized and much of the P, K and other nutrients left in the ashes are washed or leached away with the first rains, especially on the steeper slopes.
- o Soil erosion: Most of the grass cover is sparse in terms of its biomass, height and soil cover, but it would still probably be largely effective in holding soil in place if it were not burned. After burning, the widely spaced grass clumps are separated by bare soil fully exposed to the erosive force of the early rains. Soil erosion, lavakas in particular, can be severe even in areas where there are almost no people, cattle or fields.
- o Species composition: Only fire-adapted grass species can survive repeated burning. Most of Madagascar's grasslands have an incredibly low species diversity of only one to three grasses. The most common grasses generally have low to very low forage value.
- o Decreased forest cover: The remaining natural woodlands and reserves are continually being reduced by uncontrolled grass fires that nibble away at their margins. The fires maintain the grasslands as grasslands by preventing the natural regeneration of woody species. Wildfires are a severe constraint to tree planting on the tanety, especially for species like pines that can be killed by a single fire and that do not sprout back.

It is estimated that between clearing tavy land and pasture burning an area of 1-3 million ha is burned every year, with the rate rising sharply in recent years.⁵ The costs in terms of soil fertility loss, siltation of irrigation systems and hydro-electric dams and increased flooding are very high, estimated at 5-15% of GDP annually. Official figures on the surface

⁵Plan d'Action Environmental, vol. 1, p. 2-5.

area burned are compiled from estimates made by local forestry agents. Such figures are not accurate and may grossly underestimate the actual area burned as they vary tremendously from one year to another. In 1983, 3.4 million ha of grasslands were reported burned, while only 0.7 million ha were allegedly burned in 1985 (MPARA, 1987).

Forces are gathering for a major effort to arrest environmental degradation in Madagascar. Several donors, including USAID, have banded together to assist the Malagasy Government in drawing up an Environmental Action Plan. In future, environmental projects are expected to fit into the master plan, which identified five general constraints to effective environmental interventions.

- o Insufficient financial resources at all levels;
- o Physical obstacles making communication difficult;
- o Insufficient quantity and inadequate quality of Government staff;
- o general lack of basic data; and
- o Insufficient application of environmental legislation that is, however, relatively complete and generally adequate."

B. Macroeconomic Factors

1. Sector contribution to GDP and terms of trade

The growth and development of the economy of Madagascar over the next several decades will depend largely on the agricultural sector. Agricultural production represents at least 40% of Madagascar's gross domestic product, provides inputs for over 70% of manufactured output, generates 80% of export receipts, and employs roughly 78% of the population.

Before the recent economic reforms were adopted, there had been some shift in the rural/urban terms of trade in favor of the rural population. This can be attributed more to a leveling effect of government policies on urban dwellers than on improvements in the rural sector. Between 1962 and 1980, rural incomes increased relative to those in major urban areas, primarily due to a drop in urban incomes. During the 1980s, the primary sector has grown at a substantially higher rate than the secondary and tertiary sectors, indicating a continuation of this trend. Within the rural sector income inequality seems to have increased. A rough Gini coefficient calculation shows a coefficient of .290 in 1962 rising to .435 in 1980. Recent rural expenditure data indicate some increase in regional inequalities, with rice surplus areas such as Lac Aloatra appearing to surge ahead of other regions.

'Plan d'Action Environmental, vol. 1, p. 3-13.

2. Roles of public and private sectors

The primary objective of the GDRM in the agriculture sector is to increase the production of food crops and, for rice in particular, to regain self-sufficiency by 1990. Medium term objectives are the development of non-traditional exports and more intensive livestock systems. Research, extension, oil crop development, and environmental protection are also priorities, at least on paper. The state is now expected, however, to play a much more passive, advisory and regulatory role that it has over most of the past 15 years.

After the revolution of 1973-1975, the state assumed considerable power over agricultural markets. By the late 1970s, producer and retail prices for crops were fixed by public officials. Input supply and the collection, storage, transport, distribution, and processing of crops were all subject to strict licensing. Negotiation of export contracts was reserved for the central government. Responsibility for many agricultural support services was imperfectly decentralized to the fokontany, including irrigation system management, land tenure regulation, collection of agricultural statistics, some crop marketing and road maintenance.

Since foreign exchange was rationed and imports permitted only through a quota system, agricultural inputs became much harder to obtain. Parastatals were given responsibility for providing inputs to farmers but were chronically short of supplies. Farmers responded by turning increasingly to subsistence farming and diverting their marketed output into the parallel market. Between 1981 and 1984, only 6% of the rice crop passed through official channels. Normally, about 15% of production is marketed.

Since 1983, Madagascar has been pursuing a wide-ranging program of economic liberalization. Many of the most successful reforms have been in the agricultural sector. Reforms have included the elimination of domestic price and markup controls, elimination of restrictions on interregional transport of commodities, abolition of parastatal monopolies on crop marketing, elimination of the administered system of foreign exchange allocation, and financial sector rehabilitation.

The reforms have drastically reduced the role of the government in agricultural marketing. Direct interventions are now limited to management of a small buffer stock of rice, continued control of vanilla marketing, and quality certification for exports of coffee, vanilla, cloves, meat, and seafood.

3. Effects of policies on the sector

The reforms have had a mixed impact on Madagascar's many public enterprises which include regional development authorities, state farms, marketing organizations, agro-industrial enterprises, input producers, research agencies, and crop-specific "operations". Regional development authorities have been audited under a World Bank project and have benefitted from subsequent restructuring and investment. Some well-managed, state-owned

agro-industrial enterprises have taken advantage of freer markets and begun to turn a profit.

On the other hand, many of the supply and marketing parastatals which once enjoyed monopolies or at least preferential treatment are now facing stiff competition from the private sector. Many have been mentioned as candidates for privatization, but there has been little progress to date. The fokontany, which had relied on revenues from taxes on crop collection and commodity transport, have provided some of the stiffest opposition to agricultural market reform. Most of their marketing powers were officially eliminated in 1986, but enforcement of the new regulations has been difficult.

The reforms have resulted in a huge increase in the number of private traders, millers, distributors, and exporters. Registered rice mills more than doubled to 2,119 between 1983 and 1987 while unregistered mills reportedly grew at an even faster rate. The number of licensed traders grew to more than 2,300. Farmers are also increasingly active in the marketing of their crops. Many reportedly are milling their own paddy to take advantage of the price differential that exists between paddy and rice.

The number of private sector exporters rose four-fold to 800 between 1987 and 1989. The biggest increase followed the abolition in 1988 of a cumbersome export licensing system. Since 1987, there has been some shaking out of the market, resulting in a resurgence of parastatal participation. After falling for two years, parastatal paddy purchases nearly doubled in 1987/8. Both export and domestic crop marketing are plagued by the ability of certain well-connected private enterprises to gain preferential access to inputs and markets.

Recent efforts to encourage rice production by raising the producer price have been diminished by the general inflation: although the producer price increased by 150% between 1983 and 1988, the real increase was just 21%. When widespread shortages forced the real price up by 80% between 1985 and 1986, a strong producer response was seen. Output growth was measured at 3.1% and was accompanied by increased investment in tools and machinery and development of new lands. The subsequent drop in the producer price combined with substantial inflation in the price of inputs and poor rains forced farmers to retrench, but strong growth returned in 1989.

4. Public expenditure on the sector

From 1984 to 1989, the GDRM public expenditure program (PEP) allotted a steady 16-17% to the agricultural sector. Recurrent expenditure has been low, reflecting neglect of extension and other services, but investment expenditure has been high, reflecting donor grants and loans. In 1989 agriculture and forestry accounted for 6% of current expenditure. In the capital expenditure budget for that year, agriculture and forestry had 27% of the total. In the 1990 budget, approved by the People's National Assembly in December 1989, the Ministry of Agriculture received the largest increase--38% more than in 1989. The amount was FMG 9.2 billion (\$5.9 million).

The investment budget has emphasized rehabilitation of irrigation systems before expansion. It has given priority to projects with confirmed external funding that are expected to have a favorable impact on the balance of payments and be a minimum drain on public funds. To date, projects have focused on irrigation rehabilitation, road maintenance, improved national research and extension capabilities, and seed production.

With regard to research, the GDRM and donors share responsibility for FOFIFA budgets which have whipsawed from FMG 2 billion in 1985 to FMG 4.1 billion in 1987 back to FMG 2.3 billion in 1988.

5. Land tenure issues

The 1984/5 census found that 87% of farm land is farmed by owners, 5% is farmed under either sharecropping or fixed rent arrangements, and 8% is worked by state farms, relatives or squatters. Other sources have estimated that the actual rate of sharecropping is 10-40% in the High Plateau, rising to 85% in the Marovoay plains. Tenants pay one-third to one-half of their crop.

Although Madagascar's relatively low population density has allowed most farmers to follow extensive cultivation practices, good agricultural land is becoming increasingly scarce in the central highlands and in the arid south and southwest. These shortages, combined with rapid rural population growth, increased rural mobility, and security problems are hastening the demise of traditional land tenure arrangements.

While in other areas there are large tracts of "unused" but potentially viable agricultural land, almost all land has claimants. Furthermore land traditionally was to provide for the well-being of the lineage, but this custom is threatened by modern land law whereby an individual, from the lineage or from outside, can exert claims to the detriment of the group. In the highlands the valley bottom rice fields are held by the patriarch of the family and when the amount of irrigated rice land is small, sons and daughters are often not given use rights. As a result young married men are prone to use hillside land (tanety) to produce rainfed crops.

Improving official land registration and titling capability has become a high priority of the GDRM. The current system for gaining title to land is nonetheless complicated and time-consuming. While roughly 2 million ha (20,000 square kilometers or 3% of land area) has been officially titled, as much as 45% of this may need to be resurveyed.

6. Credit

Farmers have access to both official and informal credit but the total supply of credit is woefully inadequate and subject to seasonal fluctuations. When available, its timing and conditions tend to be unsuitable for agricultural borrowers.

Informal credit is supplied and repaid in four ways: rice for rice, money for crops or livestock, money for money, and money for land use. Intra-family lending of small sums on an interest-free, unsecured basis is a

traditional practice grown rare with the worsening rural economy. Local landowners and merchants may supply credit, but there are few specialized lenders at the village level. Informal credit is poorly adapted to the needs of smallholders: terms are generally for less than 6 months at interest rates on the order of 100% for 3 months and amounts are small.

General store owners who also are traders often advance farmers credit for purchases against their crop and the debt must be repaid in kind immediately after harvest. Traders may work through agents who provide advances to farmers against crops in the field at an agreed price. Particularly in the months immediately preceding harvest, a large proportion of farming households must purchase food to meet their needs and lack cash resources. The demand for basic food places such households in a precarious financial situation, and they have no bargaining power against those willing to loan money against their crops.

Official credit for smallholders should in theory come from the National Rural Development Bank (BTM). Pressured to lend to parastatal agro-enterprises, BTM's lending to smallholders has been limited, representing no more than 1.5% of its total loan portfolio in 1985. Smallholders are eligible for credit under two BTM programs: the Rural Credit Program (FMR) and the Individual Smallholder Credit Scheme (ODRI). The FMR program targets farmers cultivating less than 5 ha through the fokontany structure. The ODRI, begun in 1981, aims to get credit to commercially-oriented small farmers recommended by local extension agents. Currently, interest charges under either program are 18% annually (regular commercial rates are 21-22%) with recovery rates on the order of 70%. Larger farm units can qualify for BTM's general lending.

C. Human Resource Factors

Of Madagascar's estimated total population of 11.2 million, about 82% live in rural areas. Overall rural population density is low, roughly 15 inhabitants/km², its distribution ranging from a low of 3/km² in the west to more than 400/km² in some rural areas of the High Plateau.

Madagascar's rural population is relatively well educated, with 66% of male and 42% of female heads of households having received some education (higher rates are seen in the younger age cohorts). Currently, 65% of the rural population lives within 5 km of a modern healthcare facility, but a lack of staff and materials has meant that rural health remains at about the same level as on the African continent. It is estimated that only 47% of rural households have latrines while just 9% have ready access to clean drinking water.

The most disturbing recent health trend is a marked increase in severe malnutrition, especially among children. It is currently estimated that about 10% of children are born with low birth weights and that 12-13% of babies up to one year and 15-17% of those between one and two are severely underweight. The population most at risk seems to be weaning-age children (16 to 24 months).

1. Farm size and characteristics

Madagascar's agricultural sector is characterized by the small size of its farms. Of roughly 1.5 million agricultural units, more than half

cover less than one ha and all but a handful less than 10 ha. Rice is almost universally grown, cultivated by 85% of farmers on about half of the total planted area.

Malagasy farm units may be divided into four categories on the basis of capital stock and production level.

- o Modern: these units possess at least one of the following--10 ha or more, 5 salaried workers or more, mechanized equipment, or livestock operations (at least 15 head of cattle or 20 hogs) with cattle sheds or pig stys.
- o Animal traction: these units own at least one pair of oxen and a plough. A small subset fattens animals for market.
- o Traditional: these units have no animal traction equipment and use the traditional long-handled spade (angady) or machete. They may possess livestock but only as a store of wealth.
- o Very poor: these units produce so little that they suffer from food shortages for nine months or more per year.

A joint FAO-Ministry of Agriculture report, which is based on data from the 1984/85 national agricultural census, divides the country's 1,460,000 farm units among these categories as follows.

The 612 units in the modern category account for some 80,000 ha, about 5% of the total cultivated area. The sub-sector comprises 451 individual owners, 67 associations and 10 cooperatives, as well as 46 private companies and 38 state enterprises.

2. Off-farm income sources

Agriculture employs 94% of the rural population, 77% of them full-time. Low season underemployment is estimated at 38% in Antananarivo province and 20-25% in other provinces. Many farmers use the low-season to pursue some type of off-farm employment. The 1984/5 census found that 1 in 4 members of the active agricultural population worked off-farm for part of the year.

Some of this work is as temporary agricultural labor. This employment is especially common in the major rice-cultivating areas where seasonal demand for labor can be very high. Laborers earn FMG 400-1,500 per day, varying by region, task and sex. Cash payment of at least part of this amount, the rest being in the form of a meal, has become the norm. Labor exchanges are still practiced in smaller, more traditional communities. There are widespread reports of seasonal labor shortages, especially in the Lac Aloatra area during harvest time where the annual labor immigration appears to have declined. The other major source of temporary employment is non-agricultural informal sector work in rural communities or urban centers. Common types of employment include masonry, carpentry, blacksmithery, and marketing.

Table 1: Breakdown of Farm Units by Category, 1984/85

| <u>Category</u> | <u>Number of Units</u> | <u>Percentage</u> |
|-----------------|------------------------|-------------------|
| Modern | 612 | 0.0004 |
| Animal Traction | 315,108 | 21.6 |
| Traditional | 1,020,562 | 70.0 |
| Very poor | <u>122,823</u> | <u>8.4</u> |
| TOTAL | 1,459,105 | 100.0 |

SOURCE: MPARA-FAO. National Census of Agriculture, vol. I, April 1988.

3. Social characteristics

In many villages, the social structure continues to be defined in terms of unequal and hierarchically arranged kinship groups. Under the Ratsiraka Government, important powers had devolved to the village (fokontany) level and democratic elections introduced. In many cases it seems that the power of traditional leaders has been enhanced by the reforms. Primary loyalty is still owed to a kinship group, which may or may not correspond to the fokontany. Ties to the family burial ground have tended to keep members of a kinship group within a limited area although economic pressures have increased the rate of migration, especially of men. This migration is both permanent and seasonal.⁷ In 1975, roughly 5% of the population lived in provinces different from their provinces of birth while 14% lived a "significant distance" from their places of birth. These percentages have certainly increased. It is thought that in times of economic uncertainty the flow into rural areas exceeds the flow out by about two to one.

A 1987 study found that a major motivation for rural migration was the worsening problem of rural insecurity. There appears to be some breakdown of norms governing land security, livestock, and crops. Cattle rustling is a time-honored practice in parts of rural Madagascar, but in the 1980s the incidence of both cattle theft and the heretofore quite rare praedial larceny has risen and spread to areas not traditionally subjected to them. Reports of farmers being displaced from traditional holdings are widespread. In 1988, the GDRM sponsored a massive crackdown throughout rural Madagascar to help restore order and it remains to be seen if the problem will continue.

4. Social organization

The socialist movement in Madagascar, which began in the mid-1970s, emphasized people working together, whether in collectives, cooperatives or associations. Several older cooperatives were transformed into socialist cooperatives and numerous others were established. In 1976 there were some 228 cooperatives, 165 of which were based on agriculture. Since 1985 the established cooperatives have been revitalized and new ones formed. As of 1987 there were 141 agricultural cooperatives, with 20,000 ha of land and over 11,000 members.

As Table 2 shows, the largest number of cooperatives are located in the Faritany (province) of Antananarivo, but the cooperatives of Toliara have the most members.

There are also cooperatives for transport, supplies and agricultural equipment production. One large cooperative is responsible for the distribution of agricultural equipment and other consumer goods, as indicated in Table 3. In addition there are some 747 sales depots and 124 warehouses, with a total capacity of 80,500 tons.

Many or most of the existing organizations were begun at the initiative of the state and continue to have a significant linkages and involvement with the state. Many of those which have survived appear to be viable, while

⁷. An estimated 5 million temporary agriculture workers are hired annually (with double counts).

Table 2: Agricultural Production Cooperatives (1987)

| <u>Faritany</u> | <u>No. Cooperatives</u> | <u>No. ha</u> | <u>No. Members</u> |
|-----------------|-------------------------|---------------|--------------------|
| Antananarivo | 54 | 4,344 | 2,232 |
| Antsiranana | 9 | 513 | 506 |
| Fianarantsoa | 17 | 7,696 | 2,451 |
| Mahajanga | 17 | 1,140 | 1,584 |
| Toamasina | 23 | 3,071 | 1,033 |
| Toliara | <u>21</u> | <u>3,235</u> | <u>3,222</u> |
| TOTAL | 141 | 19,999 | 11,028 |

Source: Department of Cooperatives.

Table 3: Other Types of Cooperatives, 1987

| <u>Type</u> | <u>No. Coops</u> | <u>No. of Unions</u> | <u>No. of Members</u> |
|-------------|------------------|----------------------|-----------------------|
| Supplies | 722 | 39 | 81,151 |
| Fishing | 10 | 1 | 351 |
| Artisans | 44 | - | 892 |
| Transport | <u>33</u> | <u>-</u> | <u>2,064</u> |
| TOTAL | 809 | 40 | 84,458 |

Source: Department of Cooperatives

others continue only because they retain a monopoly or because of they have business arrangements with the government.

Groups of producers and to a lesser extent of merchants are common in most parts of Madagascar. While the merchants have spontaneously joined together to pursue common interests, most of the producer groups have been formed in response to outside impetus. There are various types of producer groups. Water user associations, for example, have been organized in irrigated areas, especially where small perimeters are being rehabilitated. The purpose of the associations is to assume greater responsibility for the operation and maintenance of the irrigation system. The associations will be expected to raise funds from their members for these purposes.

5. The role of women

The situation of women in Madagascar is different from that in African countries, being somewhat better, but is poorly understood by outside observers and Malagasy alike. The existence of Malagasy Queens in the past and the high status of a few women in politics and government administration today give a misleading impression about the situation of the vast majority of women. Their role in production is relatively unknown and mistakenly assumed to be less than it is. Attention is given to women as mothers, housewives and teachers rather than as producers.

There is a slowly growing official awareness of their full role, evidenced by the creation of a Directorate for Women's and Children's Affairs in the Ministry of Population, Social Affairs, Youth and Sports. Having begun to study women, the Directorate sees them as struggling against several constraints as producers:

- o Difficulty in gaining access to factors of production (land, tools and credit);
- o Illiteracy (affecting 41% of rural women) and lack of education;
- o Heavy household burdens, multiple pregnancies and poor health aggravated by inadequate nutrition;
- o Almost total lack of information on what is happening outside their immediate purview, leaving them isolated in rural areas and unaware of new possibilities.

Ten percent of farm households nationwide are female-headed, with the percentage varying by province (faritany) Antsiranana (Diego Suarez) in the North has 21% while Fianarantsoa and Toliara have only 6% each. Having less land on average than male-headed households, these are among the poorest farming units. A 1987 UNICEF survey found that more than one in four households classifying themselves as "disadvantaged" was female-headed.

Traditions governing the division of agricultural labor are weakening. Soil preparation tasks have traditionally belonged to men while activities starting with transplanting have belonged to women. In fact, the Merina of

II. INSTITUTIONS, ACTIVITIES AND POLICIES

A. The Private Sector

1. The role of subsistence agriculture

For the foreseeable future, Malagasy agriculture will be based on the smallholder. As shown in section Chapter I, Section C.1, there are very few large farming units, and they play only a limited role in the sector. The European plantations on the East Coast that produced 75% of the country's coffee in the 1940s were nationalized in 1976. An area in excess of 10,000 ha was handed over to parastatals and socialist cooperatives, but much of it was subsequently abandoned.⁶ State farms have not succeeded either. The sector depends on the smallholders, 78% of whom rely on manual rather than animal or mechanical power.

As Mellor and Johnston have pointed out, smallholders have an efficiency advantage over large farms when labor is abundant and rural wages low, as they are in Madagascar. This is enhanced if yield-increasing biological and chemical innovations are available and the policy environment is such that credit and inputs are available to the smallholder.⁷ The sad legacy of Madagascar's ten-year hiatus in agricultural development is that no significant innovation is at the disposal of Malagasy smallholders and lack of credit is a universal complaint.

If smallholders can increase their productivity and produce more food, urban workers will benefit from having more food available at reasonable prices and from more employment as rural markets for urban products expand. It has been noted that Asian smallholders spend about 40% of incremental income on locally produced nonagricultural goods and services.⁸ For Madagascar, the question is how to start the process of increasing rural productivity. It will have to begin with the small Malagasy farm family, which has focused heavily on subsistence production in recent years as the national economy went through its period of travail.

Most male Malagasy farmers, laboring in their rice fields with the traditional long-handled spade, the angady, work hard but produce little. Female farmers do much of the transplanting and harvesting. There is clear

⁶FAO, Madagascar: Projet de financement du sous-secteur café. Rapport de préparation. Aout 1989. p. 18.

⁷John W. Mellor and Bruce F. Johnston, "The World Food Equation: Interrelations Among Development, Employment, and Food Consumption" in Journal of Economic Literature, June 1984, pp. 531-574.

⁸Ibid.

potential for the use of animal traction, but despite the large number of cattle, oxen are used relatively little in the rice fields.

For many, the small aggregate size of their cultivated plots is a serious handicap. Because of repeated subdivisions of land as distributions of the family heritage, a family may have four or five separate plots of riceland aggregating only two-thirds of a hectare. Since land has a special sentimental character for the Malagasy, they strongly resist any sale of family land to another family. There are nonetheless landless sharecroppers, migrants who have sold their riceland or who never had any. Sharecropping is officially illegal in Madagascar, but the National Agricultural Census in 1984/85 showed that five percent of cultivated land is in fact sharecropped.

The great majority of rural families try to produce rice for family consumption by tilling their traditional lands. There are two seasons for the flooded rice fields: the first or smaller harvest comes in January and February, the rice having been transplanted as soon as the fields have been flooded early in the rainy season. The second, larger harvest comes in May, June and July.

a. Potential and constraints

As shown in Table #1 above, there were about 1.46 million farm units in Madagascar in 1984/85. Some 90% or 1.3 million farms cultivate rice for on-farm consumption. These small, traditional farm units are particularly vulnerable to loss of soil fertility.

In the late 1970s and early 1980s, before rice policy reform, rice prices were controlled at retail, and many farmers reduced their efforts to produce rice for the market. They shifted labor to other crops and bought rice. Once the retail price controls were removed, producers grew more for their own consumption but produced no surplus because the producer price ceilings remained low. Only the two large irrigated perimeter projects (SOMALAC at Lac Aloatra and FIFABE at Marovoay) delivered surpluses. With the complete liberalization of rice marketing in 1986, producer and consumer prices rose. At that point production increased and imports of rice began to fall.

The small, traditional subsistence farms showed that they would respond to price signals through increased production of the island's staple commodity. To move to higher levels of production, however, they face serious constraints, which were identified above and are discussed in detail in Chapter III below.

b. Environmental impact of subsistence agriculture

Two basic environmental criteria should be used in an analysis of Madagascar's predominant farming systems:

- o Sustainability. Are the agricultural production systems environmentally sustainable, e.g., can they be continued indefinitely without leading to a degradation of the natural resource base and a subsequent loss in productivity? Soil erosion and

soil fertility maintenance are critical elements of agricultural sustainability.

- o Effects of agriculture on the environment. What are the environmental effects, both on and off site, of agricultural practices? Do they result in loss of biodiversity or in the accelerated sedimentation of reservoirs and irrigation systems downstream?

c Soil erosion

Soil erosion and fertility maintenance as summarized above (I A.9.), are severe problems in Madagascar, limiting the sustainability of agriculture.

Many of the environmental and economic effects of soil erosion in Madagascar occur downslope and downstream from the area where the erosion occurs. For the irrigated agriculture subsector these effects include:

- o Massive deposition of relatively infertile subsoil and rock in the valley bottom rice paddies immediately downslope, rendering these fields unusable or at least less productive.
- o Reduced area and productivity of floodplain fields. Increased stream width reduces the ratio of floodplain fields to streambed. Deposition of coarse sediments decreases the productivity of floodplain fields. Frequent changes in stream course increase the risk of cropping on the floodplains. Only the very broad, very flat stream deltas like the irrigated rice lands in the Northwest at Marovoay on the Betsiboky benefit from the deposit of rich alluvial silts and clays.
- o Accelerated sedimentation and loss of capacity of downstream dams constructed for irrigation, hydroelectric power generation and city water supply.
- o On irrigated perimeters, increased costs for the removal of sediments from canals and the loss of irrigated fields from the deposit of sand and infertile sediments during floods. At Lac Aloatra 1,800 hectares of rice fields have been buried under infertile sediments eroded from the surrounding hillsides. Marovoay has similar and growing problems also due to erosion from the surrounding tanety, but no statistics are available.

Maintaining soil fertility of cultivated upland soils is one of the most difficult problems of tropical agriculture and is probably more difficult in Madagascar than in most other countries. It is an agricultural problem that poses the greatest threat to the protection of the remaining natural areas in Madagascar and the preservation of the island's biodiversity. Nearly all upland, rainfed fields in Madagascar simply cannot be cultivated continuously year after year with traditional cropping practices without crop yields dropping to unacceptably low levels.

The soil erosion situation differs however from one of the three principal agro-ecological zones of rainfed agriculture to another. In the East Coast forest tavy zone, the zone of rainfed tavy cultivation, the forest soils of this mountainous area are much richer than the tanety soils of both the East Coast foothills and of the High Plateau. But with high rainfall, one can generally produce only one crop before the land must be abandoned for an extended fallow period. Tavy as practiced is a very primitive and destructive form of subsistence agriculture. Roughly 80% of the eastern rain forest has already disappeared as a consequence. With increasing population pressures, fallow periods have decreased in many areas from 10 to 20 years down to 5 to 8 years or less. When the fallow period becomes too short, wooded fallow may be replaced by grass fallow. All along the East Coast footslopes there is a virtually continuous band of infertile, grass-covered hills that are only cultivated with long fallow periods, if at all. This appears to be the long-term ecological result of practicing tavy with shorter and shorter fallow periods. The practice of tavy on the east slope is clearly not sustainable but roughly 6% of Madagascar's population relies on tavy. One can expect farmers to move onto increasingly steep, marginal slopes and for the pressure on remaining natural areas to intensify.

In the High Plateau tanety zone, the cooler temperatures of the High Plateau make it easier to maintain soil fertility, but the tanety soils have inherently low fertility, and most subsistence farmers rely on one-to-four-year grass fallow periods to restore fertility to some minimal level. On the High Plateau, with nearly all lands suitable for flooded rice cultivation already developed, cultivation of the tanety is expanding rapidly and fallow periods declining. It is a major challenge to develop sustainable cropping systems on these infertile, highly erodible tanety hillsides. In the Middle and Far West zone, west of the High Plateau, the temperatures are much higher and the dry season much longer, making rainfed agriculture even more difficult. There is much pressure on the remaining areas of forest land which have relatively rich soils. After cropping, however, newly cleared lands generally revert to a predominantly grass fallow maintained by fire, and soil fertility remains at a low level.

2. Madagascar's agro-industries

a. Plantation farming

In the modern sub-sector there are industrial plantations belonging to both private and state companies. Among the private, the largest are the cotton plantations of the Cotona textile company. Among the parastatals, several sugar mills, a palm oil company, coconut enterprise and a cashew producer own substantial plantations. Several state farms were created in the 1970s and earlier to produce rice, livestock, apples, silk and other products. The state farms have not done well. A silkworm farm at Sakay was liquidated in 1988; another at Iadalalana is for sale. A third at Vohimasina near Fianarantsoa which raises cattle and pigs for canned meat is operated at a large loss and is heavily subsidized.

A large part of the cotton and tobacco crops is grown by small farmers under contract to HASYMA (cotton) and OFMATA (tobacco). MALTO, a subsidiary

of the STAR brewery, which is now 51% owned by private investors, contracts with nearly two thousand small growers for barley used to produce malt for the brewery. The state-owned flour mill KOBAMA encourages local production of wheat through FIFAMANOR to substitute for the imported grain which now constitutes over 90% of the mill's raw material.

b. Processing

(1) Processing of industrial crops

The state still has a preponderant position in the primary processing and marketing of all plantation crops: cotton, sugar, oil palm, coconuts, cashews. These functions are performed by specialized parastatals, most of which operate at a loss.

(2) Processing of other agricultural products

The processing of other raw materials (including a small volume of imported commodities) and of animal products is in the hands either of parastatals or of private firms which escaped nationalization in the 1970s or were created since the liberalization of the economy. Madagascar's agro-processing industry is still small and little diversified.

The 1986 industrial census¹¹, which covers only plants employing a minimum of five, lists 130 plants employing a total of 16,300 in the food and beverage industries. The branches represented (with the number of plants shown in brackets) were: canning of meat, fruits and vegetables (13); dairy (13); larger-scale rice milling (14); flour milling and starch extraction (3); baking and confectionery (42); sugar milling (4); cocoa products (5); coffee roasting (5); pasta products (3); feed (3); rum and alcohol (11); wine, cordials, etc. (5); beer and soft drinks (9). The census also lists eight plants engaged in vegetable oil extraction and soap production; two tanneries and an unspecified number of sawmills.

The number of rice mills cited by the census refers only to large plants. Milling of rice is also done by over 2,000 small private rice millers, some of whom are also traders. Most of them employ (or declare that they employ) less than five people.

c. Marketing

(1) Domestic and export products

Agricultural marketing has characteristics common to many developing countries. Transactions cover small quantities and there are high unit costs per transaction (at least in terms of human effort). This

¹¹ Direction Générale de la Banque des Données de l'État, Recensement Industriel, Année 1986.

traditional system coexists with modern-type (but not necessarily efficient) marketing activities and installations.

In the 1970s large trading firms were nationalized. Most exporters were limited to the collection and preparation of the export product, while state boards took over export contracts and shipments. During that period new state enterprises were created for trading purposes. At present, private exporters are trading for their own account once again, and newcomers struggle for positions in the export trade. The domestic trade, principally in rice, is open to all entrants. SOMALAC, which sells rice from the largest irrigated scheme in the country, is competing with private traders.

An interesting situation has developed with regard to ten large trading enterprises which still are parastatal. Some of them are said to be in very difficult financial position (e.g. EOSO, which recently laid off many employees). Others (above all COROI and SINPA), are well managed in the spirit of private enterprise and may well survive in a form that will reward the efforts of their present management. All are, however, according to GDRM commitment to the IMF/IBRD, destined for ultimate privatization.

Altogether, the number of major trading enterprises currently in business seems to be about 50. Most specialize in exports. Some are also very active in domestic agricultural trade.

(2) Marketing of inputs: the special case of fertilizers

(a) Inadequate use of fertilizers

The weaknesses and complexities of the fertilizer trade illustrate the obstacles which Madagascar faces in its double challenge of resuming economic growth while at the same time freeing itself from the distortions of years of dirigisme. As indicated in section I.A.7., chemical fertilizers have not yet become universally accepted in Malagasy agriculture. Only in cotton and tobacco production does the use of fertilizers amount to a substantial percentage of theoretical requirements, according to a recent study. (It showed that the percentages were 85% for cotton and 75% for tobacco in 1985.) Part of the use was attributable to a few modern private farming enterprises. Most of the rest was distributed to small contract farmers by HASYMA and OFMATA. Some was distributed in limited areas by NGOs engaged in rural development. The amount used for rice was barely 3% of theoretical requirements. The use for cassava was negligible. There was no known use for maize or pepper. For none of the traditional export crops, including coffee, was any use of fertilizer recorded.¹²

¹² Source of the above figures: Price Waterhouse/USAID Madagascar, Fertilizer Sector Study (draft), July 1988.

(b) Marketing of fertilizers and structure of the distribution system

Prior to 1982, the Ministry of Agriculture (MINAGRI) was the unique importer and distributor. In 1982 the parastatal COROI was allowed to do the same. Since 1984 other parastatal companies and private traders have been allowed to compete. A number of MPARA's regional warehouses have been let to private traders. There is now a competitive market in existence. However, some warehouses in distant, thinly populated areas have not found private takers and are still run by MPARA. These areas are avoided by profit-oriented traders and must depend on rural development programs.

At present, fertilizers move through a number of overlapping channels:

- o Commercial importers, principally two parastatals, COROI and SEPCM whose present sales on commercial terms to small farmers are minimal. They distribute a part of their product through their own stores and sell a part to private retailers. They occasionally handle imports for the cotton, sugar, tobacco and coconut parastatals, HASYMA, SIRAMA, OFMATA and SOAVOANIO. The parastatals also purchase directly from foreign suppliers on fully commercial terms.
- o Distributors. This group includes the above mentioned importers and firms which sell to wholesalers and retailers, mainly in the Central Highlands.
- o Wholesalers and retailers who buy fertilizer from distributors and sell it to farmers.
- o Some donor-financed extension projects e.g. FIFAMANOR, occasionally distribute fertilizer to farmers in their areas.

(c) Government intervention in pricing and distribution of fertilizers

Madagascar receives donations of fertilizer of the order of 10,000 MT a year from various countries, principally Norway. MINAGRI distributes this a few times a year through selected groups of major traders, usually under the organizational leadership of COROI or SEPCM. These fertilizers are then sold with a fixed margin, at a price which is 60% to 70% of the commercial market price. The choice of traders and the degree of subsidization are arbitrary. There is no systematic method used in pricing these sales. At times they are subject to customs duties and taxes; in other cases they are exempted.

Donations of fertilizer have on occasion disrupted the market because they are not regularly timed and foreseeable. For example, in the summer of 1987 a substantial gift of urea from Italy was expected. As a result, importers did not place commercial orders. When the gift did not materialize, a shortage developed.

(d) Potential of the fertilizer trade

The Price Waterhouse study estimated the CIF price of imported fertilizers to be \$150 per MT and the retail price to be \$250 per MT in mid-1989. The margin of the domestic trade is thus \$100/MT. With imports of approximately 30,000 MT, the total margin in Madagascar's fertilizer distribution business would be about \$3 million. This is a modest quantity, especially if one considers how many firms, parastatals and private, small and large, are struggling for a share of the business. However, the potential for growth is great (see Section I.A.7).

A noteworthy effort is being exercised by the COROI company to increase the use of fertilizer by small farmers. COROI works with MINAGRI to establish demonstration plots showing the advantages of fertilizer for vegetables and rice. COROI collaborates with the Rural Development Bank (BTR) to provide credit for small farmer groups which buy fertilizer. COROI organizes and supervises such groups, thus creating a market for its fertilizer (and pesticides). In late 1989 there were some 150 such groups, each between 10 and 30 farmers strong, spread all over the country.

e. Actual and potential environmental effects of agro-industry

No significant environmental impacts have been identified for plantation farming, food processing and marketing, or input manufacture. The production of charcoal and fuelwood for urban areas, however, and the harvest of precious native tropical hardwoods have definite impacts.

(1) Urban charcoal and fuelwood supply

There is no sustainable natural forest management practiced in Madagascar, nor have such techniques been developed. Charcoal and fuelwood harvesting from natural forests must be considered mining of a presently unrenewable resource. Urban wood supply can be considered sustainable if the projected harvest from forest plantations does not exceed demand.

There do not seem to be any good studies of wood supply and demand for the urban areas in Madagascar. Bertrand (1989) just completed an economic analysis of wood supply for Antananarivo, but it does not analyze present demand nor the adequacy of projected supply. It does seem that nearly all of Antananarivo's present wood energy demands are being met from plantations of Eucalyptus and pine. This is very exceptional for a city of the size of Antananarivo. Pine plantations at Fanalamanga funded by the World Bank have recently entered into the charcoal supply equation, and there are extensive state-owned plantations of Eucalyptus and pine that are not being exploited at present near Manankazo, about 120 km from Antananarivo towards Mahajanga.

The situation for many other cities, particularly in the West and the South, is completely different. Virtually all of the wood energy for Mahajanga, Toliara and Tolanaro (Fort Dauphin) come from the unsustainable exploitation of natural forests. Twenty-five years ago, residents of Mahajanga collected their own fuelwood within a few kilometers of the then-

small city. Today the Ankarafantsira Forest, 100 km away, is a major source of Mahajanga's charcoal.

Charcoaling is a major factor in the destruction of remaining natural forest areas. Tree harvesting for charcoal opens up the forest and favors the growth of grasses (and the risk of fire). Access roads or trails opened to get the charcoal out increase the accessibility of the forest and its exploitation for other products and for agricultural land clearing, and for pasturage.

(2) Precious native tropical hardwoods

Native hardwoods such as Palisandra are harvested from remaining natural forest areas throughout the island. This is strictly a high grading operation; nothing is done to assure the regeneration of these species. The exportation of high value hardwoods has recently increased dramatically since the liberalization program has made it much easier for private sector initiatives. The value of exported wood products increased from FMG 248 million in 1986 to FMG 2.7 billion in 1988.

3. Financial structures

a. Main components of the system

(1) Formal structures

In Madagascar, where agricultural production, marketing, processing and exporting dominate the economy, no financial structure is entirely insulated from the agricultural sector. The financial institution designated to serve agriculture, the BTM bank, plays a major role within the whole financial system. The other actors are the Central Bank, two state banks for industry and commerce (BNI and BFV respectively), a newly-established private commercial bank (BMOI), a postal checking and savings system, some very weak credit unions and two insurance companies. In practice, the division between agricultural and non-agricultural credit cannot be rigid. BTM branches serve the whole spectrum of business in localities where other banks are not represented. Sometimes banks pool their resources through consortium credits.

All three state banks (BTM, BNI and BFV) were nationalized in 1975 and were slated for reprivatization by 1988. The process, however, is behind schedule. The banks are still recovering from heavy losses incurred after they were obliged to finance money-losing parastatal enterprises. A large part of these credits became non-performing. As a first step under the structural readjustment agreements with the IMF and World Bank, the banks wrote off their non-performing assets and established a realistic picture of their financial position. The policies which formerly favored the parastatals at the expense of private business have now been reversed. France and the EEC provide financial support for continuing operations.

(?) Informal structures

The informal rural credit system is mainly in the hands of rural storekeepers and collectors of traditional export products-- coffee, cloves, vanilla and pepper. In many cases a single person is both storekeeper and collector.

b. Financial capacity of the system

The commercial banks are not required to supervise credit to small farmers and to bear the heavy costs associated with that function. Once all non-performing assets are fully written off and a sufficient capital base assured, the banking system will be in a position to be self-sustaining. Indeed, considering the country's size and potential for economic growth, one could contend that the system's position may be too comfortable and that additional competition might be in the interest of the system's clients.

Survival of the informal rural systems is, paradoxically, assured as long as the formal system fails to deliver services to small farmers. No more than one percent of BTM's agricultural loan portfolio is devoted to small-farmer credit.

The Ministry of Agriculture, the World Bank and others are now attempting to identify the kind of policy regime to foster financial services for rural areas. They would like to develop financial instruments for rural activities such as crop storage, trade and exporting. They seek ways to create financial services--savings, loans and transfers--for rural residents. But nothing specific had been proposed as 1989 ended.

c. Adequacy of the present system

(1) Capital formation

Madagascar's financial system is not endowed with structures designed to promote capital formation such as investment banks or brokerage houses. The vehicles for capital formation remain informal networks and business relationships which may lead to the creation of partnerships or corporations. At least one of the state banks, BTM, is a shareholder in a number of public and private enterprises. Some of BTM's loans are long-term for the purpose of capital formation.

(2) Commercial credit

(a) Export channels

Export channels--from the small producer to the collector to the exporter--have a reasonably well developed system of financing. The process starts with informal financing of the peasant grower by the collector, who in turn is often financed by the intermediate assembler or ultimate exporter for whom he works. At the level of the major assembler an exporter bank credit comes into play. The firm may enjoy a revolving line of credit secured by stocks in the exporter's warehouse. Once the product is

sold (usually FOB Tamatave), a documentary credit will be granted. A firm may enjoy a certain amount of overdraft if its past record is good.

(b) Large-scale domestic agricultural trade

A large part of BTM's portfolio is devoted to financing large-scale traders and processors of rice and other agricultural staples. This in fact is the bank's main vocation. To what extent small rural traders benefit from these facilities is not clear.

(c) Small-farmer financing

The small farmer depends almost exclusively on informal credit, obtained in most cases on harsh conditions. His credit needs are primarily for the procurement of production inputs and for the purchase of food during the "hungry period" (soudure) before the harvest. A poor farmer may be obliged to sell his crop at disadvantageous prices right after the harvest and later be forced to borrow again for consumption. A desirable cycle of credit would be for production inputs and storage of the crop for periodic sales at favorable prices throughout the year.

Attempts to meet the credit needs of the small farmer have usually failed. It is clear that the subject requires both great patience and more innovative design. To succeed, any attempt must begin on a small scale and proceed cautiously. A World Bank loan to the BTM has been used in part for loans to small farmers. There have been some useful lessons learned. Credit to individuals gave bad results. The supervision necessary to follow each case was too expensive to be a realistic possibility. Without supervision, there was limited repayment. Attempts to work through local administrative authorities in villages were a disappointment as well. They lacked motivation and/or skill. On the other hand, working with small groups (groupements) of no more than 20 farmers who reallocate the loan among themselves and are responsible for repayment as a unit (caution mutuelle) is giving good results. The bank has loaned to some 100 units in the Central Highlands and intends to extend these operations. Grain banks, where grain is stored as collateral, have also provided satisfactory results. They are operated under a "two padlock" formula with the bank and the farmer group each having one padlock on the granary. The BTM has expressed interest in working with NGOs which could efficiently organize and supervise client groups.

A major trading company has created and supervised farmer groups organized to borrow from the BMT for the purpose of purchasing fertilizer. Some 150 groups of 10 to 30 members each have reportedly been created. In this case the company selling the fertilizer has a strong interest in loan repayment and continuation of the system. The same company is helping to organize another credit network for small traders who retail fertilizers and other inputs to farmers.

Worth mention as an on-going attempt to establish a viable credit system for small farmers is the FCACD project started in 1982 with European Development Fund financing and now supported by the national investment budget (FNDE).

4. Private sector provision of inputs and services

The private sector is just beginning to emerge from the shadow of heavy government regulation and control in Madagascar. In the recent past small fabricators of steel plows and harrows, highly skilled in forging and forge welding, were obliged to cease production for lack of steel materials.¹ They still have difficulty finding steel and depend heavily on scrap metal, but conditions have improved. With liberalization, a number of business enterprises have recently appeared but are still in the formative stage.

One such firm, Mafi S.S., imports and fabricates agricultural equipment and farm implements in the region of Lac Aloatra. Toly, created by the Chinese to produce a heavy steel reversible animal plow at workshops in Toliara and Ambatondrazaka, has been transformed into Benin International with 49.5% ownership by private French interests. It has manufactured an IRRI rice thresher introduced in 1985. There is also an Indian family enterprise in Mahajanga (FIF) which makes plows and ox carts.

Other private companies import vegetable seeds, fertilizer, insecticides and veterinary medicines and export agricultural products. The inputs are distributed to regional outlets, but with labels and brochures in foreign languages, as a result of which, potential users apparently hesitate to buy the products. Some regional store managers state that they spend much time explaining their use.

As parastatal enterprises are privatized, businessmen appear reluctant to commit themselves because of the uncertainties of international market prices and their own limited investment capacities. In this early stage of market liberalization, private sector involvement in providing inputs and services is still hesitant and rudimentary.

While there are no private sector institutions offering formal training in agricultural activities, a number of NGOs have agricultural training programs. Several NGOs provide short courses and extension training to farmers. Formal training in agriculture is offered by two training centers under the Agricultural Development Department of the Malagasy Lutheran Church (SAFAFI) and one Catholic training center. In both cases the graduates provide a pool of potential candidates to serve as extension agents for the parent or similar organization, although the main objective is to provide training for young people who will utilize their improved skills in farming.

The largest agricultural training school is SAFAFI's, located near Antsirabe. The training program is of 10 months' duration. The school has a dorm capacity of 85, allowing for female as well as male students. Candidate must pass entrance exams and are required to have a secondary school education and pay FMG 50,000 per year. The training combines classwork with practical

¹Ignacio Manalili (IRRI), "Report on the Study Conducted on Major Markets, Industrial Capacity and Government Policies for Small Scale Rice Machinery in Madagascar." October 1987. "Trip Report." December 1985.

applications. The school has a 110 ha farm which not only allows for demonstration of a wide variety of agricultural techniques but also permits the sale of produce to provide an important source of financing for the school.

The other Lutheran training school, Fhaonana/Vohipeno in southeastern Madagascar, is much smaller with a capacity of 25 students and offers a program of nine months' duration. The school, which has a female director, alternates years for the training of males and females. The training utilizes a 4 ha school farm, using techniques appropriate to the circumstances of average farmers. This school is more reliant on outside funding than the one in Ansirabe because it does not have a profit-making farm.

The Center for Rural Apprenticeship, a residential training center for young farmers under the direction of the Jesuit fathers, is located in Fianarantsoa. This center has capacity for 70 students. The program is broken into a series of modules each year, each module lasting three weeks. A student may be enrolled for only one or for the series. The modules cover crop production, dairy cattle and small livestock and agroforestry. A significant proportion of the time is spent on practical work. Student fees cover part of the cost.

The training centers under SAFAFI and the Jesuit training center receive technical advisory services and financial aid from their parent organizations overseas. The center at Ansirabe receives assistance in the form of veterinary supplies from the Ministry of Animal Production (MPAEF).

While these private agricultural schools have established credible training programs for youth, their capacity is limited and they reach a miniscule portion of the young farmer population. The less formal, short training courses provided to farmers, young and old, by the same organizations have a larger clientele.

5. NGOs in the agricultural sector

There are three types of private non-governmental organizations active in the agricultural sector:

- o Private, non-governmental organizations with programs for farmers and other producers;
- o Cooperatives specializing in agricultural production and marketing, fisheries, consumer goods, transport and storage; and
- o Small groups of producers and merchants.

Among some 235 non-governmental organizations operating in Madagascar, 55 are engaged in crop and livestock activities and 32 have environmental activities such as soil conservation programs. Many of the NGOs have a religious affiliation. Most are French or other European. Catholic Relief Services is the only American NGO with an office in Madagascar.

The World Bank is currently conducting a study to identify and describe all the NGOs in Madagascar. The study should be completed in early 1990.

a. NGOs and the Government

In 1987 the Ministry of Agriculture (MINAGRI) created a division within its Information and Communication Service to serve as a link with NGOs, although the Ministry of Population has responsibility for all NGOs. MINAGRI's policy has been to support and cooperate with NGOs, although it could be better defined and articulated. MINAGRI recognizes that the NGOs intervene more at the village level than it does and have greater flexibility to respond to local needs. The Ministry considers NGOs to be a viable mechanism for reaching farmers. MINAGRI has approved NGOs involvement in seed multiplication, training and publications.

The NGO division in MINAGRI, staffed by three people, participates in NGO seminars and conferences and also organizes its own. It has three types of interaction with NGOs. First, many of the small NGOs seek Ministry assistance in obtaining agricultural inputs. Second, the more established NGOs ask for MINAGRI's technical advice. Third, the non-Malagasy NGOs ask for guidance on the best way to assist Malagasy farmers. The degree of cooperation between NGOs and MINAGRI in the field depends upon the openness of the local offices of the extension service. Some feel that they need permission from headquarters, while others have established working relationships with NGOs in their areas.

The strength of the NGOs lies in their approach to working with villagers and young farmers and in their readiness to test new methods. Many of the small NGOs, however, are weak in planning, monitoring and evaluation. Both the small and the established NGOs are weak in technical expertise. Even the better NGOs suffer from limited access to technical information.

b. Catholic Relief Services

CRS pursues a strategy of promoting and assisting the activities of other private sector non-profit organizations including cooperatives and farmer groups. In the agricultural sector, CRS's specific objectives are to increase small farmer productivity and to improve crop preservation, marketing and management techniques. Priority is given to groups that work together to understand their problems and needs before seeking a technical solution. CRS emphasizes organization and community development. Training and community development activities are aimed particularly at rural women and youth. CRS' interventions tend to be indirect--financing and advising--rather than actually providing services to target groups. The staff numbers only 15, including support personnel.

c. Cooperatives

Although there is a Ministry of Information, Ideology and Cooperatives, individual cooperatives have direct linkages to the appropriate ministry, such as Agriculture or Commerce. A new cooperative law has been drafted, with advisory inputs from ILO, which would place all cooperatives

under one ministry. The proposed law reduces the state's role in the cooperative movement to one of education, training, and technical assistance in management, production and legal matters. If the law is passed, it opens the possibility for a true western-style cooperative movement. Individual cooperatives would be able to seek and receive funds directly from banks and donors and could be totally or partially exempt from various taxes. They could also take advantage of the investment law applicable to small and medium-size enterprises.

d. Small groups of producers and merchants

Under the pilot agricultural extension program of MINAGRI the training and visit (T&V) extension strategy is based on working with groups of farmers. An evaluation of a World-Bank supported pilot T&V program found that although some 4,700 groups were claimed to exist in two extension districts (CIRVA), the actual number of functioning groups was much smaller. The evaluators found that some 19 percent of the groups they visited were fictive. Of the functioning groups, two-thirds were based in the same hamlet and the rest were composed of members of the same family. Only 13 percent of the groups had a common interest such as credit or irrigation. Social relationships were thus the main binding tie. Furthermore, the evaluators found that the cooperating farmers had a higher standard of living than did the extension agent, indicating that above average farmers were recruited for the program.

The Rice Development Operation centered in Ansirabe (ODR) and some of the NGOs have worked with villagers to establish village grain banks, organized on a group basis. More village grain banks will be established particularly in food deficit, vulnerable areas under the new World Bank Economic Management and Social Action Project. Under this project the groups will receive credit with the stored crop serving as a guarantee. The Bank foresees using this concept not only for rice but also for coffee and peanuts.

In the Lac Alalotra area about 20 percent of the farmers in the SOMALAC irrigation scheme, 1,600 individuals, have formed credit groups. SOMALAC extension agents provided the initial stimulation and advice. Seasonal credit is secured for the group from the BTM.

B. Government Institutions and Policies

1. The Government's macro-economic reform program

a. Overview

The Government's macro-economic reform program, which started with liberalization of the rice sub-sector in 1983, aims to restore competitiveness and to induce production increases by relaxing the tight net of restrictions and nationalization measures which had brought about the country's economic crisis. At the same time the GDRM has also taken steps to stabilize the economy by reducing the current account and budgetary deficits which had reached alarming dimensions. A series of devaluations depreciated

the Malagasy franc (FMG) against Special Drawing Rights (SDR) by 86% in nominal terms and 58% in real terms from 1980 to 1988."

The strategy of the program is best understood when seen against the background of events of the last two decades. They can be briefly outlined as follows:

After independence in 1960, Madagascar had a fairly typical post-colonial economy in which the French played a major role." Resentment over this role led to opposition movements in the early 1970s which culminated in the overthrow of the Tsiranana regime in May 1972. An interregnum period ensued. The present Chief of State, Didier Ratsiraka, was Foreign Minister at the time, contending with two other powerful ministers for the succession. He negotiated new agreements with France which called for Madagascar's departure from the franc zone, the withdrawal of French troops and the end of the country's "special relationship" with the former colonial power. There were a number of nationalizations during the interregnum: non-Malagasy entrepreneurs were driven out and French-owned enterprises nationalized. The Government's economic policy in the 1972-74 period has been called one of "state capitalism."

There were internal disagreements about whether to stick with asserting national control over the economy or to move to a more radical change in political and economic structures. Meanwhile, state marketing boards had already demonstrated their ineffectiveness. Quota limitations were placed in imports in 1975, and a black market began to flourish as shortages occurred. Ratsiraka emerged as President in June 1975 after the assassination of his immediate predecessor and a long trial of the accused assassins. On his accession Ratsiraka used the term "socialist revolution" to describe his program. He published the Charter of the Malagasy Revolution, nationalized the French-owned banks and closed an American satellite tracking station.

The regime was not unanimous about economic policy, however. By 1977 one faction wanted a state-run economy while another advocated turning nationalized industries over to Malagasy entrepreneurs. Disastrous policies were adopted in 1978. The Government announced it would pursue a policy of all-out investment and was prepared to borrow externally from any source. It has been noted that the World Bank may have encouraged aggressive borrowing in reports it circulated at the time. The price of coffee was then at an all-time high, the balance of payments was positive and government revenues had increased after nationalization. Investment was badly needed, it was argued,

"For a thorough discussion of the macroeconomic and sectoral reforms and the degree to which they have been successfully implemented, see Richard P. Harber, Jr., "Madagascar's Economic Reforms," USAID/Madagascar, October 1989.

¹³This paragraph and the following three are based on Maurenn Covell's excellent book, Madagascar: Politics, Economics and Society. London: Frances (Publishers), 1987. pp. 48-69.

because there had been little or none since the turmoil of 1972, agricultural and industrial production had stagnated or declined, and infrastructure had deteriorated.

The education system and the armed forces were major beneficiaries. There were also agricultural and industrial projects such as soybean production, textile mills and a fertilizer plant. Most loans were on hard commercial terms. Many of the investments failed (see Chapter 5, Table 16b).

As significant chunks of property were nationalized and state enterprises established in agricultural production, processing and marketing, the state became a very sizeable economic operator. Both the public and the private sectors were subjected to restrictive regulations which frustrated market signals and prevented economically efficient operations.

The not-surprising effects were not slow to follow: discouragement of individual farmers; inefficiency and losses in state-owned enterprises; a fall in production and incomes; loss of self-sufficiency in rice; decline in exports; shortage of foreign exchange and the resulting inability to import critical production inputs. Financial hemorrhage and administrative passivity led to neglect of agricultural infrastructure, research, training and extension. This, in a vicious circle, further impaired the country's productive capacity and competitiveness.

By 1982, external debt had increased over fourfold since 1978 to \$1.4 billion, and debt service represented over one-third of export earnings. With a 10% decline in per capita GNP, inflation at 30% to 50% annually, and rice imports attaining the unimaginable level of 350,000 MT per year, Madagascar's economy was in full-blown crisis.

The rescue operation of structural-adjustment programs for the economy as a whole and for individual sectors have been financed by the World Bank and IMF with support from USAID and other major donors. There are two major directions:

- o Complete lifting or at least a significant relaxation of regulations which have prevented a free response to market signals by economic operators; and
- o Restructuring or privatization of public enterprises.

As of the fall of 1989, the accomplishments of the structural adjustment programs appeared to be mixed:

- o A relaxation of restrictive and arbitrary regulations affecting private sector production, internal commerce, foreign trade and foreign-exchange operations has been already accomplished; and
- o The progress of privatization is slow and seemingly behind the time-table established by the Government in consultation with the World Bank and IMF. Numerous parastatal enterprises still operate. Their sale to private interests or outright liquidation

poses many difficult problems which probably were not sufficiently anticipated when the commitment to prompt privatization was made.

The objectives and strategy of the Government's macroeconomic reform program have been stated in a succession of documents which reflect the conclusions of the policy dialogue between the Government and the World Bank. The total amount of credit to be made available to the GDRM in the course of implementing these structural adjustment programs is in the neighborhood of \$322 million.

Although the principle of the reform is simple, the specific objectives are numerous. A brief review of these objectives follows.

b. Restoration of property rights and economic freedoms

(1) Freedom of economic activity and contracts

With the exception of export trade in vanilla, this freedom has been restored. This is a very important improvement, considering that wholesale trade in rice was for a number of years the preserve of a parastatal, and the export of coffee and other traditional commodities was administered by a government board. Whether village commerce is entirely free of restrictions imposed by local administrative units is even now not certain. However, these issues are hard to settle through broad macroeconomic reforms.

(2) Freedom of price determination

This freedom has been restored, and private enterprises are no longer regulated in this respect. Again, the vanilla trade is an exception. The government still retains a degree of influence on prices for goods produced by parastatals (e.g. for rice sold by SOMALAC). It determines mark-ups on grant fertilizer received from foreign donors and distributed through commercial channels.

c. Curtailment of the role of the State as economic agent: privatization of public enterprises

As mentioned above, the record under this heading is mixed. A survey of over thirty large public enterprises by Coopers and Lybrand suggests that many large units with plantations and processing plants (palm oil, cashew nuts, etc.) could become profitable only at the cost of substantial management overhaul and/or capital investment. On the other hand, some trading companies are doing quite well and now operate like private enterprises.

d. Major economic policies

(1) Taxation of agricultural exports

Export taxes have been considered a major disincentive to small farmers--growers of coffee, cloves, etc.--who ultimately bear the burden. At the same time, they are an important source of public revenue. At

present, a number of products have been exempted from export levies. Of the two remaining products, cloves are heavily taxed at \$1.00 per kilogram, which is about half of the current F.O.B. export price of around \$2.00 per kilogram. The tax on coffee is calculated on a sliding scale and may reach nearly 40% of the F.O.B. price when that price is high. At present, due to the very low price, it is not operative.

(2) Import and foreign-exchange policies

(a) Foreign exchange for imports

After the years of an acute foreign-exchange shortage which made it impossible to import critically needed production inputs, the structural-adjustment agreements included a devaluation, in installments, of the highly overvalued Malagasy franc (FMG). Once a realistic exchange rate was set, Madagascar was accorded substantial IDA credits to meet pressing import needs. The relief came in two steps:

- o The "Liberalized Import Regime" (LIR), under which the discretionary granting of import licenses was eliminated for essential goods and replaced by pro-rata allocations of available foreign exchange; and
- o The "Open General Licence" (OGL) system, under which requests for foreign exchange for all goods are satisfied at a rate that is supposed to clear the market.

Foreign credits and grants have made it possible to cover import needs with the foreign exchange available. The need for continuing financial relief in the form of new credits and grants and the rescheduling of debt is expected to persist for a number of years to come.

Dr. Richard P. Harber of USAID/Madagascar has raised the question of whether the effects of the last devaluation in 1987 are being eroded due to the differences in the rates of inflation of Madagascar and its trading partners. If so, pressures on the balance of payments will increase unless further measures are taken. However, the local press has recently been critical of the 1987 devaluation, maintaining that the negative effects appear to surpass the positive.¹⁶ Public receptivity to further devaluations may be limited.

¹⁶See, for example, Dans les Media Demain of 21 November 1989, pp. 18-19. Several of the negative effects mentioned in this "point de vue" (e.g. increased importation of luxury goods, black market in foreign exchange, decrease in export volumes) are the opposite of those anticipated by economists.

(b) Foreign exchange earned by exports

Foreign exchange earned by exporters must be surrendered to the Central Bank within 90 days of the shipment. This is a serious restriction, which is discussed in another section.

(3) Salvaging the credit system

As the structural adjustment programs were launched, the nationalized banking system was practically bankrupt because of non-performing loans to money-losing state enterprises. Details of remedial measures are discussed under a separate heading. While major enterprises--mainly importers, exporters and large plantations--seem to be served adequately, credit for small farmers remains almost non-existent. This weakness in the country's economy is now under study by the Government and by donors.

e. Framework of incentives

(1) Investment code

A draft revision of the investment code was being submitted to a special session of the People's National Assembly on 10 December 1989, the day that the assessment team left Madagascar. It was the published intention to have the new code adopted within eleven days.¹⁷ The original code of 1973, enacted in a climate of nationalization and restrictiveness, had been a disincentive to direct foreign investment. A revision in 1985 removed some but not all of its shortcomings. The 1985 legislation did at least guarantee compensation in cases of nationalization, guarantee the transfer of dividends and invested capital and provide tax holidays and customs duty exemptions in certain cases.¹⁸ The 1985 code also provided for equal treatment of foreign and domestic investors.

The draft legislation being discussed in the Assembly attempts to redress disincentives that remained in the 1985 legislation. In the old text, for example, to qualify for fiscal privileges a project must "contribute to economic development," a vague concept lending itself to subjectivism and abuse. The proposed version introduces a system of rating proposals according to such criteria as job creation and the use of domestic inputs. This modification aims at objectivity but introduces complexity into the evaluation of a request.

An irksome requirement of employing two Malagasy executives for each foreign executive has been dropped in the draft revision. On the other hand, it does not address the difficulty that foreign investors have experienced in

¹⁷Article in Midi Malagasy, 8 December 1989.

¹⁸See Harber, op. cit., pp. 26ff.

terminating the employment of persons who have worked for more than six months. This matter is to remain regulated by the provisions of national labor laws.

(2) Free trade zone legislation

Draft legislation to create a free trade zone was introduced at the same special session of the Assembly and was expected to be approved within eleven days. Inspired as it may be by the success of Mauritius, this kind of industrial free trade zone could make eminent sense in Madagascar. According to its drafters, the legislation will offer special encouragement for the export of processed products based on agricultural raw materials. There was some indication that firms did not have to be physically located within a free trade zone to qualify under the proposed statute.

A newspaper article appearing just as the draft legislation was introduced indicated its probable content.¹⁹ The Government's objectives are the natural ones of increased employment and higher foreign exchange earnings. To qualify, enterprises would have to create at least 50 new jobs for Malagasy workers in the first year of operation. Employment of expatriates in excess of 5% of total staff would have to be justified. All investment and local costs would have to be financed with foreign exchange. The law would give complete tax and customs duty exoneration to imported equipment, spare parts, packaging, semi-finished goods, computers, office furniture and supplies. Exported goods and services would also be exempt. One category of enterprise would have a 12-year tax holiday on profits and would pay at the rate of 10% thereafter, rather than the standard 30%. A second category would have a tax holiday for five years (industrial firms) or two years (service providers) and thereafter would pay taxes of one percent of the FOB value of exported goods or services.

f. Impact to date of the reform program

(1) Overall economic effects

The upsurge in economic growth which was expected to follow structural adjustment measures has been slow to arrive. In fact, real per capita GDP declined slowly but steadily from 1982 to 1988. In constant 1980 prices it fell from FMG 66,872 in 1982 to FMG 58,810 in 1988, a decline of 12% or an average of 2% annually. The inflation rate, which fell to almost 10% in 1985, surged to over 26% in 1988.²⁰ Popular dissatisfaction with the economy, with the 1987 devaluation which is blamed for high inflation and with low salaries is widespread. Sensitive to these grumblings, the Government maintains that the picture brightened considerably in 1989. Official statistics state that inflation fell to 10% while nominal GDP growth rose to

¹⁹Ibid.

²⁰See Harber op. cit. pp. 18-19 on real per capita growth and inflation.

13.9%.²¹ If true, this would have been the first rise in real per capita GDP in the decade. Further confirmation is needed.

(2) Domestic food supply

Two all-important items under this heading are the production and prices of rice. The initial impact of the rice reform program was undeniable and positive for many producers and traders, though not for consumers. Price liberalization and opening the trade to all comers resulted in an increase in the number of rice millers and truckers, a sharpening of competition among rice merchants, better farmgate prices and higher incomes for rice farmers, particularly in the Lac Alaotra zone. These results in turn induced purchases of equipment and fertilizer by farmers.²² Price differentials between surplus and deficit regions of the country tended to decrease: another sign of intensified competitiveness in the market. There were signs, however, that larger farmers were benefiting more than the smaller ones and that land ownership became more uneven.

The positive effects were to some extent attenuated by untoward measures taken by the authorities. The domestic market was destabilized by a reduction of imports which caused shortages and drove prices above world market levels. To reduce imports in a controlled way, the Government then created a buffer stock with World Bank and other donor assistance. This very positive step was undercut seriously by the Government itself. In 1986, it sold large quantities of donated rice from the buffer stock at less than market prices, causing a long-lasting fall in prices which discouraged farmers and resulted in losses for many traders. Full recovery of prices came only in 1989.

Another factor which limited the full impact of price incentives has been the poor state of many irrigation systems. Farmers hesitated to invest in fertilizer and to hire labor without being sure that a sufficient water supply would be available.

The Government's objective with regard to rice, supported by major donors, is to reach self-sufficiency in 1990 and even to become a net exporter once again. In late 1989, with the price of rice becoming more remunerative to the farmer, it appeared that that objective was not beyond reach.

(3) Export crops

Reopening of this trade to private firms and individuals has resulted in the reactivation of old trading companies as well as in an inflow of new traders seeking to find access to foreign markets. The

²¹See Midi Madagaskira of 23 November 1989, p. 4, and Dans les Medias Demain of 5 December 1989, p. 23.

²²See various reports and articles by Elliot Berg, e.g. Report on the Economic Reform Program in Madagascar. USAID/Madagascar, October 1987.

traditional exports, above all coffee, suffer from poor prices, increased competition (from Indonesia in the case of vanilla and cloves) and a stagnation, even decrease, of demand. These factors vitiate much of the positive impact of the reform program.

On the farm level, there seems still to be confusion as to the meaning of the new free-market system of price determination. Certain official statements have been interpreted by farmers to mean that there exists an official floor price. It will take more time for a full understanding of the market system to take hold.

In the field of non-traditional exports there is evident interest in resumption of banana exports, expansion of litchi and other fruit exports, shipping green beans, processing of vetivert essential oil, producing cut flowers and other opportunities. Shipments of maize to Reunion island have already taken place and promise to continue. There is a minor boom (possibly with damaging effects for forest resources) in the export of wood to Reunion for further processing.

(4) Trade in agricultural inputs

This trade remains modest. The large farming parastatals are in a contraction phase and no longer enjoy their former privileged position in obtaining credit from the state banks. The small farmer is still financially too weak and too well aware of risks to buy fertilizers and pesticides on a large scale. The major parastatals operating in cotton, sugar cane and tobacco growing remain the only important consumers of these inputs, either for direct use on company-run plantations or for distribution to small farmers who grow their crop.

Nevertheless, several small firms have been created to trade in inputs since the field was open to private trade. For the moment these firms mainly subsist as distributors of fertilizer allocated by MINAGRI from the gifts of foreign donors. It is not certain how many of them will survive in the future fully competitive market.

(5) Attitudes and expectations in the private sector

Although no rigorous survey has been made, our conversations with business people have left no doubt as to their great satisfaction with the program of liberalization. A recurring complaint among the old-line traders is that the newcomers disrupt regular business and may even damage the reputation of Malagasy products when they export. It is difficult to know to what extent these accusations are well founded and to what extent they express annoyance with intensified competition.

(6) Thoroughness of the reform in the public sector

While great changes have taken place in legislation and policies in the public sector, reform cannot be considered complete. The agricultural sector has probably undergone the most sweeping change and presents a far different visage than it did in 1982. The main constraints now

appear to lie not within the sector but outside it. Fuller implementation of reform in transport, communications, finance and macroeconomic policy will benefit the sector more profoundly than would concentration on further reform in the sector itself, as warranted as that may be in two or three cases.

There remain unresolved issues, an important one being that of the future of public enterprises. While agreements between the Government and the World Bank call for a speedy progress on the privatization of some and the liquidation of others, the Government talks of creating an environment favoring greater expansion of parastatals.

A contradiction to the promulgated policy of allowing prices to reflect the full cost of goods and services used in production is the continued existence of ad-hoc subsidies, large or small. For example, Arabica coffee seedlings are distributed among farmers at a price equivalent to 44 of the cost of producing them. As another example, the retail price of wheat flour, certainly not a staple in this country of rice and cassava, covers only about 90 per cent of the cost of production at the state-owned flour mill. Donors are also guilty of perpetuating subsidies that are inconsistent with the spirit of reform.

(7) Environmental effects

Although very difficult to quantify, it seems that the combined effects of the macroeconomic reform program and the fall in the world market prices for coffee, cloves, vanilla and other East Coast cash crops is resulting in a significant movement of East Coast farmers out of the cash economy back into subsistence slash and burn agriculture. Most small farmers on the East Coast have both small permanent fields of coffee trees and other perennial cash crops and temporary, shifting fields where rainfed rice and other food crops are grown for their own consumption. The perennial cash crop production systems tend to be environmentally sustainable with relatively few adverse effects. The shifting tavy cultivation of rainfed rice is probably the least sustainable, most environmentally destructive cropping system on the island.

Until recently, cash crop producer prices tended to be attractive for small farmers and the consumer price of rice was strongly subsidized by the government. East Coast farmers adopted a strategy of increasing cash crop production and purchasing much of the rice they needed at the low, subsidized price. But producer prices for vanilla, cloves and, most importantly, coffee have all decreased as rice prices have risen.

Faced with this situation, most farmers' only alternative is to increase their subsistence level production of tavy rainfed rice and other annual food crops. The short-term effects of the macroeconomic reform program on the East Coast seems to be aggravating an already environmentally critical situation. There are definite ecological limits to the extension of tavy cultivation; there is only so much land. At present the situation seems to be getting worse at an increasing rate.

2. Effectiveness of sector policies

a. Effects on different segments of the population

(1) Food crop producers

Liberalization of marketing of rice and other food crops combined with a major devaluation of the Malagasy franc in 1987 redistributed returns to production. Rice used to be the cheapest source of the daily caloric needs of the population. A study in 1983, when rice sold for FMG 165 per kilo and large quantities were imported, shows that the price per ration of daily calorific needs was FMG 143 for rice, FMG 324 for maize, FMG 380 for cassava and even higher for sweet potatoes and bread.²³ Demand for other food crops was stifled. Currently maize is the cheapest source for meeting daily calorific requirements.

The increase in the price of rice compared to other staple crops has led farmers to expand dryland rice cultivation and to produce maize and other staple crops to help meet their domestic food needs. Poorer households usually have hillside land but little or no irrigated bottomland, and hence the pressure is particularly acute on them. Rice producers have benefitted from the liberalization of rice marketing, although to a varying extent as the price has fluctuated and the cost of inputs has risen. Producers are tending to sell more of their crop as milled rice to get some of the value added and to recuperate subproducts for domestic animals or to sell to the miller to offset milling costs.

(2) Millers

The decontrol of milling resulted in numerous small to medium size mills being installed in rice producing areas, especially those with surplus production. In general the owners are retired civil servants, farmers and traders who used personal savings to establish their mills and who operate them as family enterprises.²⁴ In some areas there has been great competition between millers. Farmers have benefitted from extended services by competing millers and, to a much lesser extent, lower milling charges. For example, in the Andapa-Sambava region, where road conditions are poor, some mill owners allow farmers to store sacks of milled rice until a transporter/trader arrives to buy them. In other areas the mill owners

²³J. Peitre-Wurtz, ORSTOM, "Rapport de mission á Madagascar," Mai 1984.

²⁴ M. RAJAONESY, "Stratégie de sivi et de développement de l'énergie hydromécanique á Madagascar," USAID, August 1989.

purchase paddy or even milled rice from farmers, often on prior agreement with a large trader.²⁵

The decontrol of milling resulted in an increase in the number of authorized mills from 999 in 1983 to 2,119 in 1987. In 1985 the Government suspended authorization because of the high degree of competition but this edict was unevenly enforced. Currently the right to establish a mill is given only to groups of farmers, and it is to be managed as a cooperative.

The growth of mills in rural areas has reduced the use of the large-scale parastatal mills which give a higher outturn of milled rice from paddy than the smaller mills, which have 6-7% greater losses.

(3) Traders

Several types of traders are now involved in rice marketing. Operating on a large scale, usually with their own vehicle fleets, are large companies (private or parastatal) and individually owned firms. On an intermediate scale there are local assemblers who may own a mill or general store, who may serve as an agent for a company, or who may be self-employed. Itinerant traders are in this group. On a smaller scale are retail shops which sell rice by the bag or kilo and open air sellers or producers who sell by the tin, which holds about 350 grams.

Many of the big companies or firms have access to credit and storage facilities. However, after they absorbed large losses from the release of buffer stock rice in 1987 at less than market prices, big traders have tended to turn their stocks over quickly because of uncertainty in predicting the retail price. The medium size traders tend to use their own funds or obtain loans informally, to move stocks quickly and to depend on hired trucks. It is alleged, probably correctly, that most of the medium and small scale traders do not pay the requisite fees and taxes.

The number of registered rice assemblers/traders increased from 124 in 1982 to 230 in 1987. It is estimated that only 10% of all traders are registered. Licensed retailers in Antananrivo increased from 4,000 in 1982 to 9,000 in 1987.

(4) Coffee Producers, Traders, Processors

As a result of devaluation and low costs of production, Malagasy coffee is thought to be among the most competitive in the world.²⁶ According to the FAO report cited above, MINAGRI has estimated production costs for Robusta at 30 US cents per kilo, which compares favorably

²⁵ C. Rabenarivo, reports on rice market liberalization for USAID/Madagascar, 1988.

²⁶Much of the following is based on FAO, op. cit., pp. 24-29, 37.

with about 45 cents in Cote d'Ivoire and 50 cents in Cameroon. Collecting and marketing operations add about 15 US cents in costs so that the FOB price in Toamasina would be about 45 cents per kilo if there were no export tax. This is considered very competitive. Taxes are high, however, and complicated. Better quality coffee is taxed at a higher rate than lower. There are three distinct taxes:

- o Droit de sortie--FMG 19/kg;
- o Taxe conjoncturelle d'exportation (TCE)--10% of FOB value before tax;
- o Variable tax, based on the "reference price," which rises one-half percentage point for each cent rise in the reference price (i.e. it is levied at 23% when the reference price is 75 US cents and at 23.5% when it is 76 cents.)

FAO experts consider the variable tax particularly ill suited for reference prices that are high (over \$1.05) and low (under 60 cents). They recommend that there be a ceiling so that a higher percentage of the world price goes to producers.

CAVAGI, the state marketing board for coffee, vanilla and cloves, had a monopoly on coffee exports from 1984 to 1988. It set prices at various levels in the marketing chain, prospected for foreign buyers, selected an export firm, and collected statistics. Liberalization abolished fixed prices and authorized the private sector to sell coffee to anyone. CAVAGI itself was supposed to be abolished in September 1989.

The liberalization of coffee and other cash crops has occurred shortly before a drop in international prices and demand for these products. Robusta coffee producers and middlemen in the Southeast seem discouraged, and it appears that relatively few have joined the ranks of middlemen, many of whom are of Asian origin. There is fierce competition among processors and exporters. There are five parastatals and about 30 private companies vying with each other for market shares.

b. Effects on food security

The implementation of policies aimed at increasing production and improving marketing of food have had an uneven impact, depending on the agroecological region and the economic status of the household. Agroecological conditions may limit local production and affect the availability of food. The situation may be compounded by market imperfections arising from two main sources: poor communications and transport, and merchants' lack of capital to invest in working stocks.

For example, food security problems arise in isolated areas of the East Coast. About ten middle-sized urban communities along the coast are not well connected or not at all connected by surface transport, and they undergo an annual cycle of food scarcity. Within the rural areas on the Southeast coast, where households are unable to meet their domestic needs, poor communications

affect the availability and price of food. The price of a kilo of milled rice often rises above FMG 700. This is well above the official trigger price for the release of buffer stocks, FMG 450. A World Bank report estimates that about one-third of regional food insecurity arises from market imperfection or failure.

Table #4 shows that the per capita availability of rice and total calories from local production is lower in Antananarivo and Toliary than in other administrative regions. In contrast with Antananarivo, Toliary is further disadvantaged due to its distance from surplus production areas.

The ability of households to satisfy domestic needs from their own farms and their purchasing power influence household food security. Often poor farmers secure advances from traders to meet cash needs, including credit for food purchases prior to the harvest season and are obliged to sell the crop immediately after harvest at a low price. This occurs not only with food crops but also with cash crops.

No data exist on intrahousehold allocation of resources and the extent to which this affects food security.

Existing data do not permit an adequate identification of the areas where household food security is most vulnerable. Nevertheless, a variety of indicators imply that the real income of many producers who are also consumers has declined in recent years and that the food security status of some vulnerable groups has deteriorated. Concern about the seriousness of the problem has led to a variety of actions. Since February 1989 a national program of food and nutritional surveillance has been established in MINAGRI, with assistance from UNICEF, FAO and WHO.

Moreover, the recently initiated Economic Management and Social Action Project (PASAGE), financed by the World Bank, includes pilot operations aimed at improving food security. Village-level storage schemes will be implemented to assist with marketing of crops, allowing the producer to obtain an advance against the stored crop and to sell when the price is advantageous. The advances against the stored crops will enable vulnerable households to purchase their requisite food needs. This project also includes support for labor-intensive road construction in targeted areas. It will strengthen the Government's capacity to conduct and analyze household surveys regularly and to appraise food security and poverty alleviation projects. In addition, development projects such as ODR and individual NGOs are increasing their support for the establishment of village grain banks.

3. Public sector institutions

a. Agricultural research

FOFIFA, the National Center for Applied Research for Rural Development, was created in 1974 after the departure of French agricultural and forestry research institutes. Originally under the administrative control of MINAGRI, it is now part of the Ministry of Scientific and Technical Research (MRSTD). Its mandate covers forestry, livestock and fisheries as well as agriculture.

Table 4: Regional Food Availability from Local Production *

| | Mad Total | Tana | Fian | Tam | Maha | Tol | Ansi |
|-------------------------------------|--------------|------|------|------|------|------|------|
| % Population | 100 | 30 | 23 | 15 | 11 | 14 | 7 |
| % Production | | | | | | | |
| -rice | 100 | 20 | 26 | 25 | 15 | 7 | 7 |
| -cassava | 100 | 18 | 49 | 11 | 51 | 5 | 2 |
| -maize | 100 | 53 | 11 | 8 | 91 | 7 | 2 |
| Per Cap. Rice Prod. (kg)** | 136 | 89 | 152 | 229 | 179 | 74 | 140 |
| Crop calorie*** avail/person/day | - | 1147 | 2225 | 2360 | 1789 | 1147 | 1327 |

* Based on MINAGRI 1987 production data, with approximately 90% of the fivondronana reporting.

** Using 60 percent conversion rate from paddy to rice.

*** Based on local production of rice, corn, cassava, potatoes and sweet potatoes, net of the amount of harvest saved for seed and animal feed and other losses. Does NOT include a proxy for dairy products which are largest contributor to calorie intake after cereals and roots/tubers.

Source: Lynne Sherburne-Benz, Poverty Alleviation in Madagascar: Country Assessment and Policy Issues, August 1988.

Left on its own in the latter 1970s, FOFIFA did not have the resources or capacity to carry on the French programs. It was obliged to abandon a number of research activities and reduce others. By the early 1980s the Center's wide network of field stations was simply trying to survive with no support or direction from an isolated and overstaffed headquarters in the capital.

This damaging situation has begun to be rectified with help from the International Service for National Agricultural Research (ISNAR) and the World Bank. ISNAR contributed to a reorganization of the agency. Before 1984, FOFIFA was organized along disciplinary lines. The new organization is multi-disciplinary in approach. The agency aims to carry out applied research, focusing on specific regions and on farming systems in their entirety. It now has four broad research strategies:

- o To seek appropriate new technologies in response to farmers' needs;
- o To diversify crops and integrate livestock;
- o To give high priority to on-farm soil conservation; and
- o To focus on food security research.

With technical assistance from the World Bank, FOFIFA took several other steps toward reviving itself as a functional research agency. It reduced staff from 1,500 to 1,140 (current staff is 1,185); improved financial management to the point where its accounts were certified by an auditor for the first time in several years; and began preparation of a 15-year Master Plan for agricultural research, which was completed in 1988. The Bank contributed further by financing a retrospective compilation of the results of research done before the departure of the French. These "Bilans" for a variety of crops will soon be published and will serve as background material for an international symposium on agricultural research in Madagascar.

The Master Plan (Plan Directeur de la Recherche Agricole) lays out 17 research programs for implementation during the plan period. These cover: rice, corn, tubers, groundnuts, cotton, sugar cane, coffee, vanilla, pepper, meat and milk, inland fisheries, agricultural technology, farming systems, soil conservation, fuel wood, industrial woods and natural forests. Only 12 programs are currently operational of which six are fully funded (rice, meat and milk, farming systems, soil conservation, fuel wood and industrial woods.)

From the Master Plan has emerged an initial tranche for implementation, a seven-year National Agricultural Research Program (NARP). The World Bank, profiting from the experience gained in its earlier institutional support project, has approved a new credit for FOFIFA to help carry out the seven-year program. Entitled National Agricultural Research Project, it is intended to:

- o Strengthen FOFIFA as an institution;
- o Improve research quality and applicability;

- o Develop human resources; and
- o Rehabilitate and expand installations and equipment.

The project will address the weakest link in agricultural research, the field stations. FOFIFA inherited 31 research centers from the French Institutes with a total area of 12,500 hectares, but only 925 hectares were actually cultivated for research purposes. The network is still managed directly by the research departments in Antananarivo with limited coordination between them. Seventy-one percent of research staff live and work in Antananarivo with limited funds to visit outlying stations. Many centers are too large to be maintained under FOFIFA's budget. The important station at Lac Aloatra (Cala), for example, had an annual operating budget of FMG 70 million in 1989, but this was only FMG 10 million more than the 1983 budget despite high inflation in the interim.

Plans have been made to close a number of stations and layoff 20-25% of the non-research staff (who now outnumber the research staff by 16 to 1). This slimmer organization will then concentrate its resources on priority areas identified by the Master Plan. The intention is to decentralize research management to eight regional centers which will supervise the activities of four stations and six sub-stations in the country. At present only the Cala station has been designated as a Regional Agricultural Center.

Research-extension links are to be strengthened. FOFIFA has been criticized for its poor record in disseminating research findings to farmers. Part of the blame lies with MINAGRI's extension service, but more lies with the lack of familiarity of FOFIFA's research staff with on-farm needs and conditions. Researchers are aware of this problem and research designs are now focusing more on on-farm trials and farming systems analysis.

Most of FOFIFAs' laboratories and agricultural equipment are either out of service or ill suited for research purposes. Equipment must be replaced and buildings rehabilitated. Fortunately, some of these needs will be met by the new World Bank project. West Germany (GTZ) is financing a vaccine laboratory in Antananarivo as well as some facilities at the Cala station.

Since 1985 USAID has played an important role in the revival of FOFIFA as a viable contributor to the sector. With USAID funding, the national institute re-established links with the International Rice Research Institute (IRRI). Two IRRI technicians screened Malagasy rice varieties and conducted local trials of IRRI varieties. USAID also funded training of Malagasy staff and construction, rehabilitation and equipping of a facility for FOFIFA's newly-created Department of Rice Research at Mahitsy, 30 km from Antananarivo.

b. Agricultural extension

The national agricultural extension service is under the authority of the Directorate of Agricultural Extension (DVA) in MINAGRI. Weakened by lack of resources, hampered by the low level of training of many of its agents and unable to obtain viable technical packages from research, the national service went into stagnation if not decline for several years.

The list of problems was a long one. Objectives have been unclear, planning inadequate and supervision lacking. Field staff, who are poorly trained in general, are very difficult to coordinate from Antananarivo given the lack of transport and communications support. Extension agents have not been considered helpful by farmers. They are criticized for not being well integrated into rural life. Motivation and morale are generally poor due to a combination of low salaries and low status.

In areas where donor-financed projects are operational (e.g. ODR, PPI, ODASE, FIFABE, SOMALAC), there are extension agents from these organizations who are demonstrably more effective. They are much more mobile and useful, receiving transportation and logistical support from the projects. They often have access to research results from the project's own trials. These agents fall under the administrative control and supervision of project officers, not MINAGRI/DVA.⁷

It is not surprising that DVA desires an overall reorganization of the present structure to revive the national service and link it closely with research. The need for much closer liaison between extension agents and FOFIFA researchers is widely acknowledged. The head of the Extension Directorate readily concedes that for lack of technical packages to extend, his agents have emphasized a greater understanding of the farmer's environment. Instead of discussing varieties and inputs they limit themselves to counseling good soil preparation, proper spacing, weeding and timely operations. He would like them to work with FOFIFA staff on demonstration plots once extendable messages are available.

The World Bank began to seek a way to improve extension when it assigned an extension advisor to the Ministry of Agriculture in 1984. The Bank then espoused the idea of a massive study of extension activities and their problems, to be followed by the creation of a master plan which would act as the counterpart to the research Master Plan. Resistance within the ministry doomed the study, however. In 1987 the Bank and MINAGRI jointly decided to try the Training and Visit System in three extension districts (CIRVA) around the capital. The districts are those of Antananarivo, Miarinarivo and Moramanga. The first year's activity concentrated on testing the knowledge of extension agents and conducting surveys to understand the local areas. This pilot project was a prelude to a larger but still experimental project that was appraised by the Bank in September 1989. If the new project has some success, it could become the precursor of a revived national extension system based on T&V methodology.

⁷The slicing away of extension districts (CIRVA) from the national extension service can be seen in the faritany of Fianarantsoa, where the service had six CIRVA prior to 1983. In that year one was moved to ODR Antsirabe. In 1986 three more on the East Coast were given to ODASE, and in 1989 the CIRVA of Fianarantsoa itself was handed to ODR, which was expanding to the south. This left MINAGRI/DVA with only the poorest district, Ihosy.

The World Bank will add new funding to allow DVA to introduce the T&V system in the three present CIRVA and in a fourth (Ambatondrazaka, near Lac Aloatra). The project will last three years and provide \$6 million. Its principal objectives will be:

- o To complete local studies, install demonstration plots and conclude formal agreements with FOFIFA researchers;
- o To strengthen liaison between FOFIFA staff at the Cala station and extension agents in the CIRVA of Ambatondrazaka;
- o To acquire experience in order to prepare a National Agricultural Extension Plan for MINAGRI;
- o To examine the possibility of a progressive integration of the extension services sponsored by different projects and organizations;
- o To work closely with FOFIFA on the National Agricultural Research Plan through farming systems research, crop trials on farmers' fields, and research on off-season crops as well as rice;
- o To support the National Environmental Action Plan with particular attention to watershed protection, agro-forestry techniques, soil conservation, and integration of livestock;
- o To enhance the mobility of extension agents; and
- o To improve the training of extension agents.

c. Other public sector research and extension organizations

Parastatals and regional development authorities play a role in agricultural development in Madagascar as they do in most Third World countries. The following list is not exhaustive but contains most of the principal organizations.

COROI is a multi-faceted parastatal being considered for privatization. The company is involved in the production of cacao and coffee, plantation management, exportation of agricultural produce, and the import, storage and distribution of agricultural inputs, particularly fertilizer.

FIFABE is an irrigated rice production project at Marovoay near Mahajanga and is financed by Germany. The project covers 17,000 ha of rice fields on the flood plain of Betsoboky and 3,000 ha on the Madirivalo plain. FIFABE maintains the irrigation canals and provides extension services to farmers. The project is attempting to organize farmers into production units and water users associations in order to transfer to them the responsibility for canal maintenance, water supply and input purchase. FIFABE has a rice mill. The project surrendered paddy marketing to the private sector after liberalization. IRRI has conducted varietal tests of rice in Marovoay.

FIFAMANOR is a successful agricultural and livestock project supported by Norway. Located near Antsirabe, it has two stations: Armor for dairy production and Mimosa for wheat, potato and forage crop production. The project produces seed for these crops and has research, extension and training components.

HASYMA, the Office Malagache du Coton, is a parastatal responsible for cotton production. Having taken over from CFDT, the French cotton specialists found in many francophone countries, HASYMA has assumed responsibility for input supply and the marketing and ginning of seed cotton. Some consider HASYMA to have the best extension service run by a parastatal or project.

MALTO is the organization that produces barley to make malt for the STAR brewery. The organization's target is the production of 14,000 metric MT of barley in 1990. Private investors have majority ownership (51%), with the Government holding 49%. In operation since 1981, MALTO has an office in Antsirabe and a seed farm a few kilometers north on the High Plateau. Production at the seed farm is mechanized. In 1989 over 1,800 local farmers produced barley for the company. A modular malting plant is under construction and expected to be in production by 1991.

MAMISOA was created during the all-out investment period for soybean cultivation and oil production. Its ambitious objectives included 40,000 ha of pure stands of soybeans to be farmed by small and large producers, along with 9,600 ha to be cultivated directly by MAMISOA. An oil mill was built with a capacity of 300 MT per day. Current production on 1,600 ha is sufficient for only seven days of operation annually.

OFMATA, the Office Malgache du Tabac, is a parastatal in charge of tobacco production. This organization has carried out research and extension activities for tobacco production. Free seed distribution to farmers and varietal selection are major activities. OFMATA's production areas are at Mahajanga, north of Antananarivo and at Fianarantsoa.

ODASE is a regional development authority for the Southeast, established in 1986 with funding from France (Caisse Centrale). It took over the three southern CIRVA on the East Coast (Mananjary, Manakara and Farafangana). In late 1989 an evaluation of the project's first three years was underway. It was anticipated in some quarters that there would be a reorganization since there had been excessive centralization of control.

ODR, formerly an acronym for Operation de Developpement Rizicole, ODR now stands for Operation de Developpement Rural. Activity has expanded from Antsirabe to Fianarantsoa. The original objective of ODR was to increase rice production in the Antsirabe region with financial assistance from IFAD (International Fund for Agricultural Development). ODR activities include:

- o Organizing farmers into producer groups and water users associations on small irrigated perimeters (PPI);
- o Training farmers in rice production techniques;

- o Promoting the production of secondary crops; and
- o Carrying out research trials to test rice varieties on farmers' plots jointly with IRRI (FOFIFA).

ODR has instituted a cereal bank system whereby farmers can store a portion of their harvested paddy in village warehouses in order to qualify for producers' credit from BTM. The project is also distinguished from some others by the fact that it is able to pay its contract agents promptly and provides them with motos which they purchase over time with their travel allowances.²⁶

SINPA, the Societe d'Interet National des Produits Agricoles, is one of the parastatal success stories. With a staff of 776 and 15 branches outside of Antananarivo, SINPA grossed over FMG 40 billion (\$27 million) in 1988. It exports coffee, cocoa, maize, pepper and cashews.

SIRAMA, the Sucrierie de Madagascar, is in charge of the production and the transformation of sugar cane. Extension activities and research activities are carried out by the company.

SIRANALA, the Sucrierie d'Analaiva, is in charge of production on about 1,000 ha of sugar cane in Morondava. Irrigation is used for cane production. Some research is conducted but there are no extension activities.

SOMALAC was founded in 1961 as a mixed enterprise to develop irrigation infrastructure in the Lac Aloatra region. With 30,000 hectares grouped in 4 perimeters, the organization was responsible for input distribution, research and extension activities, paddy purchase, paddy transport and processing, and rice milling and marketing. Its role was reduced considerably when the second phase of rice sub-sector liberalization occurred in 1986. (The SOMALAC zone was exempted in the first round in 1983.) Currently SOMALAC is engaged in crop diversification, road maintenance and environmental and natural resource protection of the watershed with assistance from France. A regional research/extension committee that was created in SOMALAC's zone has had some success.

SOMAPALM, the Societe Malgache du Palmier a Huile, is concerned with the production, transformation and marketing of palm oil in Madagascar. SOMAPALM has two mills, one at Melville in Toamasina for oil extraction and a refinery complex at Betainomby, Toamasina. A nursery of better yielding varieties of palm has been established in cooperation with the Institut de Recherche pour les Huiles et Oleagineux (IRHO) in Cote d'Ivoire. SOMAPALM plans to distribute these varieties to farmers through its extension activities. In

²⁶ODR, having donor funding, is able to get operating advances for contractor salaries and other purposes deposited in the BTM at Antsirable. It is not obliged to go through the classic system of a priori financial controls centralized in Antananarivo that plagues other projects such as Operation Cafe Arabica.

1983 SOMAPALM produced 9,000 MT of oil but in 1986 only one-quarter of that amount.

d. Agricultural Information Services

FOFIFA has only a limited number of technical agricultural publications, and there is no free distribution of what does exist. Extension agents occasionally receive technical bulletins, but there is a total absence of technical literature available at local agricultural offices. With help from FAO, MINAGRI/DVA has started experimentally to transform technical bulletins into training materials in the form of comic books for agents and farmers. With relatively high literacy in Malagasy, a common language, Madagascar may prove fertile ground for this approach. The Directorate's new Agricultural Information Service has also produced and is showing sonorized slide shows on fertilizer use. These audio-visual initiatives could be developed considerably if more funding were available.

NGOs such as SAFAFI, CARITAS and CRS have published and disseminated to farmers a small quantity of leaflets and brochures on cropping methods. Private firms such as HOECHST, PROCHIMAD, DARRIEUX or MAFI have limited technical information in the Malagasy language to present to farmers with their products.

Parastatal organizations have their own ways to disseminate technical information. For example, SOMALAC and FIBABE have their own publications on rice cultivation. The former has its own radio broadcasting system, and the latter has broadcast agricultural news through the regional public radio. The effectiveness of radio programming of this sort is not known. The attitude of the head of DRV is that broadcasts are for news, agricultural or other, but are not a training medium.

Extension agents and local officials in the field believe that more information should be provided to farmers on input availability and prices, cropping methods, planting calendars, and market prices and conditions. Farmers who live in Madagascar's many isolated areas would be among the greatest beneficiaries of farm broadcasts. Information is an essential requirement of a competitive market. Good access to information strengthens the bargaining power of the small farmer. The Director of statistics at MINAGRI expressed his regret that his ministry is not yet ready for this kind of activity.

e. Responsibility for Soil Conservation

The questions of how to deal with soil erosion and soil fertility maintenance are major issues that concern rainfed agriculture. The main government institutions involved are MINAGRI, MPAEF and FOFIFA.

The Ministry of Agriculture has placed little emphasis on these questions. The extension service's primary emphasis is on improving bottomland rice cultivation. Until very recently, the problem of soil erosion was not addressed at all by the extension service. At the regional offices visited, soil conservation receives no attention outside of donor-funded

projects. Although the main soil erosion problems are on agricultural lands, it is the Division of Soil Conservation within the Directorate of Water Resources and Forests in MPAEF that has the government mandate for soil conservation in Madagascar. The Forest Service has a government-funded Forest Valley Management project (AVF) dating from the 1960s to deal with the problem of slash and burn tavy agriculture on the East Coast. It has attempted to provide farmers an alternative to tavy by developing irrigated rice cultivation in the narrow forest valleys. The overall impact of AVF and the similar UNDP-funded "Operation Savoka" has been negligible compared to the overall scale of the problem. Forest Service watershed management activities at Lac Alaotra have concentrated on reforestation of eroded watersheds and not on soil conserving cropping techniques.

Soil conservation on agricultural lands has been largely ignored by both MINAGRI and MPAEF.

The Soil Conservation and Agroforestry unit within FOFIFA has a small but very impressive research program that directly targets the problems of soil erosion and soil fertility maintenance on rainfed croplands. Research at the Beforona field station is concentrated on:

- o Improved wooded fallow for restoring soil fertility and fuelwood production;
- o Contour bands of vegetation for erosion control; and
- o Alley cropping for improving and maintaining soil fertility.

The approach is innovative and closely tuned to farmers' needs. Trials at the Manankazo field station are concentrated on direct seeding of Nitrogen-fixing woody species for improved fallows and on contour grass strips for gradual terrace development.²⁹ Improved woody fallow techniques appear highly promising and may soon be ready for extension.

f. Export

(1) Ministry of Commerce, Directorate of export promotion

The Ministry of Commerce's Directorate for export promotion gives the impression of an organization with a well-defined philosophy of encouraging private sector exports. Among the Directorate's objectives is the creation of exporter associations for specific commodities to encourage mutual support and improve quality standards. It has research, information and support services as well as a division for commercial fairs and similar events. The staff includes about a dozen technical personnel.

²⁹For discussion of the use of vegetated strips to create terraces over a 5 to 6 year interval and Kenya's experience with them, see the Office of Technology Assessment's Enhancing Agriculture in Africa: A Role for U.S. Development Assistance (1988), pp 166-7.

The Directorate's activity is limited by its meager budget. It has no microcomputer, photocopier or fax machine. As a result, contact with Madagascar's commercial attaches in Europe, the United States and Japan is very tenuous. The Directorate gives an impression that if it were endowed with sufficient means, it would perform well.

(2) Export quality inspection

MINAGRI includes a "Service de Conditionnement," which once was charged with inspecting the quality of exported agricultural products. Since the liberalization of trade in 1988, only two products, coffee and vanilla, are subject to that inspection. The principal office is in Toamasina (Tamatave), the country's main port. There are also posts in subsidiary ports. The Toamasina office lacks appropriate equipment. It seems that the inspection is mostly by sight and, possibly, perfunctory.

Paradoxical as it may appear, the 1988 elimination of compulsory inspection should prove salutary, at least in the long run, and it should be extended to coffee. In a free competitive market, a competent producer understands the necessity for quality of product. An incompetent firm that does not is doomed to go out of business. The recently formed association of litchee exporters (Groupement des Exportateurs de Litchis de Madagascar) has understood that principle and created its own voluntary quality control.

There is, however, an aspect of quality maintenance in which the government has a legitimate and very important part to play, namely that of the sanitary certification of imports as well as of exports if other countries require it. Laboratory testing and inspection by impartial technicians are of great use for agricultural trade. They allow for orderly interpretation of agreed-upon specifications and, if necessary, settling of disputes. Similarly, fumigation chambers and like installations are necessary to satisfy the requirements of overseas trading partners. These services unfortunately suffered greatly during Madagascar's years of financial difficulty, and it is doubtful that they can now perform properly. They will require relatively heavy expense if the agricultural export trade is to enjoy the full support it ought to receive.

(3) Management of coffee exports (CNCC)

Until the breakdown of the international coffee agreement (ICA) in July 1989 the National Coffee Marketing Committee (CNCC), composed of representatives of the Government, parastatal exporters and private exporters had the important function of distributing shares of the country's quota to particular exporters. Another function which is still performed by the Committee is to establish at weekly intervals a "reference price" for coffee, calculated on world prices of that commodity. The "reference price" is then used to calculate the export tax on coffee, according to a special formula.

Neither the formula for calculating the tax nor the criterion for distributing shares of the quota encourage quality in exported coffee. They

ought to be changed. The existence of the Committee, however, is not harmful and with better tax and quota formulae it could perform a useful function.

The problem with the "stamp" system for allocating the quota is that it is based on quantities stocked in exporters' warehouses at the time of the weekly allocation. Export firms therefore strive to buy as much coffee as they can, regardless of its condition. There is no attempt to auction off any share of the quota. If there were an auction, exporters who had better quality coffee could bid higher. A major FAO report on the coffee sub-sector recommends:

- o auctioning part of the quota;
- o allowing exporters to sell in the futures market by not obliging them to conclude export deals within three days; and
- o modifying the tax formula to base it on the lowest grade so that producers can keep any premium for higher quality.³⁰

Changing the quota allocation system would not be an academic exercise. Although the ICA is not currently in force, there is a strong possibility that a new agreement will be concluded and quotas again be allocated to member countries.

g. Crop diversification

(1) "Operation Cafe Arabica"

Operation Cafe Arabica is a part of MINAGRI's "Operation Cafe, Poivre, Girofle", a program promoting coffee, pepper and cloves. On the High Plateau, where growing conditions are propitious, activities are concentrated on research, development and extension for Arabica coffee. Production of very high quality Arabica for expanding gourmet markets could help reverse the decline in value of Madagascar's coffee exports, the country's biggest earner of foreign exchange.

Although Arabica was introduced in Madagascar in the mid-19th Century, it is grown on only 8,000 to 12,000 ha and yields are low at 350 kg/ha.³¹ Annual production of 3,000 to 4,000 MT of marketable coffee is largely consumed locally. Experts consider the quality acceptable but not competitive with Arabica from Burundi or Kenya, where it is washed to reduce acidity and enhance taste. There is considerable unmet demand for Arabica plant material.

³⁰FAO, Madagascar: Projet de Financement du Sous-Secteur Cafe, Rapport de Préparation. No. 118/89 CP-MAG 27. Aout 1989. pp. 40-41.

³¹FAO, op. cit., pp. 22-23, 39.

In the last six years more than 1,500 ha of Arabica trees have been planted in the Faritany of Antananarivo and Antsirabe.

Operation Arabica enjoys a certain amount of autonomy from the parent project and is considered by FAO specialists to be more dynamic. A visit to OCA headquarters in Antananarivo branch gave an impression of technical competence and high motivation, at least on the level of the leadership. It was not possible to evaluate the quality of management, but OCA was in serious financial difficulties. As of November 1989 some salaries had been unpaid for two months.³² Trucks and tractors, a gift of the Soviet Union, were immobilized because of lack of spare parts.

Independent observers state that the entire Operation Cafe, Poivre, Girofle is grossly overstaffed and a severe reduction in personnel is expected. It is likely that the criticism applies to OCA. In mid-1989 the Arabica Operation had a total of 780 employees, 225 of whom were extension agents and 30 were management staff. The Operation could take credit for only 200 ha of new plantings and 10 ha of replacements in the 1987-88 crop year. FAO experts were critical of the level of technical competence of extension staff and of the fact that plant material subject to rust was being extended.³³

Whatever the management and technical weaknesses of OCA, it could play an important role in the economy of Madagascar. Personnel and management reforms appear to be needed, as is training, but the organization itself should be preserved and strengthened.

(2) Wheat

The parastatal flour mill KOBAMA, located in Antsirabe, promotes wheat production in collaboration with FIFAMANOR to supply the needs of the mill. At present the requirement is some 40,000 MT to 50,000 MT per year. As yet, the local production is of the order of only 2,000 MT to 3,000 MT, but the crop is a good off-season crop in combination with rice. Farmers show an interest in it, even in areas north of Antananarivo, hundreds of kilometers away from the mill.

The mill does not determine the prices it applies. Financial decisions are made by the Ministry of Finance. At present, the mill pays farmers FMG 400 for one kilogram of wheat. That price appears competitive with the price of imported wheat. On the other hand, the price at which flour is sold to bakers covers only about 90% of the cost of processing by the mill. The difference is borne by the treasury. This subsidy seems unnecessary in Madagascar, a country of rice and cassava. The mill is well maintained. The demand for wheat products is strong. There is no serious doubt as to the

³²See footnote 11.

³³FAO, op. cit., p. 31.

sustainability of the operation. The subsidy element, however, should be eliminated.

4. Local management of agricultural programs

The organs of local government are in theory in a position to implement development projects. One of the motive forces behind the revolutionary ferment of the early 1970s was the desire to decentralize power. Governmental Order 76 044 of December 1976 gave to the hierarchy of local governments the power to levy certain taxes, to collect for services, to receive grants, and to keep a portion of national taxes raised in their jurisdictions.

In reality, local government has great difficulty raising any revenue because of diminished incomes among the rural population, widespread unwillingness to pay taxes, lack of tax agents and political favoritism to certain groups. The resources at the disposal of local governments are so meager that they are confined to a few outlays for social or administrative purposes. The Direction Générale (now Ministry) of Plan's study of rural development strategy stated that the financial capacity of the two lowest levels of local government (fokontany and firaisampokontany) is virtually nil. At the next highest level or fivondrona, budgets are very small. In rural fivondrona in 1983/84 only FMG 52 was available per inhabitant. Local management capability was considered very poor in any case.

Only at the faritany level is there any capacity to implement development activity. The provincial governments have true budgets and are subject to public accounting methods. Three of the six faritany are heavily dependent on subsidies from the national desire to decentralize power. Governmental Order 76 044 of December 1976 gave to the hierarchy of local governments the power to levy certain taxes, to collect for services, to receive grants, and to keep a portion of national taxes raised in their jurisdictions.

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C. Agricultural Marketing

1. Commodity and input prices

Over the past 5 years, pricing for agricultural commodities and inputs has been liberalized up and down the market chain. This domestic liberalization has combined with tumbling international commodity prices to yield unprecedented price movements for Madagascar's producers, consumers, and traders. Table 14 contains detailed data on price trends for a number of major agricultural commodities and inputs. Below is a brief assessment of trends.

Real producer price performance over the past five years has been mixed. Of the food crops for which data are available, rice and groundnut prices have risen while those for cassava and maize have fallen. Among the industrial crops, cotton prices rose; sugar cane's fell. For the traditional export crops, coffee and pepper prices rose while those for cloves and vanilla fell. If 1988's producer prices are compared to those which prevailed in 1980, only groundnuts, coffee, and pepper have experienced any real increase in producer price. In 1989 coffee prices to producers fell (See below).

A price subsidy meant that in spite of the substantial devaluation of the FMG, a number of agricultural inputs were cheaper in 1988 than they were in 1984. For instance, the retail price of urea, an import, was less than the world price and 37% lower in real terms than its price in 1984. The real retail price of compound fertilizer 11-22-16 fell by 11%.

The abolition of retail food price controls in 1985 resulted in sharp price increases over the winter of 1985/6. Retail prices of a number of staple foods doubled over a six-month period drastically reducing urban and rural consumer purchasing power and nutrition levels. Since 1986, retail prices of major food items have declined substantially in real terms.

Over the 1984-1988 period when measured in SDR the real value of Madagascar's exports fell by more than 8%/year. Whatever the currency of measurement, the relatively lackluster performance of exports has resulted from a drop in international commodity prices rather than a decline in volume. In SDR terms, both traditional and non-traditional exports are receiving lower prices overall than was the case in 1984, with traditional exports falling off at a faster rate. Madagascar's devaluation did help to improve the competitiveness of some of its non-traditional exports, especially shrimp, cocoa and cotton textiles, all of which have experienced increases in export volumes as well.

2. Agricultural exports

a. Export commodity price trends

Unfortunately, 1989 was a disastrous year for Madagascar's traditional exports, coffee, vanilla and cloves. Late in the year all three had been hard hit. With the collapse of the International Coffee Agreement in July 1989, the FOB price of coffee had fallen by half since March to \$0.37/lb (FMG 1,300/kg). The value of coffee fell from SDR 126.5 million in 1986 (50.6% of total exports) to only SDR 56.6 million in 1988 (30.9% of a total that had fallen by one-third). The 1989 contribution will prove to have been significantly lower.

Vanilla was squeezed by Indonesian competition to such an extent that the artificially high cartel price of \$72/kg had fallen to \$40/kg. As of October 1989, only 275 MT of vanilla had been sold (annual exports are usually 600-900 MT). Since 1988, the international price of cloves had tumbled by 43% to a low of \$1.70/kg. The price then recovered to \$2.10 but by most accounts exports were discouraged further by an effective tax rate of roughly 70%.

Market and price liberalization have generally had a positive impact on domestic agro-industries which now have freedom to set margins and prices. The sugar mills remain in deep financial trouble and have lowered the price paid for cane in real terms. On the other hand, the flour milling and cotton ginning companies have increased their purchase prices in an attempt to induce greater production. Growers of both wheat and cotton appear to be responding with higher output.

b. Returns to production and marketing investments

The data on returns to production and marketing investment are extremely fragmentary. Most of the available information concerns coffee. It has been updated in the recent FAO report cited above.

During the years of heavy government regulation of coffee exports, 1976 to 1988, the regulated price to the grower varied from a low of 21.7% of the FOB price (in 1984) to a high of 46.9% (in 1981). It was 38.5% in 1987. The lowest markup allowed for all marketing functions was 6.8% of the FOB price (in 1977). The highest was 19.4% (in 1982). It was 13.5% in 1987.

It seems unlikely that these official prices were strictly observed. Nevertheless, it is worth noting that during these years the percentage of the FOB price collected in export taxes of different kinds varied from a high of 70.8% (in 1977) to a low of 35.0% (in 1981). It was 48.0% in 1987.³⁴

Whatever the actual division of the FOB price between grower, collector and processor, all were left with a smaller pie after the government collected its taxes. That could mean serious pressure on both the grower and the collecting merchant. The FAO report estimates the distribution of the FOB price in the 1988/89 export season under free market conditions. With an FOB price of \$0.77 per pound (FMG 2,632 FMG per kilo), the split was as follows.

³⁴FAO, op. cit., Annex 2, Table 2.

Table 5: Exports: Changes in Volume and Value, 1984-1988

| <u>Commodity</u> | <u>Volume Change</u> | <u>Real Value in SDR</u> |
|------------------|----------------------|--------------------------|
| Shrimp | +30% | +5% |
| Cotton textiles | +11% | -10% |
| Cocoa | +30% | -9% |

Source: V. Table 10

| | | | |
|----------------------|-----|-------|--------|
| Taxes: | FMG | 841 | (32%) |
| Grower: | FMG | 1,050 | (40%) |
| Marketing operators: | FMG | 741 | (28%). |

Salomon Samen, in a study prepared for the World Bank, estimates that a seller of beef cattle for slaughter receives about 80% of the FOB value of the meat ready for export.³⁵ According to the same study, a producer of cotton can expect to receive for his seed cotton about 37% of the FOB price of cotton lint (on the basis of 2.62 kg of seed cotton per kg of lint).

Competitiveness among collectors of raw commodities varies with location. The small farmer is more likely to receive a better price in areas close to the processing and export centers. For example, in the region near the port of Toamasina (Tamatave) the competition between collectors may be quite intense and the price offered to the small farmer considerably higher than in distant localities with few collectors and high costs of transport.

Calculations based on enquiries made in January 1988 by BDPA, the research bureau of the French Ministry of Cooperation, indicated the following ratios of the price paid to the grower to the FOB price of the exported product.³⁶

| | | |
|-------------------------------|-----------|------|
| | Vanilla - | 3%; |
| | cloves - | 15%; |
| | coffee - | 27%; |
| "green" pepper (in vinegar) - | | 20%; |
| black pepper - | | 33%; |
| litchi - | | 12%; |
| maize - | | 51%. |

These ratios are, of course, combined outcomes of the distance and cost of transport, the degree of transformation required, as well as of the bargaining power of the sellers and buyers. It would be imprudent to risk any judgment without detailed analysis.

3. Agricultural inputs: production, import, distribution

Madagascar is in a period of transition from state control to private enterprise development. Many private entities now provide agricultural inputs for farmers. Firms such as SIDEMA, CETA and MAFI produce farm equipment and implements. Commercial houses such as COROI, SEPCM and HOESCHT are the main importers of fertilizer, agricultural chemicals and seed. Several managers expressed a desire to cooperate with government agencies,

³⁵Salomon Samen, Madagascar: Export Performance, Constraints and Prospects, July 1987, Annex B, Table B2(1).

³⁶MINAGRI, Direction de la Programmation, Service des Etudes Economiques, Elaboration d'un Plan Directeur du Secteur Cultures d'Exportation a Madagascar, Etude sur la Commercialisation (Edition Provisoire) Juin 1988.

especially with the extension service, and to lend their products for demonstration purposes. The private sector will come to play an important role in the distribution of inputs once farmers have better technical understanding of the products available.

The following tables show the quantities of fertilizer, chemicals and improved seed that have been available in the last five years.

In addition to imports, a small quantity of magnesium, lime and compound fertilizer is produced locally by SOMADEx and SOABE, both parastatals located in Antsirabe. Domestic production of 4,000 MT of dolomite annually is available through SOMADEx.

No records are available on the import and domestic production of farm tools and equipment, but it is estimated that about one million small implements such as the angady, sickles and machetes are locally produced each year. Some 70,000 to 100,000 pieces of animal traction equipment such as plows, harrows and weeders are produced annually by cooperatives in Tananarivo and Antsirabe (i.e. SIDEMA, CETA) or by farm machinery supply companies. The price of these implements has tripled since 1986. A simple 30 kg plow from SIDEMA sold at FMG 25,000 in 1986 and currently sells at FMG 85,000. Heavy equipment such as tractors, harrowing equipment and bulldozers are used essentially only on the plantations.

The main input distribution constraint is transport. Poor rural roads in most parts of the country cause the late delivery of fertilizers and agricultural materials to farmers. The rainy period extends from October to April and fertilizers must be placed at the selling points by September for rice farmers. The transportation cost of agricultural inputs from Antananarivo to various regions in Madagascar ranges from FMG 80 to FMG 120 per ton-kilometer. The cost of transportation will double the price of an item when purchased in Antananarivo and delivered to a rural area.

The distribution of inputs through commercial channels has also been hampered by rural insecurity. Theft and banditry in some rural communities have made distributors reluctant to stock inputs.

a. Fertilizer

General stores that handle fertilizer are usually located near the main markets in towns or large villages. Fertilizer sales for rice and other foodcrops are concentrated in the highland areas. Cotton and sugar cane inputs are supplied by HASYMA and SIRAMA. Other private and non governmental marketing agencies for fertilizer are:

- o OCM OMNIUM: a private input distributor and producer with 27 sales outlets;
- o AGRICO: a new private company marketing various pieces of equipment and veterinary products and distributing fertilizer;

Table 6: Fertilizer Imports, 1984-1988
(000 MT)

| <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> |
|-------------|-------------|-------------|-------------|-------------|
| 20.5 | 26.9 | 30.2 | 66.0 | 23.0 |

Source: MINAGRI, Service de l'Approvisionnement

Table 7: Agricultural Chemical Imports, 1983-1988
(MT)

| <u>1983</u> | <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> |
|-------------|-------------|-------------|-------------|-------------|-------------|
| 281 | n.a. | 396 | 696 | 861 | 251 |

Source: MINAGRI, Service de l'Approvisionnement

Table 8: Domestic Production of Improved Seed, 1984-1988
(MT)

| | <u>1984/5</u> | <u>1985/6</u> | <u>1986/7</u> | <u>1987/8</u> | <u>1988/9*</u> |
|------------|---------------|---------------|---------------|---------------|----------------|
| Rice | 930 | 1,060 | 1,120 | 1,200 | 1,600 |
| Maize | 8 | 108 | 113 | 25 | 60 |
| Groundnuts | 23 | 30 | 24 | 39 | 40 |
| Vegetables | 1.2 | 2.1 | 1.4 | 2.7 | <3 |

*estimate

Source: MINAGRI, Seed Service

- o ECOPLANT: a new private company, not an importer, that represents overseas suppliers. With 30 sales points located in the country, this company sells inputs and gives advice to small farmers;
- o SEIM: a producer of cooking oil that sells inputs to its contract farmers and has three sales points;
- o AFABI: as an agent for Hoechst products, acts as a regional distributor based in Fianarantsoa and has access to donated fertilizer;
- o SAFABI: an NGO with responsibility to coordinate Lutheran church projects in Madagascar. SAFABI receives free fertilizer from NORAD (50 MT per year), purchases agricultural implements from SIDEMA and CETA (blacksmith cooperatives) and resells to farmers at prices lower than those of than commercial businesses.

At present there is limited demand for chemical fertilizer from farmers. Fertilizer storage capacity both at regional warehouses and at sales points in the highland areas is currently adequate and can easily supply the present market. A pervasive obstacle to use of fertilizer and agricultural inputs by farmers is lack of knowledge how to use these inputs profitably for greater production. Research results, demonstration activities and extension services have all been in short supply. According to SAFABI, farmers in the North do not buy chemical fertilizer. They prefer the use of animal manure for their crops, even for rice fields, and are not aware of how to use chemical fertilizer.

b. Seed multiplication and distribution

Seed production and multiplication is a major problem in Madagascar. Improved varieties of rice, maize and groundnuts are not available, and the amount of seed that is distributed falls well short of demand. In the 1986-87 planting season MINAGRI's seed service could satisfy but a negligible fraction of farmers: 2.6% of them in rice seed, 2.8% in maize seed, and 0.6% in groundnut seed. For 1987-88, 1,500 MT of rice seed were produced for distribution, certainly an improvement over 1983-84's 70 MT but far from the 14,800 MT of irrigated rice seed that MINAGRI estimates will be needed each year.

With assistance from UNDP, MINAGRI has prepared the draft of a National Seed Plan after holding a national colloquium on seed issues in Fianarantsoa in October 1988. The intention behind the Plan is to bring coherence to an uncoordinated, diffuse and inadequate seed program. There is no national seed policy and no national seed legislation.

Crop varietal development and selection are the responsibility of FOFIFA, which produces breeder and foundation seed. The next stages of multiplication for the main crops come under the Seed and Plant Material Production Service of MINAGRI's Directorate of Agricultural Supply (DAA/SMV).

The service itself produces seed for rice, maize, groundnuts and horticultural crops. Created in 1983, it inherited 22 seed multiplication centers. Only a few are still operational, and many have technical, financial, organization or equipment problems, according to the UNDP. For the small quantities of seed that are produced, the private sector and parastatals take delivery from MINAGRI and arrange for distribution to farmers.

Seed for a number of crops is produced and distributed independently by parastatals or regional development authorities. This is the case for cotton, oil palm, barley, wheat, triticale, tobacco, coffee, cocoa, pepper and cloves.

Since 1984/85 rice seed has been multiplied at the four main centers: Anosiboribory at Lac Aloatra, Anosy at Fianarantsoa, Tsaeanao near Mahajanga and Marofarihy on the East Coast near Manakara. The first three have received assistance from France, FAO and West Germany, respectively. If any of them is viable under current conditions, it is Anosiboribory. Anosy began this year to diversify by planting six new rice varieties, two of which had been recommended by ODR. The remaining four were picked by Anosy staff when they visited other centers. None of these, however, is among the new IRRI varieties that FOFIFA has been testing with help from USAID.

One promising element in the whole seed picture, apart from the evident desire of the Government to restructure and improve the system, is the performance of groups of contract growers. They are known as Groupements de Paysans Semenciers (GPS). Although few in number, they were hailed for their dynamism in the report of the 1988 colloquium. The head of the Seed Production Service states that GPS near Fianarantsoa had produced up to 3 MT/ha of rice and had sold their output to farmers themselves. The sale price may have been about the same as that of ordinary paddy since seed from the multiplication centers draws no premium either. The interest of the contract growers seems rather to reside in the advance of inputs and the technical advice from MINAGRI for which they qualify.

The draft National Seed Plan sets the following objectives to be reached in five years:

- o Annual production of 7,500 metric tons of rice seed, 1,340 tons of corn seed and 910 tons of improved groundnut seed;
- o Installation of a system for continuing introduction of new varieties;
- o Creation of a National Seed Office and Seed Control Service under MINAGRI; and.
- o Training of Malagasy personnel in seed technology and seed production.

The Plan provides an overall framework for a revamped seed program. Various donors will be asked to participate. The Plan envisages a gamut of activity--rehabilitation of about 13 of the seed multiplication centers; construction of offices, warehouses, laboratories and residences; procurement

of equipment; creation of new institutions; drafting of seed legislation; technical assistance and training. Fortunately, it also looks to contract growers to produce seed to be certified under the supervision of and with help from MINAGRI. An appropriate role for USAID in this effort would seem to lie more in the direction of technical assistance on policy and training in seed technology than in rehabilitation and equipping of the centers. In any case, there is need for close coordination with other donors since so many have been involved in the past.

4. Domestic consumption of agricultural commodities

The per capita availability of basic foods is currently adequate, but problems of access and entitlement result in large variations in the caloric intake³⁷. The regional availability of locally produced food varies greatly, and in some areas deficits are exacerbated by poor transport conditions. For example the per capita availability of rice and total calories from local production is lower in Antananarivo and Toliara than in the other regions. Toliara is further disadvantaged due to its distance from surplus production areas.

Government policies since 1975 encouraged a shift of production and consumption from rice to other food crops, particularly sorghum, potatoes and cassava. In 1975 rice furnished 57% of the available calories and cassava furnished 22%. By 1988 rice furnished only 50% of the available calories and cassava provided 29%.

Rice is also an important source of protein in the Malagasy diet but its relative importance has diminished from 68% in 1975 to 66% in 1988.

Per capital real income in 1988 was about 25 % lower than in 1980 and about one-third lower than in 1975. The infant mortality rate has risen from 109 per thousand in 1980 to 130. Statistics from a CRS-sponsored nutrition program show that an average of 50% of the children suffer some degree of undernutrition and regional variations range from 30% to 65%.

With the liberalization of rice marketing prices have varied greatly. This effects not only urban consumers but also thousands of rural dwellers who either do not produce enough or do not grow any. A study carried out by UNICEF found that 27% of the rural households, 20% of the households in secondary towns and 46% of the households in large urban centers had difficulty meeting their food needs for six or more months a year.

Per capita rice consumption levels have fallen sharply in the past five years, from 133/kilos/year (milled) in 1984 to 112/kilos/year in 1988. An analysis of consumption and expenditures in urban areas reveals that urban consumption of rice dropped by 18 % to 128kg/person/year between 1982/83 and 1986/87. The poorest quartile of urban consumers experienced a decline of 31% during this period to only 80kg/person year, while the richest quartile's consumption only fell 8% on average.

³⁷M. Lowdermilk, Madagascar: Food Needs Assessment, Calendar Year 1989. USAID/Madagascar, June 1989.

Table 9: Evolution of Sources of Calories
(percent)

| <u>Source</u> | <u>1976</u> | <u>1983</u> |
|----------------|-------------|-------------|
| Rice | 57 | 50 |
| Cassava | 22 | 29 |
| Maize | 4 | 3 |
| Sweet potatoes | 6 | 5 |
| Potatoes | 1 | 2 |
| Sugar cane | 6 | 8 |
| Groundnuts | 3 | 1 |
| Others | 1 | 2 |
| total | 100% | 100% |

Source: Table 4, Analyse de vulnerabilite, document de travail, documents de l'atelier national de SAN: Section III, MPARA-PNSAN, 28 July 1989.

In contrast, rural consumption has remained fairly constant at approximately 140 kg/person., although there have been significant regional variations. In the main rice growing regions there was a noticeable trend of increased rice consumption and real expenditure on rice between 1983 and 1987. In the Meridian Plateau (Antsirabe and south) there was a dramatic fall in consumption between 1983 and 1986, although the situation was reversed marginally in 1987.³⁶

Data on the source of rice for domestic consumption indicate that a significant proportion of the rural households in rice producing regions are net purchasers of rice. This is particularly true for those in the Meridian Plateau, Southeast and East. Surveys carried out in rice producing areas in November, the beginning of the hungry period (soudure), revealed that a significant proportion of the households had exhausted their supply of rice.

In 1983 expenditures on food (in cash and kind) accounted for 75% of household expenditures in rural areas. It increased to 79% in 1986 but dropped to 71% in 1987. Within the rice producing regions the per capita expenditures (in cash and kind) vary greatly, with households in Lac Alaotra and the Northwest spending more than twice the amount of those in the Meridian Plateau and the Northeast.³⁷ A more complete analysis of the rural situation will be possible when MINAGRI rural household data from 1983 to 1988 become available in early 1990.

5. Distribution and Use of Food Imports

The major categories of food imports in Madagascar are cereals, especially rice and wheat; vegetable oil; and dairy products, especially powdered milk. Food is imported both commercially and through donations. The end of foreign exchange restrictions theoretically offered the opportunity for commercial food imports to increase. Appendix Table V-7 gives details on food imports for the period 1984-9.

The most important food import, whether measured by tonnage or political sensitivity, is rice. Imports of rice have regularly exceeded IMF-programmed levels because of both slow growth in domestic production and the GDRM's apparent desire to retain leverage in the domestic markets. Madagascar's rice import needs are calculated by the Food Security Directorate (DSA) at MINAGRI from production estimates and historical domestic demand. The assessment of import needs is thus sensitive to assumptions on annual per capita consumption. Despite evidence that per capita rice consumption has fallen off, DSA continues to use 130 kg/capita while actual consumption was about 112 kg/capita in 1988.

³⁶World Bank, Programme d'Actions Sociales et d'Appui a la Gestion Economique (PASAGE) - Rapport d'Evaluation, Oct. 1988, Annex III.

³⁷Sherburne-Benz, op. cit., 1988.

Table 10: Rural Consumption of Rice, 1986-1987

| | Merid. Plateau | Lac Ala | Mid Wst | North West | S-E | N-E | S-W Coast | Central W.Coast |
|---------------------|-------------------|------------|------------|---------------|-----|-----|--------------|--------------------|
| <u>1986</u> | | | | | | | | |
| Own Production Used | 21 | 100 | 73 | 100 | 8 | 83 | 54 | 94 |
| Consump/kg/inhab | 89 | 198 | 131 | 230 | 143 | 163 | 139 | 169 |
| <u>1987</u> | | | | | | | | |
| Own Production Used | 38 | 90 | 80 | 91 | 65 | 80 | 94 | 79 |
| Consump/kg/inhab | 91 | 198 | 130 | 253 | 132 | 149 | 125 | 155 |

Source: Lynne Sherburne-Benz, 1988.

All rice imported by the government goes into the buffer stock. Buffer stock rice is auctioned off in port. In the November 1988 auction the rice was sold off in 30-ton lots. Although there were 23 different purchasers at that auction, slightly more than half of the rice went to the state marketing enterprises SINPA and SOMACODIS. The DSA determines in which fivondronanas the rice can be sold (based on historical rice deficit information) and the price at which it can be sold (based on estimated costs of production). The original purchasers of the rice are responsible for its transport and storage. They then sell the rice to wholesalers in the approved fivondronanas. The rice may not be released onto the market until the government determines that the local price of rice has risen above the trigger price (currently FMG 550/kg). Interventions are normally limited to the soudure period of December to April but have occurred in other periods, most recently in July 1989 in Antananarivo as a result of a puzzling increase in the market price.

The government has agreed to the IMF's proposal that official imports of rice end in 1990. It is thought that the rice buffer stock will continue to operate, stocked by local production. Management of the buffer stock has been a politically sensitive issue, but it seems that some of the problems which plagued it in 1987 and 1988 have been rectified. An official from a major donor organization who has worked on buffer stock issues for some time considers that Madagascar is so close to self-sufficiency that the buffer stock is virtually a dead issue. He believes that it should be limited to 12,000 tons and used only for emergencies rather than for market interventions.

Wheat imports are channeled to KOBAMA, the state-run flour mill established in 1982, which has a monopoly. KOBAMA currently pays roughly FMG 450/kg for its imported wheat, which is resold as flour at roughly FMG 600/kg. Flour is distributed through regular market channels to bakeries around the island. The volume of wheat imports fluctuates from year to year, averaging 40-45,000 MT/year. Imports are supplemented by domestic production which has risen to 5,000 MT/year and seems likely to continue to increase.

Madagascar currently produces only one third of its minimum edible oil requirement (1 kg/cap/year or 11,000 MT) and is thus compelled to import the rest. Efforts to increase domestic oil production have been thwarted by low production of oil crops, especially groundnuts, the source of consumers' preferred oil. Groundnut production has plummeted since 1976. Reestablishing production for industrial processing may be difficult since the economic viability of industrial groundnut oil production has always depended upon dealers being able to make their margins through exports of luxury table nuts. As the quality of its harvest has fallen, Madagascar has lost its export market and it is not clear that it can be regained.

Currently, commercial imports of refined oil are discouraged by a 85-90% tariff rate protecting inefficient local refineries. Over the past four years, donations have come primarily from USAID through Title I and Title II programs. Under the current Title II program, unrefined oil is imported and auctioned off at port. As with rice, a minimum bid price is established before the sale. Refineries bid for allotments for which they must pay before taking possession; they then bear all costs in transporting, refining, and marketing the oil.

In 1989, the refineries followed a collusive bidding strategy which, when combined with their geographic division of the market, gave them high profits and forced consumers to pay high prices. The high retail price of refined oil (FMG 2,300/liter) effectively limits urban demand. It is thought that rural demand is being met through artisanal oil production. In an attempt to get lower-cost oil to consumers by circumventing the local refineries, the proposed FY 1990 Title II program would bring in a mix of refined and unrefined oil. Vegetable oil imports have fluctuated around 8,000 MT/year since 1984.

Dairy imports, which average 3,000 MT/year, are mostly of powdered milk for use by commercial enterprises and in some feeding programs.

6. Madagascar's potential for agriculture-based exports

a. Advantages and weaknesses of the country's physical features

If means are found to prevent environmentally harmful practices, Madagascar has considerable potential for exports of agriculture-based products. This potential is based on a large variety of climatic zones, both in elevation above sea level and in span along North-South longitudes in the Southern Hemisphere. The country's position in that respect may be compared, on a more modest scale, to that of Chile which has an even longer North-South extension and is able to ship fruit to the United States and Canada in the middle of the North American winter.

With a variety of growing conditions, it is in principle possible to cultivate products for which numerous seasonal "market windows" exist in the great consumer markets of the Northern Hemisphere. Madagascar's inexpensive and largely literate labor force would provide a strong competitive advantage for any kind of labor-intensive fresh or processed product.

A great handicap is the poor state of infrastructure. The bad state of the roads impedes many attractive opportunities which involve perishable goods.

The distance from major consumer markets will put Madagascar at a competitive disadvantage as long as these markets are located mainly in Europe and North America. This is not necessarily the case for the future. The small but relatively rich islands of Reunion and Mauritius are already important markets for non-traditional products. The absorptive capacity of the Japanese market is probably sufficient to compensate for the shipping distance, as long as dependably high volume and sustained quality are assured. In a more distant future, the huge market of India may become a worthwhile outlet.

As of 1987, the destinations of Madagascar's exports were as follows, in percentage of the total value of exports.⁴⁰

| | |
|-------------------------|-----|
| France: | 32% |
| Other EEC: | 21% |
| United States: | 20% |
| Japan: | 11% |
| Reunion and Mauritius: | 7% |
| All other destinations: | 6% |
| Other European: | 3% |

b. Lingering dependence on traditional export commodities

At present, Madagascar still depends to a great extent on exports of a small number of traditional products: coffee, vanilla, cloves and pepper. None of the traditional products seems to have much expansion potential. The growth of demand for them is, and is expected to remain, sluggish. Competition from new producers in other countries is growing. New plantations of high quality coffee are still coming on stream in Southeast Asia. A large stock of vanilla is overhanging a very thin market now that Indonesia is in the picture. It is not easy to see how can it be disposed of without disruptive effects on price. Madagascar appears to be a lower cost producer than Indonesia and could still profit if the price fell below \$30/kg, but if so, export proceeds would be no more than one-third of what they were at \$72/kg. Indonesia's self-sufficiency in cloves means that there is also little hope for an improvement in that market. If anything, Madagascar would be well advised to eliminate the export tax on cloves and leave the residual market to the island's ethnic Chinese, who have the best access of anyone to those who work the cloves market from their base in Singapore.

Better prospects may await pepper and some "gourmet-class" varieties of Arabica coffee, if Madagascar manages to achieve high quality and does skillful promotion. However, any success in the challenging undertaking of growing, processing and marketing good-quality Arabica will no more than compensate for the expected decline in earnings from Robusta, which is progressively less in demand in world markets.

c. Potential of non-traditional export products

Among the non-traditional exports, cocoa and sugar together accounted for some five percent of the total value of exports in 1987 and 1988. Madagascar benefits from a U.S. sugar quota, which was raised in November 1989 from 12,500 MT to 14,215 MT. The prized US sugar market aside, these commodities have undergone great price fluctuations in recent years and cannot be considered as completely safe earners of income and foreign exchange.

⁴⁰Direction Generale de la Banque des Donnees de l'Etat, Situation Economique au 1er Janvier 1988.

Table 11: Value of Exports of Agricultural and Agro-industrial Products, 1984-1988
(millions of SDRs)¹

| | <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> |
|---------------------|-------------|-------------|-------------|-------------|-------------|
| Traditional exports | | | | | |
| Value | 229 | 184 | 204 | 150 | 108 |
| % of total | 80% | 77% | 81% | 73% | 66% |
| Non-trad. exports | | | | | |
| Value | 55 | 54 | 46 | 55 | 57 |
| % of total | 20% | 23% | 19% | 27% | 34% |
| Total value (100%) | 284 | 239 | 250 | 205 | 164 |

Source: Appendix Table V-9

Important non-traditional items are shrimp, lobsters and cotton cloth. Although markets are highly competitive, demand for these products can be expected to expand, especially if per-capita income trends continue upward in industrialized countries, both old and new. Air shipment of lobsters is currently restricted by lack of capacity. The Director of Air Transport states that Air Madagascar ships 1,500 kg of lobster to Europe once a week during the seven-month period from May to December. Only one Boeing 737 flight each week from Tolanaro (Fort Dauphin) to Antananarivo makes a direct connection with a flight to Paris, thus limiting annual shipments to 45 MT. Air Madagascar can fly shrimp no further than Reunion because it lacks necessary freezing capacity (minus 18 degrees Celsius).

Meat exports have posed a problem but now offer opportunities. Access to the EEC was suspended because of unhygienic conditions in Madagascar's slaughterhouses. These conditions have been improved, and officials of the European Development Fund in November 1989 were anticipating certification for exports to Europe within a short time. The Fund has assisted with rehabilitation of slaughterhouse in Antananarivo, Morondava and Mahajanga. Re-entry into the European market may not be difficult because Madagascar is one of only four ACP countries which have duty-free meat quotas for the Common Market. In fact, the prospect of certification has attracted private European investors. A German firm has invested in one of the two West Coast slaughterhouses to produce meat products such as sausage for export to Europe. It was also reported that Italian interests were negotiating for participation in the Antananarivo slaughterhouse.

While the EEC quota was suspended, clandestine exports of meat to Reunion and Mauritius were widely reported. The proceeds are often not declared and the hard currency earned is not returned to the Central Bank. There have also been shipments of live cattle to Mauritius, where they were slaughtered according to the Muslim rite.

Meat and meat products offer considerable promise if incentives can be provided to improve the quality and quantity of offtake from Madagascar's large herd of cattle. Swine development could provide the fastest if not the largest payoff. Recent changes in the Ministry of Animal Production (MPAEF) offer renewed hope. The World Bank, which had shelved a livestock project because of the condition of the Ministry, has re-opened the dossier.

Of special interest among the non-traditional exports is maize which has been shipped to Reunion and Mauritius. These two islands, although their populations are not large, have relatively high incomes and constitute an attractive market for a variety of products that they cannot or do not produce themselves. There will be increasing competition, however, from southern African producers, Swaziland and Zimbabwe among others.

Other current non-traditional exports, including lichis, mandarin oranges, mangoes, beans, sisal, nuts, vegetables, precious wood, raffia, and medicinal plants merit close examination and offer possibilities of additional processing and increased value added. Many of these commodities have greater export potential once past neglect and current obstacles can be overcome. Several are found in remote areas, and transport within Madagascar to

Antananarivo or the main port at Toamasina is both costly and problematical. This is the case, for example, for mandarin oranges on the southeastern coast, mangoes near Mahajanga in the Northwest, and nuts in the Southwest. Cucumbers grown for pickling (gherkins) are found west of Antananarivo toward Tsiroanomandidy but are very often ruined by rough transport when shipped to the capital. Renewed attention to rehabilitation of the secondary ports may be needed.

Two major impediments to new exports are:

- o Lack of local production of proper packaging materials; and
- o Very high costs of ocean transport and of communications with potential buyers.

In spite of these constraints, Malagasy entrepreneurs are managing to ship out small but growing quantities of new export commodities. One hundred MT of mushrooms are sent annually to a single importer in Switzerland. About 60 MT of mangoes are shipped by air each year. Fresh vegetables are sent to Djibouti, Reunion, Comores and France. In the 1989-90 crop year exporters plan to ship 80 to 100 MT of string beans.

Foreign investors have begun to show interest in new ventures such as cut flowers. A French grower who has grown flowers in Reunion has been seeking--unsuccessfully as of December 1989--to obtain a 50-year land lease for the construction of greenhouses. He considers Antananarivo ideal for flower production with its moderate climate and hardworking, inexpensive labor force.

The advantage of having reasonably educated and at the same time inexpensive manpower already has appeared in a few noteworthy instances. A firm in Antananarivo has concluded an agreement with a French distributor for shipments of a substantial volume of the gourmet liver preparation foie gras and possibly some other products such as cocktail onions and green pepper. This is a labor-intensive operation which also demands considerable skill.

d. Need for a more aggressive export stance

It seems that Madagascar's export posture could gain from greater aggressivity. The fact that so many products are sold FOB Toamasina, while perhaps rational from the point of view of avoidance of financial risk, reflects a certain passivity. Products such as highly perishable exotic fruits and vegetables require an imaginative and aggressive marketing stance if they are to find their niche in the consumer markets of Europe or North America. These products require an extensive knowledge of standards and trading practices in the importing countries, close attention to the quality of both the product and its packaging and tight logistic arrangements.

A good example is provided by the case of export of cashew nuts. A major American multinational has been buying this product from Madagascar private exporters. The buyer insisted, however, that the purchase be CIF to the port of the buyer's choice. That requirement was apparently dictated not

so much by financial considerations as by the desire that the Malagasy exporters have a stronger financial commitment to maintain the agreed-upon quality of the product. If a shipment were rejected, the seller would suffer a heavier loss. This kind of attitude on the part of the buyer is quite justified if the Malagasy seller had not made himself known as a dependable shipper.

e. Proper role of government

While it is useful for the government to analyze comparative advantage, the country must rely on its entrepreneurs, large and small, to identify new possibilities and to decide which opportunities to test. The role of the government is to create conditions in which these entrepreneurs have good information on potential foreign markets and have open two-way channels of communication with the agricultural research and extension establishment. Private exporters ought to be heard by the research and extension services if the country wishes to produce marketable commodities which will benefit the small farmer as well as the exporter. On that particular point, the interests of both groups are in harmony.

III. CONSTRAINTS TO AGRICULTURAL DEVELOPMENT

A. Constraints to Agricultural Development

1. Marketing

The retreat of the GDRM from marketing activity in favor of the private sector since 1983 has profoundly changed the landscape. Government marketing policies as such cause few constraints, though some, such as the system for allocating the ICA coffee quota, discourage rather than encourage quality of product. The lingering intervention of MINAGRI's Input Supply Directorate in the distribution of donated fertilizer can be considered as a minor vestige of the former "dirigisme" rather than a serious constraint.

2. Pricing

The Government, in the period of 1986-87, used sales from the buffer stock of rice to lower the price of that commodity. These maneuvers caused losses among traders who had kept large stocks and discouraged production. Since that time, no similar interventions have upset the market. Uncertainty over the firmness of the Government's determination to forego such actions in the future still lingers, however.

3. Credit

Lack of credit for investment and production in the sector is a serious constraint. There is no active policy of credit for small farmers. The remnants of the politically oriented "Financement du Monde Rural" (FMR) are more of a feeble remnant of the past than an actual impediment to creation of an effective credit system. This issue is discussed in Section 3.b.(2)(c) below.

4. Land tenure

Malagasy law prohibits foreigners from buying land in Madagascar. To lease land, foreigners must obtain an administrative permit which is said to be difficult to obtain. This is restrictive and may be considered an obstacle to investment in the agricultural sector. In a recent instance, a foreign entrepreneur who wanted to lease land for 50 years for greenhouses was at least temporarily denied a permit.

a. Existing Laws

The main land tenure policies of the government are largely positive: registration and titling of land to Malagasy individuals and groups, encouragement of migration to unsettled lands, and use of land claimed. To encourage tree planting, the government enacted the ZODAFARB law which states that any one who plants trees and follows certain practices, which will be inspected, will become the owners of the land.

To relieve land pressure especially in the highlands the government has encouraged migration to zones with good but unused agricultural land which by law is then classified as state land. Some 40,000 ha of plantation land which was farmed by the French was nationalized in the 1970s and redistributed to Malagasy farmers through various forms of cooperative management and ownership.

A 1974 law introduced the legal notion of a social obligation to develop, maintain and use land, and it was aimed particularly at those who claim land for speculation and for their descendants rather than putting it into production. If for a period of more than five years an owner of more than 5 ha of land has not farmed the land personally or at his/her own cost, the property should legally be transferred to the state. (Land put under crops, trees or fallow is deemed to be farmed.) In turn, all sharecroppers or tenant farmers on such land are to be bestowed the right to the land. This is the case even though sharecropping was outlawed by Ordinance No. 73-013 of December 1973 to encourage owners to farm their own land. There is a land tax, but land which is utilized for food crops is exonerated from the tax.

b. Application and Implications of Existing Laws

Cadastral operations have been completed on approximately 20,000 square kilometers and titles issued for this land, primarily in the High Plateau and in urban areas. This represents about 3 percent of the national land. It is estimated, however, that 45 percent of the area needs to be resurveyed because of discrepancies in the mapping and marking of boundaries on the ground.¹⁴

The institutional capacity for carrying out surveying, mapping, registering and titling is extremely weak. For example, the topographical service for the Faritany of Antsiranana can handle about 10 survey requests a month. Currently 300 are outstanding. The Land Title Service in Antsiranana, which is responsible for land adjudication, issues some 60 - 80 titles a year and there are 20,000 existing title requests.¹⁵ Present procedures for registration of land are complex, costly in money and time, and scarcely known by peasant farmers.

The ZODAFARB law is extremely cumbersome to implement since it calls for periodic inspections. Even if the planter succeeds in meeting the requirements for land ownership, he or she must then pay for the land registration and titling process. Few farmers are willing to plant trees under the ZODAFARB law because of the risk of losing their investment and because of the costly and time-consuming land title process.

Although the state has rights over unused land, much of this land has claimants. Settlement areas have been contested by local inhabitants who

¹⁴Environmental Action Plan, August 1988.

¹⁵David Gibson, REDSO/ESA, personal communication.

claim the land as part of their traditional domain. These disputes have been exacerbated by other factors and have resulted in an increase in armed robberies and hence rural insecurity.

The 1973 and 1974 laws related to land use are not enforced. It is often middle and upper class urban dwellers who have their land farmed by sharecroppers and hence enforcement of the law would strike at those who wield significant political power. Further, the institutional capacity to enforce these laws is extremely weak. However, because of the 1974 law land owners are reluctant to permit the same person to sharecrop the land for more than two or three years. Consequently the sharecropper has little or no interest in maintaining soil fertility or making other types of investments in the land, which is primarily irrigated land. The national agricultural census recorded only five percent of the cropped land under sharecropping, and thus the magnitude of the problem seems small; however, in some areas 30 percent of the land is sharecropped or farmed by tenants.

Most of the state farms, cooperatives and collectives on the former expatriate estates now produce very little. Squatter settlements have appeared on these lands in the Southeast and Southwest. There is a total of 46,838 ha divided among 38 state farms or parastatals (32,325 ha), 67 collectives (13,020 ha) and 10 cooperatives (1,493 ha). This land represents only three percent of the total land under cultivation in Madagascar, and its low productivity is not a major constraint to development of the agricultural sector. Nonetheless, cession of underused portions of the land to smallholders would almost certainly increase output of export and food crops.

Existing legislation specifies that both male and female children are to inherit land. However, this law tends to be preempted by practice of customary law which varies in terms of the rights of females to inherit land. (See Annex by J. Ramamonjisoa for examples).

c. The Environmental Action Plan

The Madagascar Environmental Action Plan and plans for Environmental Program I have brought to the fore problems associated with land use practices and land tenure. Land pressure in the densely populated regions of the country and lack of viable economic alternatives have been identified as contributing to environmental degradation.

The Plan proposes surveys, registration and titling of existing land claims as the solution. It seeks to address institutional constraints to producing maps and to adjudicating and registering land parcels. Activities would be centered on protected areas and their adjacent land and on agricultural zones already deforested. The Plan calls for establishing the means to monitor land use and to penalize misuse through taxation or other measures. A draft of Environmental Program I calls for a legal study to translate communal rights such as are found on the East Coast and traditional rights into officially registered rights.

Some observers advocate legislation which would convert right of occupation into ownership as a prerequisite for further land registration.

Such legislation and the freezing of land registration in areas slated for it under Environmental Program I would guard against land grabbing by those who are more powerful and knowledgeable. Furthermore, there is need for a major national campaign to ensure poor farmers are as informed as others about the plans and procedures of the Environmental Program.

The plans under discussion for Environmental Program I in terms of titling some 5.5 million hectares of land risk either causing great harm to a significant proportion of the population or resulting in the local population ignoring the new legal foundation of land by continuing current practices. Fundamental questions should be answered in order to assess whether the proposed land registration program will have the intended impact. For example, where shifting cultivation (tavy) is currently practiced because of low soil fertility, the freezing of land holdings and titling them to individuals will probably not have the desired effect. Improved and low cost technologies required for sustainable production are not yet available to the owners. If the holdings are titled to groups it will not probably have the desired effect unless attention is given to formal group management of the land. Titling land to an individual may clash with the custom on the East Coastal of allocating land to a son upon marriage and thus lead to conflicts between fathers and sons. Questions should also be raised about safeguarding the existing ownership or use rights of women when individual and group titles are granted.

Nevertheless, it is crucial to establish the boundaries of protected areas. These boundaries must be acknowledged by the local inhabitants. Land rights in the adjacent areas must be secured and acknowledged to mitigate problems caused by in-migration as development plans are implemented. One of the studies not carried out the Environmental Action Plan working groups is a synthesis of existing studies on land tenure and an analysis of problems in the fokontany. A better understanding of existing practices is of utmost importance to help ensure that land registration undertaken as part of the Plan will have the desired impact.

The government has signaled its concern about the effect of land legislation and practices on agricultural development and the environment by recently creating a land tenure unit in the cabinet of the Minister of Agriculture.

5. Labor policies

Two different levels of constraints which affect agricultural development have been identified. The first relates to laws governing employment in agricultural enterprises. The second centers on the practice of hiring men as extension agents, of designating tasks for unskilled and semiskilled laborers by sex, and of paying female-designated jobs at a lower rate than those designated for men. While these practices are not a stated policy of the government, they are informally, unofficially accepted.

As discussed in section II.B.1.e, the investment code is being revised. It was expected that some provisions of the investment and labor codes and related circulars which served as disincentives to investment, particularly by

foreigners, would be modified.³⁶ At this writing, the final shape of the new investment code is not known, but preliminary drafts did not remove labor policy weaknesses found in two provisions of the old regulations.

Article 5 of decree 73-147, for example, required that labor dismissal due to reduction in activity be subject to the approval of a committee and the Ministry of Labor. To circumvent this hurdle, many firms hired on short-term contracts.

The part of the labor code which relates to seasonal workers (article 24) stipulated that workers hired on a part time basis, averaging about 20 days of work per month, become contractors after six months. To circumvent this many firms using seasonal workers had four-month contracts, while others gave incentives to workers to leave voluntarily. The labor dismissal and seasonal worker regulations led to increasing administrative costs and affected management flexibility and the productivity of workers through circumvention of the regulations.

Less than five percent of MINAGRI and NGO extension agents are women, and gender issues arise when the possibility of employing women as agents is discussed. It is argued that it is not socially acceptable for women to approach and talk with male farmers, and that the male farmers would not be willing to take advice from female agents. An official reported that when female agents were used some ten years ago in an integrated development project in the highlands, the wives of the male farmers become suspicious and that the male extension agents became resentful because the female agents were more motivated and harder workers. These gender issues have been raised in numerous other countries. However, the practice of agents working with groups rather than individuals has been found to be an acceptable and effective solution. Since a group approach is a main component of the T&V system, the arguments against the hiring of women as extension agents and against male extension agents working with female colleagues are weakened considerably.

While not hiring women as agents may be classified as an equity issue, the disregard of female farmers has economic ramifications since women perform much of the labor on food and cash crops (See Annex by Janine Ramamonjisoa).

In regard to the practice of designating tasks by sex for unskilled and semiskilled workers, and then paying less for female designated work, there is evidence of this in three very different jobs related to agricultural development. The most fully documented case appears in hiring of women on labor intensive road work. Under a NORAD-funded road project, the Agency stipulated that women as well as men should benefit. The project evaluators found that the construction contractor had promised a minimum salary of FMG 1,100 per day to both sexes but then paid by task, with the women always getting less, even during those times when they did the same work as men. After the evaluation team held a consciousness-raising session with female

³⁶The discussion of labor laws is based on: Cheikh Tidiane Kane, Export Promotion Schemes and Export Performance: A Background Study for Madagascar. Report for the World Bank, no date.

laborers, the women sent letters of protest and appeal to the president of their fivondrona and the Ministry of Public Works, but no corrective action was taken.³⁷

Transplanting of rice is a female-designated task and women are paid less per day for this work than are the males who prepare the land and harvest. Another example of sex discrimination occurs with coffee grading, a task designated as female and paid at a lower rate than similar skill level jobs held by men.³⁸

The designation of jobs by sex facilitates paying women at a lower rate than men. Because of the scarcity of paid work, women who are unskilled and semiskilled have little or no option to accepting such jobs when the need for cash to meet personal and household needs is great. It means that these women have to spend more time working to earn the same amount of money as a man working with a similar skill base. Undoubtedly this affects the women's capacity to carry out their other responsibilities related to care and maintenance of their families.

B. Constraints to Government Planning and Policy Development

Constraints to government planning, policy development and implementation are many and complex. The World Bank has been providing technical assistance to agricultural institutions since 1981, focusing on personnel and financial management, planning and program development, information management, and strengthening of technical services. Progress has been uneven. The Ministry of Agriculture proved to be much more receptive than the Ministry of Animal Resources, Water Resources and Forests (MPAEF) in the late 1980s. Until a new Minister took over in mid-1989, MPAEF's participation had virtually ceased.

MINAGRI's program planning and financial management capabilities are much improved, though the gains are still somewhat tenuous. The Ministry adopted a program budgeting system which introduced fiscal discipline at all levels but which tended to become overly detailed and time-consuming. The Ministry also installed a three-year rolling public investment program (PIP). The PIP process requires each ministry to assess and secure funding for all projects it has planned over the given period. The Ministry of Plan coordinates and arbitrates the effort. The process is now fairly well established and is proving to be an effective planning tool. Lingering problems stem from a shortage of technical staff and equipment at the Ministry of Plan as well as confusion within many ministries over the planning methodology and computer use. The ministries tend to be weakest in the

³⁷M. Skjortnes et. al., Participation féminine aux travaux de réhabilitation des routes rurales selon la méthode HIMO: première expérience sur l'axe Faratsiho-Antampanimahazo, Report for NORAd, December 1988.

³⁸C. Rabenarivo, various reports from rice regions for USAID/Madagascar and interview.

financial assessment and recurrent cost estimation aspects of project appraisal. Both short and long term planning are especially difficult at MRSTD/FOFIFA due to the extreme variability of its annual budgets

A general problem seen throughout the government is over-centralized management systems. For instance, at MINAGRI, a ministry endowed with particularly well-trained and motivated senior management, no one below the Minister has authority to develop policy. In addition, no mechanism, such as regular staff meetings, exists to encourage communication between the Minister and senior staff and within the staff.

Another problem found throughout the government is the lack of timely, accurate, and comprehensive statistical data. Further, existing information is not systematically disseminated within or between the ministries. Another government-wide problem is institutional complexity and fragmentation of responsibility among ministries. There are three major ministries with sector activity: MINAGRI, MPAEF, and MRSTD/FOFIFA. The Ministry of Plan (counterpart programming) and the Ministry of Commerce (exports) are also involved.

An important constraint to program implementation is the poor state of project monitoring and control systems. Ministries have limited methods for establishing the status of project disbursements and problems or progress to date. Effectiveness is further reduced by overextension of financial, management, and technical resources. Other important constraints include the slow, cumbersome system for releasing funds; over-centralization of administrative procedures; unclear divisions of power between and within ministries and different levels of government; and poor communications with regional offices.

The ministries in particular suffer from large, undifferentiated, poorly trained staffs, contributing little to overall output. MINAGRI has had a huge field staff of more than 3,000 extension agents and 1,000 input supply agents. The role of the latter has been sharply curtailed as input supply has been privatized. At the end of 1989, all of the extension agents were being tested for skill levels, and one authoritative source expected large staff lay-offs by MINAGRI.

FOFIFA's mandate as the national agricultural research institute gives it rather specialized technical problems. The diversity in topography, agro-climates, and farming systems found throughout the island oblige FOFIFA to build a strong regionalized program, focusing on adaptive research.

The weakest link among the agricultural ministries has been MPAEF, which suffered from excessive centralization of authority in the minister's office, generally weak management and frequent changes of staff and organizational structure at all levels. These changes limited the impact of MPAEF's programs and projects. The arrival of new leadership gives hope that the ministry will begin to play an effective role.

C. Constraints to farmer productive capacity and access to inputs

1. Limited access to inputs

a. Limited availability

All farmers are affected by the relatively limited availability of seed, certain chemicals (herbicides and pesticides) and fertilizer. In some cases, supplies become commercially available after the season has passed.

b. Risk and cost

Most farmers are unwilling to use chemical fertilizer, even when available, because of its high cost in association with the risk of not having an adequate harvest because of too little or too much water.³⁹ The common exception is use of urea on rice nurseries. Farmers tend not to have enough cash to buy chemical fertilizers later in the season during the transplanting period. The price of chemical fertilizers has doubled since 1984.

One input with high demand is improved seed. The current supply for a number of crops does not meet demand. One rice variety that is available at government seed multiplication centers but is not in great demand is called 1632. A long-cycle (150-160 day) variety, it has very high yields on station but requires such heavy doses of fertilizer that it is not viable under current conditions.⁴⁰

c. Lack of communication between breeders and users of seed

Seed breeding and multiplication facilities do not appear sufficiently sensitive to consider farmers' needs in selecting varieties to propagate. The proposed national seed plan could change this by establishing national policy for the first time and by obliging better coordination of dispersed donor efforts in seed multiplication.

2. Low purchasing power

Access to improved seed, implements, fertilizer and other commercial inputs is seriously constrained by the low purchasing power of the

³⁹See for example C. Rabvenarivo, reports for USAID/Madagascar on Andapa-Sambava Region, Antananarivo Region and Morondava Region, 1988.

⁴⁰At the Anosy-Fianarantsoa seed multiplication center, average yields of 1632 were 8MT/ha with a maximum of 10 MT/ha. The station applied 500 kg/ha of 11-22-16 and 150 kg/ha of urea on the nursery, 300 kg/ha of 11-22-16 at transplanting and 75 kg of urea later on. These dosages are unusual for a smallholder.

majority of farming households. This in turn affects their receptivity to information on improved techniques. Reliance on informal sources for credit at high rates exacerbates the problem of low purchasing power.

3. Lack of credit

The overwhelming majority of small farmers has no access to production credit at reasonable interest rates. As previously mentioned, some group credit schemes have been initiated such as the group credit program at SOMALAC in cooperation with BTM, which covers some 20 percent of the farmers in the area. The need is much vaster. MINAGRI has established a special committee to study possible solutions, and the World Bank has begun its own examination of potential for new departures in rural finance. Other initiatives would be welcomed by both institutions.

4. Poor market information

Marketing information reaches small farmers only through informal channels. SOMALAC's laudable efforts notwithstanding, neither MINAGRI or any other institution has a radio program which would keep large numbers of isolated farmers informed of prices and other market conditions.

5. Rural insecurity

Rural insecurity is endemic in certain areas. Recently there have been severe problems in the zone south of Fianarantsoa. Agricultural extension staff are unable to travel away from their base. Insecurity is greatest in the Midwest, the main region for new settlement, caused mainly by cattle thefts which are facilitated by low population density. This insecurity has led migrants to abandon their new homes. The poorer migrants in particular are unable to protect themselves and hence flee, whereas the large landlords usually remain.⁴¹ It is generally felt that until the security situation is improved, settlement will be impeded in the Midwest as well as other areas with low population densities but relatively good agricultural potential.

6. Land Tenure Practices

Practices related to land use and rights are more a constraint to sustainable development than current policies. Although the state claims all unused land, customary claims impinge on the state's ability to carry out policies aimed at a more rationale use of land.

7. Access to labor

In general access to labor is only constrained by the ability to pay. A day's labor is usually paid partly in cash and partly in the form of a

⁴¹Environmental Action Plan, Third Preparation Mission, Synthesis, March 31, 1988.

midday meal. Occasionally the demand for agricultural labor is not met because of specific circumstances. For example, Lac Aloatra rice growers depend heavily on temporary migration from the highlands for transplanting and harvesting. When the rains are late as they were in the 1987/1988 growing season, there were fewer migrants since labor was in demand at the same time in the highlands.

The supply of unskilled and semiskilled labor emanates from those with little or no land or as a result of household risk avoidance strategies and slack in the agricultural calendar. Female laborers are paid at rates lower than males and are especially in demand for transplanting rice. Since transplanting is a group activity, women may both hire neighbors and be hired themselves at different times. Forty-five percent of the temporary paid laborers are female, according to the National Agricultural Census.

8. Ecological Factors

The discussion of environmental issues related to the subsistence agricultural sector in II.A.1. provides the main basis for identifying specific environmental constraints to improving the productive capacity of Malagasy farmers. Specific constraints include the following:

- o Rapid leaching of soil nutrients. The rainfall is high enough over most of the country for leaching to be a major problem.
- o Dearth of native and exotic woody "pioneer" species adapted to recolonize fallowed fields. The vast majority of upland fallows in Madagascar are recolonized only by grasses. The native woody flora of Madagascar is characterized by an incredible absence of pioneer species.
- o Acid upland soils. Most legumes do poorly in acid soils, however, and nitrogen-fixing Rhizobium bacteria on root nodules will not survive below a certain pH. Most tanety soils are quite acid, generally in the range of pH 4.0 to 5.5. At low pH, phosphate fertilizer becomes bound in a form unusable to crops.
- o Highly erodable soils. Most upland soils in Madagascar are highly erodable due to the relief, rainfall regime and the soil characteristics.
- o Large areas susceptible to lavaka formation. Tanety soils developed over schist or mica-schist are highly susceptible to lavaka erosion.
- o Lack of natural barriers to the spread of grass fires.

- o Low palatability of range grasses. If not burnt periodically, most grasslands in Madagascar become virtually unusable for cattle, particularly at the end of the dry season. Protecting grasslands from fire decreases their pasture value.
- o Relief. The steep slopes that characterize much of Madagascar's uplands not only present a high erosion hazard; they also make mechanization, even the use of animal traction, impossible on many sites.

D. Constraints to the Development and Adoption of New or Improved Production Technologies

1. Flood irrigated rice and other bottomland crops

a. Runoff and sustainability

The water supply for gravity-flow, irrigated rice depends on the hydrology of the watershed above the rice fields and the water control infrastructures put in place to control and direct the water that is available. Many narrow valley bottom rice fields depend on runoff from the slopes directly above them for their water supply. Many others depend on water that is captured from small, ephemeral streams that cease to flow in the dry season and that only begin to flow following the first rains heavy enough to produce runoff from the upper watershed. Others are irrigated from permanent streams and some from manmade reservoirs.

Early rainy season runoff is critical to rice yields. Rice cannot be transplanted until fields are flooded. The later rice is transplanted on the High Plateau, the lower the yields. October and November are generally considered optimal months for transplanting on runoff dependent fields. But the runoff is strongly affected by the land cover/land use of the watershed. The results of a 15-year study conducted on four experimental watersheds at FOFIFA's field center at Manankazo 120 km NNE of Antananarivo on the High Plateau are highly instructive. Table 12 presents the results:

Watersheds 2 and 4 represent land uses under which soil erosion is negligible, a necessary condition for sustainable use of the tanety. However, erosion is negligible because runoff also is a minimal 2.6% and 1.9% of rainfall. Table 13 shows the monthly runoff for the same four experimental watersheds.

About 260 m³ of water is needed to properly flood one hectare of rice fields. This is equivalent to the December runoff from 10 hectares of the burned tanety grasslands in Watershed 3. The ratio of uplands to bottomlands on the High Plateau is about 10 to 1. Therefore, all the runoff-dependent rice fields of an average watershed could be flooded by the end of December in the above case if all the tanety were covered by grasslands that were burned at least once every two years.

Table 12: Runoff Measured at Manankazo from 1962 to 1977
 Average Rainfall (R) : 1807 mm

| <u>Watershed</u> | <u>Land Cover/Use</u> | <u>Runoff</u> | <u>% R</u> |
|------------------|--------------------------------|---------------|------------|
| 1 | Unburned grassland | 123 mm | 6.8 |
| 2 | Cropland with grassed contours | 47 mm | 2.6 |
| 3 | Grassland burned every 2nd yr | 238 mm | 13.1 |
| 4 | Pine forest | 33 mm | 1.9 |

Source: Rakotomanana, 1987

Table 13: Monthly runoff (mm) at Manankazo
during the 1985-86 cropping season
 1556 mm total rainfall

| <u>Watershed</u> | <u>Nov</u> | <u>Dec</u> | <u>Jan</u> | <u>Feb</u> | <u>Mar</u> | <u>Apr</u> | <u>Total</u> |
|------------------|------------|------------|------------|------------|------------|------------|--------------|
| 1 | 0 | 12.45 | 20.22 | 16.45 | 41.85 | 1.38 | 92.36 |
| 2 | 0 | 0.00 | 3.96 | 4.40 | 1.17 | 2.43 | 11.78 |
| 3 | 0 | 26.33 | 41.01 | 42.34 | 73.84 | 10.55 | 194.09 |
| 4 | 0 | 0.33 | 0.85 | 0.10 | 8.26 | 0.18 | 9.71 |

Source: Rakotomanana, 1987

But the most alarming conclusion that can be drawn from Table 13 is that the forested watershed and the watershed cultivated with soil conserving techniques did not yield enough runoff during the entire rainy season to flood all the bottomlands fields even once. The development of sustainable production systems on the tanety could pose a major constraint for flood irrigated rice cultivation on the High Plateau and one for which there are no obvious solutions. Short season rice varieties might provide a partial solution, but yields are generally lower. Direct seeding of rice before paddies are flooded has been done successfully in other countries, but this technique presents a difficult problem of weed control.

b. Soil erosion and rice production

Deposition of infertile sediments on rice fields, silting in of reservoirs used for irrigation, increased maintenance costs of water distribution systems and altered stream hydrology due to erosion on the uplands are all constraints to bottomland rice production that have already been discussed.

2. Upland rainfed cropping

Constraints to the development and adoption of improved, sustainable rainfed cropping systems are many. They include:

a. Additional extensification of production

Sustainable rainfed production systems will almost invariably require more intensive management and will often be, at least initially, considerably more labor intensive than traditional systems. In the absence of significant, short term benefits from intensification, there is little incentive for farmers to abandon traditional "extensive" production practices. It is generally when land becomes a limiting factor that farmers will be forced to intensify their land management. This is readily seen in the relatively intensive management of rice fields on the limited areas of fertile, bottomland soils. Forest clearing continues, even in areas of low population density, because these soils are invariably richer than those of the grass tanety. Extended fallow, wherever it is possible, remains attractive because it is a means of restoring soil fertility with one of the lowest levels of inputs.

b. Lack of proven techniques

Most applied research and project activity in soil conservation and agroforestry is of quite recent origin. FOFIFA's agroforestry trials at Beforona and Manankaza are only three years old; almost no data are yet available on the effects of different treatments on crop yields. None of the promising improved wooded fallow trials has yet gone through a full cycle with the fallows put back into crop production. The Swiss financed Village Reforestation Project's agroforestry trials are only two years old. The number of research and trial sites is very limited, but agroforestry and vegetation-based erosion control techniques are very site specific. Appropriate, multiple use, soil fixing/soil improving species

compatible with different crops and cropping systems must be identified for different climatic and soil conditions.

c. Insufficiency of classical agronomic approach

Chemical fertilizers, herbicides, improved seed and mechanization will not make rainfed agriculture sustainable. They will not resolve the soil erosion problem, and they probably cannot maintain soil fertility. The head of Soil Conservation and Agroforestry Research at FOFIFA states categorically that chemical fertilizers, even when combined with crop residues, are not sufficient to maintain soil fertility at levels that will permit continuous cropping.

3. Improved range management

With 60% of Madagascar covered by rangelands of generally very low productivity, the potential economic and environmental benefits of range improvement could be immense. However, the constraints to improved range management are the most vexing of all. They include the following:

a. Irability of improved herbaceous forage species to compete with "native" grasses

(It is a matter of debate whether the dominant range grasses in Madagascar are indigenous species or exotics introduced by man). Numerous exotic forage species have been tested over the last 30 years, but all the higher value species have invariably been eliminated by competition from the native grasses that are much better adapted to Madagascar's infertile upland soils. They could compete if soil fertility were improved with fertilizers, but this is considered economically infeasible.

b. Open grazing

Grasslands, including fallow, are generally open for anyone to graze livestock. Investments in range improvement cannot be recovered if range is open to all.

c. Widespread cattle rustling

The breakdown of rural security and widespread cattle theft over large parts of Madagascar may preclude investment in range improvement.

d. Lack of appropriate technology

Mowing and subsoiling are two techniques that can be used to improve range quality for livestock production. Both techniques favor higher valued range grasses like Hyperinia over the very low value Aristida. But there are major questions concerning both the economic feasibility of these techniques and the appropriate type of equipment to be used.

E. Research Constraints to the Implementation of Improved Technologies

The National Agricultural Research Project (NARP), which is scheduled to receive a \$24 million dollar loan from IDA and \$10.4 million dollars from other donors, will reorganize and consolidate the research structure (section II.B.2.a). The transformation is to be completed by 1997.

The new research Master Plan generally responds to problems in each agro-ecological zone. However, the degree to which the technologies developed and tested will respond to the farmers' own evaluation of their needs remains to be proven.

1. Department of Research and Development

The Department of Research and Development (DRD), created in 1983, plays a role in establishing linkages between research and extension, and between research and the farmers. Currently it carries out diagnostic, baseline and special studies, and conducts and monitors on-farm trials. In carrying out its work the department does not systematically seek an understanding of farmers' perceptions and technical knowledge as a means of explaining their practices, nor has it developed farm typologies as a guide to research concerns. A review of some reports done the last three years reveals that the research tends to describe farmer practices. At least in the written reports on monitoring of field trials, farmers' views about the trials are not systematically provided.

An IRRI anthropologist under the USAID Project has worked with staff to conduct two diagnostic surveys and done on-the-job training in the process. However, more training is needed in interviewing techniques to obtain farmers' perceptions and reasons for various practices and in interpretation of results to identify research concerns. While the NARP calls for a significant reorientation of the Department of Research and Development, it is weak in terms of type and extent of training required to institutionalize this approach in the program.

2. Weakness in Approach

If researchers continue to neglect female farmers, their work is likely to have little applicability to most farming households. Currently female farmers are consulted by the DRD when collecting household budget data and labor data. However, women have not been included in the on-farm research trials. Research in other developing countries has documented that neglect of women's roles and responsibilities in agricultural production can impede adoption of new technologies or can result in a negative impact on women.

Several of the potentially improved technologies relate to agricultural tasks performed mainly or almost exclusively by women. For example, under the FOFIFA/IRRI project it has been determined that dipping the roots of rice seedlings in a phosphate fertilizer slurry prior to transplanting enhances plant growth and development, whereas other types of applications may not be very cost effective. This recommendation ought to be tested by female farmers

since rice transplanting is a female-designated task. (See by J. Ramamonjisoa).

3. Staff Levels and Education

Under the National Agricultural Research Project, there will be six to eight regional research and development programs, covering Madagascar's major agro-ecological zones. Each is to contain a multidisciplinary research team. Currently the department staff includes only 5 women on its three operational DRD Teams. While more staff are needed, it is equally important to improve quality of the work through on-the-job training and to use opportunities for short- and long-term training overseas to reward performance. Furthermore, it is important that the teams consist not only of agronomists and agricultural economists but also of anthropologists or rural sociologists. Some teams will require specialists in soil conservation and/or agroforestry.

Enhancement of FOFIFA's ability to develop technologies appropriate to different farming systems or resource levels will be dependent upon:

- o Utilization of farmers' perceptions, technical knowledge and constraints to identify research needs and to evaluate proposed technologies for different categories of farmer;
- o Willingness of FOFIFA officers and staff to include women farmers among their clientele and to develop technologies appropriate to low-resource farmers as well as to wealthier farmers; and
- o The incentive - reward system for researchers to work off station and with farmers.

Currently there appears to be a better than usual appreciation by scientific researchers of the economic constraints faced by the majority of farmers, and there is concern with directing their research to feasible solutions. With adequate education and training the work of the DRD could be enhanced and thus assist in assuring that the technologies developed are appropriate to various farming systems.

4. Research - Extension Linkage

On-farm trials and initial demonstrations of new technologies on farmers' fields should involve close cooperation between FOFIFA and the extension staff of the Ministry of Agriculture and other development organizations. Although the MINAGRI extension service is plagued by a number of constraints, these are being addressed (as discussed above) and ought not to impede improving the linkage between research and extension.

Because of the importance of getting research results to farmers MINAGRI has recently established a Research and Development section in the extension division, with the objective of serving as a link with researchers. Also, the Director of DVA is a member of FOFIFA's Board of Directors, which provides an excellent means of cooperation. In certain FOFIFA programs and projects, researchers and extension agents are working together; however, this kind of collaboration is mostly on an informal basis and ought to be formalized. A research-extension coordination committee, similar to the one

operating in the Lac Aloatra region, should be formed for each of FOFIFA's regional centers. The committee could focus on on-farm trials as well as on the use of researchers as subject matter specialists for extension agent training sessions under the T&V approach.

F. Natural Resource and Environmental Issues

1. Ministerial responsibility

Soil erosion is principally a problem on rainfed agricultural lands and on rangelands. Forested lands rarely have a significant erosion problem. However, the Forest Service has the government mandate for soil erosion control; MINAGRI and the Directorate of Animal Production are not charged with promoting soil conservation on agricultural and range lands.

Thus, soil conservation techniques are rarely included in the agricultural extension messages developed by MINAGRI's extension service. Extension concentrates on production and on flood irrigated rice; conservation and sustainability are not priorities. Furthermore, there is no division within the Directorate of Animal Production (nor in any other ministry) that is charged with promoting improved management of the rangelands that cover over 60% of the island. Sound range management, of course, would include soil conservation measures.

2. Extent of collaboration between Government Agencies

The lack of communication and collaboration between ministries and between different units within the same ministry often poses a constraint to effectively addressing natural resource issues. Several examples can be cited:

- o The Directorate of Waters and Forests in MPAEF is responsible for establishing and enforcing government policy on fire. Fire is the main tool used by herders in Madagascar for managing their rangelands and it is used in general disregard to Forest Service policy. The head of the Directorate of Animal Production within the same ministry as the the Forest Service was unaware of the content of Forest Service policies on fire.
- o A much-needed national natural resource inventory mapping project (IRNT) was begun in about 1985 with World Bank funding. It is being implemented through the National Center for Environmental Research (CNRE) of MRSTD. Little effort has been made to identify the information needs of the principal users before selecting classification schemes and methodologies. The man responsible for forest inventory in the Forest Service was unaware of the existence of IRNT.
- o The head of the Environmental Planning Service in the Ministry of Plan has no regular contact with the Environmental Action Plan Support Unit attached to the same ministry.

3. Research needs and capabilities

The most promising techniques for soil erosion control and soil fertility maintenance on rainfed croplands are agroforestry techniques that involve the use of multi-purpose, perennial, woody and herbaceous species planted in temporal and spatial association with field crops. Agroforestry relies strongly, however, on matching species to climate, soils and cropping systems. This requires a considerable adaptive research effort, and research trials involving woody species and other perennials invariably require more time than research on annuals.

The head of FOFIFA's Soil Conservation and Agroforestry Unit is a very capable senior level researcher with an excellent farmer-oriented approach to applied research. He has just recently been able to expand his staff to a total of seven researchers, but nearly all are young graduates with little experience. This unit could benefit greatly from long-term advanced degree training for selected members of its staff.

The use of perennials in soil erosion control and in soil fertility maintenance is very site specific; one must screen many species and varieties to identify a few that are best adapted to each combination of local climate and soils, and that are compatible with the local crops and farming systems. The potential of agroforestry is constrained to date by the limited number of species that have been tested on a very limited number of sites.

G. Constraints to Exportation of Agricultural Commodities

One of the most successful components of the economic liberalization program has been that of export marketing. Public domestic and international marketing monopolies have been abolished for all crops except vanilla, resulting in a surge in private sector participation in all stages of export marketing. Prices are negotiable at all levels of the marketing chain. The FMG has been substantially devalued, increasing the competitiveness of all of Madagascar's export products. Export taxes have been eliminated for all crops except coffee, vanilla, and cloves and the export tax for coffee is adjusted weekly to reflect changes in the world market price. Because export taxes are not applied to processed goods, there is an incentive to add value to traditional exports (e.g., clove oil, vanilla essence).

How much ground still must be covered to eliminate the remaining constraints?

1. Constraints affecting the exporter

At present, among the important factors which impede, but may be made to stimulate, the Malagasy exporter's operations are these:

- o Exchange rate of FMG against trading currencies;
- o Freedom, or lack thereof, of disposing of foreign exchange earnings;
- o Taxes related to export operations;
- o Availability of credit;

- o Transport facilities;
- o Availability of market information; and
- o Administrative procedures and paperwork.

The present situation with respect to these factors is analyzed below.

a. Exchange rate

During the recent period of increasing cooperation of the Government with the International Monetary Fund and the World Bank, the FMG has undergone a number of devaluations (the largest one in 1987), thus making it much more attractive for Madagascar exporters to carry on their business. However, as indicated by a recent analysis of Dr. Richard P. Harber, Jr. of USAID/Madagascar, during the last two years that advantage might have been eroded by the inflation which was stronger in Madagascar than in the countries against whose currencies the value of FMG is periodically determined. Thus, it is possible that, unless some adjustments occur, Madagascar's competitive edge is suffering a gradual decline.

b. Freedom of disposing of foreign-exchange earnings

Free disposition of foreign-currency proceeds of exports is an advantage very highly valued by most exporters. That advantage is very severely restricted by the current regulations in Madagascar. An exporter has a 90-day limit, from the date of the shipment, to deposit at the Central Bank the proceeds of the transaction. That kind of regulations is not unusual. The customary justification is that of protection against the loss of foreign currency needed for essential imports, and against the flight of capital from a country in which capital is badly needed for productive investment.

These arguments carry some weight. But currency restrictions, of the type in question, are to some extent self-defeating. In Madagascar it appears that they have caused, for example, a considerable diminution of openly declared exports of meat, which have been replaced by clandestine exports of live cattle to Reunion.

Are these clandestine exports really very damaging to the economy? If the transactions are profitable, a part of the currency will return to Madagascar to buy new cattle for more exports. Another part will be used on consumption goods or even equipment to be brought to Madagascar. The part which is not brought back is in fact a reserve which can at any moment be repatriated if there are attractive opportunities to invest and government policies favor rather than discourage such movements.

c. Taxation of exports

Export taxes are not necessarily damaging, nor does a liberalization logically imply a disappearance, or even a reduction, of export levies. In Madagascar, with its large rural population and a weak system of collection of internal revenues, export taxes and customs duties may be the only practical manner of obtaining enough resources for public services. Heavy expenditures on education, health and neglected infrastructure demand

substantial revenues. On the other hand, excessive taxation of exports is a disincentive. Particular taxes may have an incentive or a constraint effect.

In 1985 all products, except vanilla, coffee and cloves were exempted from export taxes. For each of these export crops, the situation is slightly different. Very heavy levies on vanilla are not particularly troubling because of Madagascar's unique position as both the lowest-cost and highest-quality producer in the world. The same cannot be said for cloves. A tax of one dollar per kilogram of cloves was introduced in 1988. It serves as further discouragement to exports that are already gravely undercut by Indonesia's virtual self-sufficiency in cloves. At the low prices for that commodity which have recently prevailed, not above \$2.00 per kg according to trade sources, clove exports have no appeal. Abolition of the tax would be well-advised.

It is the tax on coffee exports which gives the most cause for concern because of the importance of that crop for Madagascar and of the precariousness of Madagascar's present position as exporter. The present system of taxation does not encourage efforts to improve the quality of coffee. When the survival of coffee exports may depend on responding to increased demand for higher grades of Arabica rather than continuing to ship inferior grades of Robusta, the present tax system becomes a serious constraint.

One aspect, at least, of the current system of taxation has a clearly positive developmental impact. Processed products, such as the essential oil of cloves, are not taxed on export. This regulation favors a greater value-added component in exports and contributes to the local employment and income creation.

d. Transport facilities

(i) Domestic transport

The 592,000 square kilometers of the country's area are endowed with only 5,200 km of paved roads, sections of which are badly in need of repair. Most of the 46,800 km of graded laterite, gravel and dirt roads are also in bad condition. Some are not passable during the rainy season. Areas with agricultural potential cannot develop. The poor state of road surfaces causes losses in shipment of soft fruit and lowers the quality of merchandise destined for export. The physical integrity and security of domestic shipments are menaced by considerable risks. Exporters in Toamasina state that they pay heavy insurance on domestic truck shipments of crops from the Southeast production areas.

(ii) Ocean and air transport

Ocean transportation to Europe and other continents is very expensive, the tariff being established by a regional conference. Freight charges from Madagascar to European ports (but not to the United States) are higher than charges from Mauritius or Reunion to the same destinations. This clearly puts Madagascar at a comparative disadvantage in some instances and indicates that a portion of export earnings is unnecessarily lost. The non-conference lines are, as usual, less expensive but do not offer the regularity and relative speed provided by the conference.

Very few international cargo ships call at secondary ports close to the export crop production areas in the North and West. Currently, an international ship calls only once every two months at the port of Morondava, about the same frequency is found at Antsiranana. Exporters who cannot wait or who cannot get cargo space are forced to truck crops to Toamasina on the East Coast.

Air transport is mainly used for seasonal shipments of litchis to Europe during a few weeks in November and December in advance of refrigerated shipments by sea of this fruit treated with sulfur dioxide for preservation. There are small shipments of mangoes (60 MT/year), mandarin oranges (15-20 MT/year), fresh vegetables and shellfish. Air Madagascar's capacity is not fully utilized except on occasion in the litchi season. Kenya takes advantage of unused cargo space to ship its own goods on the weekly flight that transits Nairobi, and Air Madagascar charges Kenyan exporters only its marginal cost.

e. Availability of market information

The Ministry of Commerce has made an effort to publicize changes in regulations and compile some types of market information. Still, exporters lack comprehensive, up-to-date data on international market prices, quality and packaging standards, and potential new markets and customers. Exporters have expressed a need for assistance in identifying potential overseas partners.

f. Administrative procedures

Paperwork is still cited by some as an administrative constraint, although others no longer consider it a burden. An export file, necessary for executing any export sale, can now generally be established in two to three days. A file consists of a one page export declaration as well as invoices and an inspection certificate if needed. The papers must be registered with the exporter's bank in view of future foreign exchange repatriation. Exporters of perishable products have complained about the unavailability of inspection and banking services after hours and on weekends.

2. Constraints affecting the foreign importer

Once a price has been agreed upon, the two principal concerns of the importer are maintaining consistency of quality and dependable supply so that commitments to his customers can be fulfilled. In both respects Madagascar's record still leaves something to be desired.

a. Quality

A frequently cited constraint is the low quality of Malagasy export products. Exporters all claim to invest heavily in quality control to protect their reputations but accuse other exporters (especially well-connected newcomers) of having neither the ability nor the desire to regulate the quality of their exports. Their negligence is believed to have a negative impact on Madagascar's image overseas.

It is widely reported that the quality of Madagascar's coffee has fallen off markedly over the past few years. Some informants ascribed the deterioration to absence of differential premiums for better quality.

American spice importers reportedly avoid Madagascar's cloves due to the high percentage of clove nails without heads.

The poor quality is not limited only to the export product. Locally produced packaging supplies do not enjoy a reputation for high quality according to the standards accepted in international trade.

b. Supply

Madagascar's dependability of supply of traditional, slowly-perishable products (coffee, vanilla, cloves) is not inferior to that of many other countries. However, the same is not true with respect to several other non-traditional crops which could play an important role in export diversification. Knowledgeable exporters believe that there are good export opportunities for such products as hot peppers and dried vegetables. A major crop like maize is finding a market in Reunion and Mauritius. The supply of these goods, however, is limited and irregular. In turn, the supply does not attract regular transport services and buyers. The difficulties encountered in the shipment by air of fresh litchis to France in November 1989, which resulted in unused cargo space and cancelled orders, illustrate the lack of dependability which will continue to be very costly.

H. Summary of constraints

1. Ecological

- o Inherent very low fertility of upland soils;
- o Difficulty of maintaining soil fertility of cultivated upland soils under a tropical climate;
- o Rugged topography and highly erodible soils, large areas susceptible to lavaka erosion;
- o Exceptional fragility of the natural forest ecosystems;
- o Unpalatability and unproductiveness of rangeland;
- o Lack of natural barriers to the spread of wildfires.

2. Production systems

a. Rice and other bottomland crops

- o The adoption of soil conserving, sustainable production systems on the tanety uplands will severely reduce the amount of runoff available for flood-irrigated rice;
- o Erosion of uplands decreases productivity and increases costs of crop production in the bottomlands.
- c Theft of crops in the field;

- b. Upland crop production
 - o Lack of incentives for intensification wherever potential for low-input extensification exists;
 - o Lack of proven technologies for sustainable cropping systems;
- c. Range management
 - o Inability of improved forage species to compete with "native" grasses without soil amendment;
 - o Open grazing;
 - o Lack of proven technologies;
 - o Breakdown in rural security as evidenced by theft of cattle.
- d. Forest production
 - o High species diversity of natural forests, which makes natural forest management for high value species impractical;
 - o Feeble capacity of natural forests to regenerate naturally following disturbance, which makes their management for fuelwood and charcoal very difficult;
 - o Widespread, uncontrolled use of fire;
 - o Cumbersome, expensive, administrative procedures for gaining title to land for tree planting.

3. Transport

- a. Domestic transport
 - o Bad state of roads, including seasonal isolation of some areas, greatly restricting transport of perishable products;
 - o Inadequacy of shipping at secondary ports, which obliges exporters to make long, costly overland shipments;
 - o Poor condition of coastal shipping to Toamasina, which causes losses due to poor facilities.
 - o Theft of commodities in transit.

b. Export transport

- o Insufficient frequency;
- o Insufficient or inadequate facilities, e.g. lack of bulk loading facilities for grain at Toamasina silos and lack of proper fumigation facilities.
- o Ocean freight conference rates to Europe markedly higher than those from Mauritius.

4. Financial

- o Insufficient capital for small enterprises;
- o Costly formal procedures for commercial loan applications, limiting number of small entrepreneurs who are able to apply;
- o Credit to small farmers virtually non-existent;
- o Insufficiency of funds for important research, development and extension activities.

5. Institutional

- o Legacy of a ten-year hiatus in agricultural research, with no research at all done on certain crops such as cassava;
- o Lack of trained research and extension personnel and of formal linkages between research and extension, resulting in scarcity of appropriate technologies to be extended to farmers.
- o Lack of national seed policy and legislation, combined with totally inadequate production of improved seed;
- o Lack of a marketing information service by radio or other means that is available to small farmers;
- o Level of soil conservation/agroforestry research inadequate to needs;
- o No mandate to MINAGRI for promoting soil conservation on agricultural lands;
- o No government service charged with promoting improved range management;
- o Lack of effective exporter organizations who would represent the profession and assure self-policing standards to maintain a quality reputation for Malagasy exports.

6. Bureaucratic

- o Slowness of system for giving drawbacks for imported inputs used in exported products;
- o Slowness of system for allocating foreign exchange for import of producer goods.
- o Inadequate capacity to carry out cadastral operations and to register land titles, occasioning prolonged delays.

7. Legal

- o Labor legislation: difficulty in terminating employment of employees who have worked more than six months;
- o Land tenure: impossibility for foreign investors to buy land and difficulty of long-term leasing; distinct differences between land laws and practices related to land use and rights.

8. Taxation

- o Inappropriateness of export tax on cloves under current market conditions and when a similar product is untaxed.
- o Disincentives to quality found in the variable tax on coffee and in the system for allocating the former ICA quota.

IV. POTENTIAL SECTOR ASSISTANCE, 1990-1997

A. Current and Planned USAID Activities

1. Strategy and objectives of the agricultural program

The central objective of AID in Madagascar is to increase rural incomes and thereby improve nutrition and the quality of life. This requires a necessarily diverse strategy because the obstacles to growth and self-reliance which pervade the economy are manifest in numerous forms. Thus the USAID program supports the reform, restructuralization and liberalization which have been underway since 1983. In sum, the program:

- o Helps provide foreign exchange to import agricultural inputs and other commodities (overall imports declined by 58% in dollar terms from 1985 to 1988);⁴²
- o Supports basic agricultural research, seriously neglected for ten years;
- o Funds improved rural transport and irrigation infrastructure;
- o Provides training; and
- o Assists with conservation and environmental protection.

The FY 1991 Congressional Presentation states:

"The U.S. is committed to devoting the greater part of its assistance to enable the Government of Madagascar to undertake the policy and institutional reforms essential to rekindle economic growth...[The next major step from the USAID point-of-view] will be reform of the financial sector, and the rationalization of parastatal enterprises...and in the longer term, to increase productivity of food and export crops."

USAID's agricultural program is nationwide in scope. Direct project interventions extend from the fringes of the tropical forests, where buffer zone developments around nature reserves are being introduced, to the traditional rice-growing Central Plateau. The strategy is straightforward: provide major AID funding for balance-of-payments support subject to conditions precedent, such as trade and internal market liberalization, tax reform and privatization measures. Counterpart financing is used to fund some of the infrastructural investment for the activities mentioned above.

⁴²Imports were flat from 1984 to 1987. The big drop came in 1988.

The implicit rationale for this strategy is pragmatic:

- o The donor consensus is that restructuralization, liberalization, and economic stability with growth are the first priority;
- o A major obstacle to growth has been limited foreign exchange and unmanageable debt service obligations;
- o USAID has limited resources and cannot undertake heavy project oversight responsibilities.

Hence the situation in Madagascar has been appropriate for an AID program of balance-of payments and sector assistance with the option for selected project interventions.

2. Resources available, including DFA, ESF & PL480

The USAID program in Madagascar according to the Annual Budget Submission is provided in Table 13.

Projected expenditures and projected obligations for the agriculture sector are:

| | <u>FY88</u> | <u>FY89</u> | <u>FY90</u> | <u>FY91</u> |
|----------------------|---------------|-------------|-------------|-------------|
| | (\$ millions) | | | |
| DFA (or predecessor) | 18.7 | 10.3 | 11.6 | 17.7 |

In addition, counterpart funds have been an important resource for agricultural infrastructure investments: over \$53 million equivalent of local currency had been generated through 1987. Counterpart use in FY81 - FY89 amounted to 6,929 billion FMG (or about \$40 million @ 1500 FMG/\$).

A review of counterpart fund uses in Madagascar indicates that programming has been effective. The funds are generally used for development activities that would not otherwise be funded; at least that is the presumption. Counterpart was used for scores of mini-projects in agriculture and elsewhere. This approach rapidly becomes an accounting nightmare. Only a fraction of the available counterpart has been programmed over the years, and only a fraction of that actually used.

The problem is not without precedent. The stabilization program requires fiscal restraint, and the GDRM has been faithful to that. Counterpart programming has to be a secondary priority. Given this, and the stress on USAID to plan and oversee a mass of mini activities, there is a strong argument for attributing counterpart to the GDRM for general budgetary purposes.

Table 13: USAID Program in Madagascar

| | (\$ millions) | | | | | | | |
|----------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | <u>FY84</u> | <u>FY85</u> | <u>FY86</u> | <u>FY87</u> | <u>FY88</u> | <u>FY89</u> | <u>FY90</u> | <u>FY91</u> |
| DFA* | - | 5.0 | 3.8 | 7.7 | 19.5 | 14.0 | 19.0 | 19.0 |
| PL480 Title I | 8.0 | 11.0 | 8.0 | 8.0 | 3.3 | - | - | - |
| PL480 Title II | 1.0 | 1.6 | 1.7 | 1.5 | 2.1 | - | 7.5 | 7.5 |
| VOLAGS | - | 1.6 | - | - | - | - | 5.0 | 5.0 |
| Food for Prog. | - | - | 11.5 | - | - | - | - | - |
| TOTALS | 9.0 | 19.2 | 25.0 | 17.2 | 24.9 | 14.0 | 31.5 | 31.5 |

* DFA or predecessors

Source: Annual Budget Submission, USAID/Madagascar

3. Current policy dialogue and conditionality

The agricultural export liberalization program (MAELP) is the single largest project in the USAID program. It is intended to encourage continued liberalization of export marketing through reform of policy and administrative practices. Having attained from the GDRM essentially complete de jure free market conditions for all aspects of export activities with respect to all commodities (except vanilla), USAID is addressing simplification and reduction of export tariffs on cloves and adoption of a flat rate tax for coffee.

Contemplated additional initiatives for the near future will address official administrative obstacles to domestic and foreign investment in agriculture. These include barriers to investment, streamlining administrative procedures for release and dissemination of seeds and agricultural technology, and facilitating rural financing for agricultural inputs and marketing.

4. Program accomplishments and policy reform effectiveness

The USAID program in Madagascar has been implemented during a time of real and substantial reform, stabilization and fundamental economic change. The program has provided resources to help relieve external economic pressures and face heavy domestic food requirements. It provided crucial support in the form of commodities to help the Government achieve price stability while carrying through reforms. USAID has not just been trying to "pile onto the bandwagon of the IBRD and IMF", but has supported numerous development activities including rice research, support of the IBRD energy program, UNICEF child survival, the national census, a multitude of small irrigation and infrastructural investments, technical assistance, participant training and the national environmental action plan.

Most importantly, perhaps, U.S. assistance has been used to encourage fundamental reforms and restructuring:

- o Implementation of foreign exchange liberalization (OGL) open general licensing.
- o Liberalization of export marketing of coffee, cloves and pepper.
- o Simplification and reduction of tariff levels for cloves and implementation of a flat rate for coffee.
- o Implementation of a market information system.

The liberalization program has not had smooth sailing, however. Institutions do not change easily; individuals and groups do not relinquish privileges and advantages without resistance. Short-term expediency has on occasion taken precedence over long-term commitment. In addition, expectations with respect to external conditions (such as international markets and prices) have not held. But major achievements have taken hold in law and in practice to the extent that most respected observers seem to feel

that the desired restructuring is firmly launched and there will be no "turning back". The fundamental legislative steps have been taken.

Meanwhile, an emergent multi-party political system is undertaking its first tentative actions. There is an active press. Open public debate of official policies and objectives is growing and appears promising.

There is lingering concern that, despite everything, the Government may turn back to its old ways. Private individuals are reluctant to take substantial chances, though there are signs that the reluctance is easing. There is reason behind the anxiety: the promised marked acceleration in growth has not yet been noted. Apologists have offered explanations, but none is satisfactory. Perhaps a bit more time is required to get the reforms to "take hold".

There are still many problems. The summary list of constraints at the end of section III evokes some of them. Much remains to be done to implement the details of the reforms throughout the land and within institutions. The authorities and the people who desire change must sustain the effort and be encouraged to do so. They could use some good luck.

5. Support for sustainable agricultural development and sound natural resource management

AID is certainly contributing to the development of sustainable agriculture in the sense of helping assure a supportive regulatory climate and the minimal essential market conditions and inputs. The question should probably more precisely be: does the U.S. program (or in fact the "global" development program for Madagascar including those of the government and all donors) sufficiently address all the factors which are required to yield, in an acceptable period of time, sustainable agriculture?

Indeed in certain respects the government has carried through unusually effectively, for example in achieving the overall fiscal targets required by the stabilization program. But the austerity required of the government sector and the budgetary choices made within that sector have among other things, apparently contributed to a severe reduction in the services required to sustain agricultural development, e.g. infrastructure, research, extension, and input programs. One finds these deficiencies in agricultural inputs within almost every aspect of the sector under investigation. While limitations on services could naturally be expected during times of austerity, we cannot be certain that the best choices are being made; e.g. when one sees that some obviously uneconomic state enterprises continue to be operated (with subsidy) even though the dominant sector of the economy, agriculture, "the engine of growth", is seriously short of what it requires.⁴³

⁴³Other parastatals, such as SINPA, which just celebrated its 15th anniversary, have been rigorously managed (and given a relatively free hand by the Government). SINPA was one of the first, if not the first, parastatal to make a profit.

Thus, it is clear that the donor programs, AID and the government are doing some of the right things to revitalize agriculture; but there obviously other requirements not being met and, perhaps still others not yet identified. The latter is one of the purposes of this assessment.

With regard to the physical and environmental sustainability of the program for agricultural development, there are truly malevolent forces contending. Fire, deforestation, soil erosion, siltation etc are enormous problems; so large that we've heard it said that the ecological issues are beyond help; nothing significant can be done; hence nothing should be attempted. In fact, AID and others are engaged in protection and rehabilitation e.g. in their efforts with forest reserves. These are limited initiatives, at the moment, but they can have commensurate effectiveness.

Moreover, they illustrate grander possibilities. Perhaps the major threat to agriculture is soil erosion, on a world-class scale. There are successful precedents, historically, for overcoming the problem of runoff from fire and agriculturally degraded lands. At least some limited areas of heavy runoff which threaten crucial and costly irrigated food production systems could, indeed must, be addressed. This issue might be considered a sine qua non for longterm sustainable agriculture in Madagascar. The donors have proposed the Environmental Action Plan, which may be a necessary first step. In the case of Madagascar certain environmental programs are at the same time vital agricultural programs. AID must address these two issues accordingly.

6. Other donor activities in agriculture and donor coordination

Based upon the latest UNDP data (Sept. 1989) one notes that at least eleven bilateral donors, three multilateral banks and funds and ten United Nations agencies are directly contributing to Madagascar's agricultural development programs (not including indirect support from program, balance of payments, counterpart and food aid). A rough estimate of the amount of funding and the number and variety of discrete initiatives being conducted by donors and cooperating Malagasy (usually public sector) entities reveals approximately 98 project activities costing, in 1988, in excess of \$70 million. These data help illuminate the typical problem faced by host country governments: efficient management of numerous investment activities and their respective sponsors, i.e. the problem of donor coordination.

IBRD/IDA are the major institutional donor(s) and have taken the lead in Madagascar both in terms of defining the strategy and, appropriately, in coordinating donor planning. The major formal mechanism for this coordination is the bi-annual meeting of the Consultative-Group for Madagascar hosted by the IBRD. (The other important multilateral attention to the economic crisis has been the Paris Club's application of the Toronto Plan for debt management to Madagascar.)

Everyone knows that the Consultative Group meetings, even if frequent, are useful but not sufficient for efficient coordination of the development programs of all the major participants. We did find in Madagascar that there is more than the usual cooperation, at least among some donors. Certainly with respect to USAID and its endorsement of the IBRD/IDA strategy and use of

AID resources in direct support of selected aspects of that strategy, we found an exemplary interchange of data, analyses and information. Access to other donors and the UN agencies was found, also to be open, cordial and supportive. Certain projects, for example the Environmental Action Plan, are sponsored jointly by a number of donors. Other categories of activity, for example, agricultural research have achieved coordination of the initiatives of individual donors through the efforts of FOFIFA and inter-donor dialogue. The locus for contact and coordination in the GDRM for all donor activity is the Ministry of Plan, Office for Coordination of External Assistance.

These observations suggest that coordination is substantial indeed. That is probably so, at least relative to the average program in developing countries. As usual, much more could be done. For example, joint planning and/or monitoring and/or evaluation (perhaps through a multilateral donor-Ministry of Plan committee) could be organized. To review project proposals, and projects and programs and provide guidance with respect to initiatives and alternatives, The Government is critically underfunded with respect to its own operating budgets such that it cannot provide required counterpart personnel or operating budgets to carry through development projects or normal line operations. A joint activity to monitor the budget (e.g. recurrent costs) could facilitate management of this issue, at least vis-a-vis the development program. Similarly the long-term, post-project and operating cost implications of the development program are not being addressed. At least some of the development "operations" now sustained more-or-less autonomously by individual donors do not have provisions for post-project financing nor for their ultimate incorporation into normal government operations. These examples are offered to illuminate a condition which seems to be economy-wide.

Given the resistance to program coordination that donors ordinarily encounter from host country governments (as-well-as that within donor organizations) a frequently effective entree to improved joint planning is mutual consideration of the recurrent cost implications of the aggregate of development activities. These are of general interest since everyone is hostage to constraints stemming from inadequate local or operating cost financing. Hence USAID might ask the Bank or directly the GDRM to organize donor-host committee(s) to address the recurrent cost question. This could become the next step to improved program coordination.

7. The "fit" of USAID activities with Mission resources and AID/W policy

USAID/Madagascar has neatly filled the role of a smaller but important donor in a relatively large development program. Having considered the IMF/IBRD approaches to structural adjustment, USAID found them appropriate and opted to employ its resources in support. What has emerged is an exemplary (though far from optimal) example of donor coordination, between USAID and IMF/IBRD and between USAID and other donors as well.

The result is an USAID program bearing principally on program support and reform (including agricultural change) but incorporating initiatives designed to address needs not otherwise being met, or adequately so, e.g. biological diversity. This program seems, essentially, appropriate for a

small staff and limited financial and personnel resources. An exception may be the proliferation of micro-projects, counterpart-funded (which evaluators have determined to be well-managed) but which perhaps should not receive USAID's direct involvement.

There are many, many donors and projects in Madagascar; their interests and demands could easily overwhelm almost any government. In order to preclude exacerbation of this situation, USAID could decide to minimize its incursions into projects in favor of support at the policy and program level. This strategy would be consistent with USAID/W thinking and directives. It would exploit the flexibility offered by the Africa Development Fund (ADF). The program could be entirely structured in the form of financial support for balance of payments and domestic fiscal needs incurred in the process of structural adjustment.

We do not believe that in present circumstances this is the best approach. It is already time to think beyond structural adjustment. Madagascar needs to step up its production. Great concern over policy, when major policy changes have already been made, may be like fighting the last war. An impetus to production is what is needed. If some of the major obstacles to producing, marketing, processing and exporting agricultural goods have been removed, now is the time to take advantage. We think that the various options offered in section B below offer ample opportunity for this.

As USAID further defines and focuses on its agricultural program and projects it should address the extent to which the proposed actions will positively or negatively impact on women and the extent to which women will be direct participants and beneficiaries. In order to be in a better position to make this judgement, the studies and research carried out over the next few years should be developed to provide a better information base; all non-project assistance and project paper development teams should be required to focus on clearly stated gender issues, including those at an institutional level; and significant gender issues should be considered for incorporation into the policy dialogue with the government.

B. Recommendations for USAID Sector Strategy

1. Traditional and non-traditional export expansion

a. Encouragement of Arabica coffee

(1) Discussion

The principal traditional source of export income was coffee robusta. This variety is experiencing a declining market; and Madagascar's plantations are aging. However, world demand for coffee arabica is growing and Madagascar has climate and farming area appropriate for its cultivation. It can be developed to supplement robusta as an export crop.

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o Robusta coffee, still the largest export of Madagascar, is facing a progressive decline, as the world demand for coffee slows down and taste preferences move away from Robusta and toward Arabica. The only way of preserving Madagascar's share in the coffee market is to switch to Arabica and establish a reputation for high quality, including the "gourmet" brand level, if possible.
- o The present system of taxation of coffee exports and the management of export quotas under the International Coffee Agreement (now suspended, but likely to be reinstated), do not encourage exporters to aim at a high-quality product. In a saturated buyer's market, this will cause a progressive loss of Madagascar's market share.

(b) Specific long-term objective and outputs to be achieved

- o To plant significant new capacity for Arabica production;
- o To develop effective marketing procedures;
- o To establish a quality image in targeted markets; and

- o To reform tax and quota management policies (if the ICA is reinstated) so as to give traders incentives to aim at high quality.

(c) Means to achieve stated objectives and outputs

- o To assist the Government in reforming coffee export tax policy and the coffee marketing system, counterpart funding will be provided for expansion and improvement of Arabica production and export marketing;
- o Reforms in coffee taxation and export management:
 - The present formula which taxes inferior grades at a lower rate should be replaced by a single-rate tax applicable to all grades of coffee.
 - A new method of allocating export quotas among exporters should be prepared in case the ICA is reinstated. It should be based on periodic auctions of an increasing portion of the national quota rather than on traders's inventories. The deadline for contracting for sales, which was unrealistically short under the previous method, should be lengthened.
- o Provide counterpart funding for varietal research and development, seedling production and extension in one of the zones covered by "Operation Arabica". The seedlings should be sold on commercial terms.
- o Collaborate with "Operation Arabica", the Directorate of Export Promotion of the Ministry of Commerce and the Comité National de Commercialisation de Café (CNCC) to study the entire marketing channel, from production to sales, in order to determine:
 - Most desirable varieties for long-term promotion;
 - Standards required by high-quality markets; and

-- Trading practices in these markets;

- o Provide a reasonable counterpart contribution to the cost of the study only after growers and exporters have contributed;
 - o Finance the promotion of Madagascar Arabica in targeted, most promising markets by a marketing-consultant firm of recognized competence;
 - o If the above program is successful, expand it to other zones, profiting from the investment in market research and promotion.
- (d) Possibility for private sector involvement
- o The private sector will be closely involved in the execution of the project and will be its beneficiary.
- (e) Anticipated level of resources required
- o \$1.5 million.
- (f) Consistency with government goals and objectives
- o There is general agreement on the need to salvage coffee exports, the nation's premier source of foreign exchange.
- (g) Consistency with existing or planned other donor efforts
- o The World Bank is contemplating with limited enthusiasm a large coffee project prepared by FAO. The project paper identifies the policy and quota management problems but goes far beyond them in recommending large investments in production, particularly of Robusta.

b. Study of semi-finished wood product exports

(1) Discussion

Madagascar has skillful cabinet makers who could, at very reasonable wages, produce furniture parts from good local tropical wood species. These parts could be sent for further assembly to high-income consumer markets where this kind of handwork is extremely expensive to

produce. There exists a doubt, however, whether the remaining forests of Madagascar could support such an operation on a sustained level, without destroying the population of high-value trees. Another opportunity is that of producing furniture parts from less valuable trees species, such as pines from the vast forest of the World Bank project. In that case, the parts would be destined for less expensive furniture.

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o Uncertainty about the potential market for furniture parts made from Madagascar hardwood;
- o Uncertainty about the possibly destructive long-term effect of such production on Madagascar's hardwood forest reserves.

(b) Specific long-term objectives and outputs to be achieved

- o To find an answer to the question about Madagascar's hardwoods. Depending on the answer, either a labor-intensive export industry, including both high-value hardwood and pine, could be promoted, or the promotion should be limited to pine parts.

(c) Means to achieve stated objectives and outputs

- o A study based on a survey of existing resources and on an analysis of the commercial attractiveness of various production alternatives. The study would require the collaboration of a forestry specialist and an economist familiar with the production and marketing of wooden furniture.

(d) Possibility of private sector involvement

- o The purpose of the project will be to test the possibility of a private export industry. The private sector's involvement in the study would consist in providing information concerning its costs and manner of operation.

- (e) Anticipated level of resources required
 - o \$40,000 to \$60,000
- (f) Consistency with Government goals and objectives
 - o A study of a new export possibility is consistent with the Government's priorities.
- (g) Consistency with existing or planned other donor efforts
 - o To our knowledge, no other donor has an interest in the project in question.

2. Domestic food crop expansion

a. Enhance rice varieties, research and extension

(1) Discussion

Rice is the basic foodstuff of the Malagasy diet. The annual rice shortfall has fallen from a peak of 350,000 tons in 1982 to about 70,000 tons in 1989. The Government hopes to be able to cease the import of rice in 1990. However, of the six major rice producing regions, only Lac Aloatra and Marovoay produce a surplus.

After the withdrawal of the French agronomic research institutes in 1974, Madagascar entered a period of about a decade during which there was virtually no progress on developing new strains of rice. Contact between IRRI and Malagasy researchers was not established until the early 1980s.

The USAID-funded IRRI project in Madagascar has developed several rice varieties which give good field performance. For example, IR 36 has given 2.5 to 3 ton yields per ha without fertilizers. This compares favorably with Pitata, a local variety which yields 1.5 to 2 tons per ha. Two other IRRI varieties, IR 50 and IR 52, have yielded up to 3.5 tons per ha. At present the release, multiplication and distribution of these well-performing varieties has stalled.

(2) Proposed intervention: support of rice research and expansion of rice cultivation

(a) Problems/constraints to be addressed

- o FOFIFA has not released any of the new varieties;
- o The varieties now being multiplied by the MINAGRI multiplication centers do not perform as well as the new varieties;

- o The distribution needs to be improved along commercial lines.
- (b) Specific long-term objectives and outputs to be achieved
- o To ease the flow of new seed from IRRRI to farmers, through FOFIFA, multiplication centers and distributors, so as to make Madagascar solidly self-sufficient in rice, if not a regular exporter;
 - o To assure the permanence of a system for testing of quality and for bringing to the small farmer new, even better performing rice varieties.
- (c) Means to achieve objectives
- o USAID would offer to MINAGRI and FOFIFA its help in removing the bottleneck which has halted the release of promising new rice varieties. The solution may be found in the context of the National Seed Plan or elsewhere, but the urgent need is to speed up the delivery to farmers of seed of the improved varieties.
 - o Once the current stoppage is overcome, a permanent system for releasing new technologies that have been adequately tested and proven should be put in place. USAID might offer to finance the start-up costs of establishing such a system, whose operating expenses should thereafter be borne by the national budget.
- (d) Possibility of private sector involvement
- o The private sector should be asked to participate in designing the permanent system because seed will be multiplied and seed and other inputs will be distributed by the private sector.
- (e) Anticipated level of resources required
- o \$200,000 over two years.

(f) Consistency with government goals and objectives

- o Rice production, as the staple food, is the highest priority of the GDRM.

(g) Consistency with existing or planned other donor efforts

- o Rice self-sufficiency is recognized as a priority by all the donors.

b. Develop cassava (manioc) research capability

(1) Discussion

Cassava is grown in Madagascar both for food and for animal feed. It is favored by smallholders, adapts well to less fertile soils, is by far the most important of the root crops and is the second food crop after rice. It is widely grown throughout the country, particularly in the central and southern regions. More than 223,000 hectares have been in production according to a 1984-85 estimate. The principal areas are in the Faritany of Antananarivo (46,200 ha), Fianarantsoa (67,000 ha) and Toliara (65,000 ha). The yield is about 15 to 20 tons per hectare. Cassava is exported in the processed form of tapioca.

Besides human consumption, cassava has value for animal feed and as an industrial crop. At one time considerable amounts of dried cassava chips were exported to Europe as cattle feed; the possibility of reviving that market should be explored. Cassava chips could be added to the ration for finishing beef cattle for the export market. Cassava meal could be used by fish and shrimp farms. Dried and fried cassava chips, which have become a popular snack item in many African countries, could be produced for the local market.

Cassava research by FOFIFA ceased in 1974. To revive it requires provision of improved plant material, multiplication of selected cultivars, and on-farm trials conducted by extension agents and researchers. Yields could be greatly increased without purchased inputs by using improved varieties and management practices.

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o Inadequate traditional cultivation methods;
- o Lack of varieties resistant to mosaic and root rot;
- o Insect (green spider mite) damage to dried cassava;

- o Labor shortages at planting time;
- o Neglect of cassava as a research subject;
- o Loss of potential production.

(b) Specific long-term objectives

- o To revive research on cassava, taking advantage of progress in applied research on the crop conducted elsewhere in recent years;
- o To make "clean" plant material of improved varieties widely available to farmers;
- o To conduct a simple extension program of basic management practices for the crop.

(c) Means to achieve objectives

- o USAID would sponsor collaboration between FOFIFA and IITA's (International Institute of Tropical Agriculture) East and Southern Africa Regional Rootcrop Research Network (ESARRN) in order to design a program under which IITA/ESARRN would:
 - provide improved germplasm;
 - train FOFIFA researchers;
 - help train extension workers and farmers;
 - establish a flow of information for FOFIFA researchers and MINAGRI extension staff on improvements in cassava production techniques.
- o USAID would fund these activities only after it had obtained adequate assurances that the adaptive research facilities would have future funding from non-USAID sources.
- o Entrusting management and supervision to IITA would lighten the administrative load on the USAID mission.

(d) Possible private sector involvement

- o The private sector would be the beneficiary of cassava research and extension. However, as in all programs of this type, the activities would be carried on mainly by the public sector.

(e) Anticipated levels of resources required

- o \$375,000 over 5 years, half in dollars and half in local currency.

(f) Consistency with Government goals and objectives

- o Cassava being a major food crop, the program is consistent with the Government's high-priority goal of food self-sufficiency.

(g) Consistency with existing or planned other donor efforts

- o Other donors have not shown interest in cassava improvement.

c. Implement National Seed Plan

(1) Discussion

Seed production and multiplication is a major problem in Madagascar. Only a few of the government's seed multiplication centers are operational. In 1986-1987 planting season they could satisfy but a negligible fraction of farmers: 2.6% of them in rice seed, 2.8% in maize seed, and 0.6% in peanut seed. The quality of the distributed seed is mediocre at best, with mixed varieties, impurities and weeds.

There is a draft National Seed Plan designed to establish a framework for assistance from different donors. It sets the following objectives to be reached in five years:

- o Annual production of 7,500 metric tons of rice seed, 1,340 tons of corn seed and 910 tons of improved peanut seed;
- o Instituting a system for continuing introduction of new varieties;
- o Creation of a National Seed Office and Seed Control Service under MINAGRI; and
- o Training of Malagasy personnel in seed technology and seed production.

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o Lack of national seed policy and seed legislation;
- o Very limited availability of improved rice and maize seed;
- o Unavailability of improved peanut seed;
- o Lack of training in seed technology;
- o Multiple, uncoordinated interventions by donors and NGOs; and
- o Too many government seed multiplication centers, many of which need rehabilitation if they are to continue.

(b) Specific long-term objective

- o To assist in the implementation of a national seed plan and seed policy.

(c) Means to achieve objectives

- o USAID would facilitate the multiplication and distribution of rice seed through the introduction of IRRI varieties under the National Seed Plan. A technical advisor may be required.
- o Masters degree training in seed technology at an institution such as Mississippi State;
- o Short-term training in seed technology at Mississippi State;
- o Short-term technical assistance in (i) developing seed policy and legislation and (ii) in implementing seed policy.

(d) Possible private sector involvement

- o The government's role in seed multiplication should be restricted rather than expanded, and for this purpose the national seed policy might envisage

privatization of several existing seed multiplication centers;

- o Contract farmers and private entrepreneurs would produce improved seed for certification by government inspectors;
- o Private sector would market certified seed.

(e) Anticipated levels of resources required

- o \$400,000 over three years.

(f) Consistency with government goals and objectives

- o The National Seed Plan, when approved, can be considered an expression of GDRM commitment.

(g) Consistency with existing or planned other donor efforts

- o UNDP, France, EDF, West Germany and Switzerland are among the donors which assist the government in seed production. The needs are great, and the development of clear guidelines is essential. USAID's involvement would emphasize policy issues, technical assistance and training at specialized institutions rather than on-site interventions. There must be careful coordination with the other donors.

d. Research and promote the production of grain legumes

(1) Discussion

Despite the importance of legumes in the human diet and of an export potential, little research and development work has been done in Madagascar on grain legumes. Increased emphasis should be placed on research and production of this particular group of crops. Legumes in general have a much higher protein content than cereal crops, and the Malagasy people like eating these grains along with rice. Several types of grain legumes are adapted to Madagascar, and farmers have produced many of them. However, fewer grain legumes have been planted in the recent past because of a lack of good seed of improved varieties.

At one time, Madagascar exported a substantial quantity of butter beans to European markets, but because of the lack of quality, the demand for Madagascar beans overseas has declined. With the introduction of improved varieties and better production techniques, the country should be able to

regain some of the lost market. There is considerable potential for sales to India.

FOFIFA maintains a small program in grain legumes, but there is very little activity at present.

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o Lack of research and development work on crops of importance to the population with potential for export to the Indian Ocean countries.

(b) Specific long-term objectives

- o Promotion of grain legumes in crop rotations after rice;
- o Introduction of improved varieties and better production techniques to diversify agricultural exports and regain some of the lost market; and
- o Enrichment of the soil by nitrogen fixation.

(c) Means to achieve objectives

- o USAID would promote consultation between FOFIFA on the one hand and on the other CIAT's Regional Bean Research Network, ICARDA and ICRISAT, which could provide improved germplasm and training to Malagasy researchers. (A considerable amount of ground work has already been done by IRRI to give FOFIFA a head start on this program.)

(d) Possible private sector involvement

- o The private sector would be involved in seed multiplication and distribution and in crop marketing and export.

(e) Anticipated levels of resources required

- o \$100,000 over two years.

(f) Consistency with government goals and objectives

- o Grain legumes, especially dry beans, are major crops under the Government production plan.

(g) Consistency with existing or planned other donor efforts

- o This crop has been supported by donors in the past.

e. Expand the use of animal traction

(1) Discussion

With his traditional shovel, the angady, the Malagasy farmer can turn over 20 square meters an hour to a depth of 20 cm. At this rate it takes him up to 60 days of hard work to prepare one hectare for cultivation. This often takes him past the period propitious for seeding and allows the weeds he turned over at the start to reappear.

As much as the farm family might wish to produce more, it is limited to about one hectare, which is just enough to feed itself. When relative prices change, new crops may replace the old but the area cultivated stays the same. With animal traction, however, the family could grow rainfed crops on the tanety hillsides and cultivate twice as much rice land.
Proposed intervention

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o The small-farmer family is limited to subsistence agriculture on about one hectare of land;
- o Animal traction, if more widely practised, would facilitate increased productivity.

(b) Specific long-term objectives

- o To enable more small-farm families to expand their cultivated area and/or to engage in double cropping so as to produce a surplus for sale;
- o To spread knowledge of contour plowing and other soil conservation techniques;
- o To promote the integration of livestock with crop production systems.

(c) Means to achieve objectives

- o Five to ten training sites for oxen (centres de dressage) would be established by an NGO that is experienced and qualified. There would be no fixed installations; the sites would be mobile;
- o The trainers who would work at the sites would be trained initially as a group, with only the better ones selected for employment;
- o Farmers who already have Zebu cattle but do not use them for agricultural work or transport would be the first group encouraged to train their animals;
- o Research would be conducted on appropriate plows and harnesses; and
- o Animal traction equipment would be provided for each team that is successfully trained.

(d) Possibility of private sector involvement

- o A NGO could appropriately manage this project;
- o Local merchants would sell the equipment, and local blacksmiths would make repairs; and
- o The small farmer credit program (below) could collaborate with this project, providing loans to farmers who successfully complete the program to enable them to purchase inputs.

(e) Anticipated level of resources required

- o \$10,000 per site per year over a three-year period. Total: \$250,000.

(f) Consistency with government goals and objectives

- o This contributes to the overall objectives of food sufficiency and enhanced agricultural production.

(g) Consistency with existing or planned other donor efforts

- o No donor finances an animal traction project, but this capability would obviously be supportive of most types of farming activity.

f. Expand farming systems research

(1) Discussion and recommendation

The scarcity of personnel trained to carry out on-farm trials and demonstrations using a farming systems approach hinders the identification of technologies appropriate to different types of farming systems. The responsibility for identification of farmer constraints to improved agricultural production and of potential solutions as well as for the testing of solutions rests with the Department of Research and Development (DRD) of FOFIFA in cooperation with the extension service (DVA) of MINAGRI. We recommend that USAID act to enhance the ability of DRD and DVA to apply a farming systems approach to identify and then extend technologies which are economically and socially acceptable to male and female farmers.

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o Scarcity of appropriate technologies to extend to farmers;
- o Lack of personnel trained to identify potential solutions to farmer constraints and to test these solutions with farmers;
- o Lack of personnel trained to demonstrate and extend technologies which are economically and socially appropriate to different farming systems;
- o Weak linkages between research and extension.

(b) Specific long-term objectives

- o To increase the availability of agricultural technologies which are appropriate and economically and socially acceptable to male and female farmers;

- o To strengthen collaboration between a regional DRD research team and the local extension service (CIRVA) in two regions by means of a farming systems approach;
- o To increase the contribution of DRD staff to extension agent training and the provision of viable extension messages by DRD to DVA;
- o To increase feedback of on-farm research findings to other research departments in the two regional centers; and
- o To increase the technical knowledge and skill base of two regional farming systems research teams and cooperating extension agents.

(c) Means to achieve objectives

- o The services of one long-term farming systems specialist working with the two regional DRD teams for two years;
- o 16 person-months of short-term consultants who would provide in- country training seminars;
- o After the departure of the long-term technical assistant a short term consultant would periodically review and advise on the work of the two regional DRD teams;
- o Short- and long-term training for the participating researchers and extension personnel. Selection of the candidates would be based on performance as well as technical skills required. The exact technical skills would depend largely on the composition of the DRD teams. Currently the major deficiencies are in agricultural economics and soil conservation or agroforestry. The level of effort should be:
 - 3 DRD and 1 DVA staff - M.S. degree training;
 - 2 DRD and 2 DVA staff - 6 months training at international research centers;

- 16 person months of short-term training out of country for DRD and DVA staff;
- 40 person months of short-term, in-country training for DRD and DVA personnel and private sector participants.
- o To facilitate on-farm research trials and demonstrations and data analysis, the project would provide vehicles and computers.
- (d) Possibility for private sector involvement
 - o Excellent opportunities to involve NGOs in most of the in-country training courses;
 - o Possible NGO involvement in on-farm trials and on research-extension coordination committees, depending on their activities in the two regions selected for the project.
- (e) Anticipated level of resources required
 - o \$3 million over four years.
- (f) Consistency with Government goals and objectives
 - o Supports the National Research Plan.
- (g) Consistency with existing or planned other donor efforts
 - o Yes, but coordination with other donors supporting the National Research Plan is necessary. Supports the pilot Training and Visit (T&V) project, which is funded by a World Bank loan.

3. Private and public institutional development

a. Create credit and savings systems for small farmers

(1) Discussion

Lack of capital for improvements and inputs on small farms keeps farmers from increasing output and savings, which in turn would permit further investment. When in need they are commonly obliged, as are

their counterparts in many other countries, to borrow money on extremely unfavorable terms from local moneylenders. They often sell some of their rice or other crops at low prices after harvest only to pay much higher prices for the same commodities during the soudure.

The dismal record of nearly all small-farmer credit projects in Madagascar, as well as in many other countries, makes it mandatory to improve the design and to exercise great prudence and rigor in implementing any such project.

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o Lack of capital for improvements on small farms and cash to purchase inputs;
- o Low levels of savings by rural inhabitants;
- o Lack of rural financial institutions.

(b) Specific long-term objectives

- o To establish a limited-size network of credit unions and farmers' mutual-responsibility groupements, which would serve as channels for credit for agricultural improvements, equipment, inputs and "grain banks;"
- o To increase rural savings rates in a limited area.

(c) Means to achieve objectives

- o A U.S. PVO would be selected to implement a project which would encompass several activities;
- o From local NGOs interested in the program, a group would be selected to conduct a joint study with the following purposes:
 - To identify reasons for the failure of a sample of unsuccessful rural savings/credit projects;
 - To identify successful rural credit unions, savings societies, groupements and grain banks; and

- To analyze reasons for their success.
- o A conference bringing together the local NGOs and outside rural credit/savings specialists would determine how to overcome the identified difficulties and launch a modest, prudent and unhurried attempt to organize a limited number of such institutions;
- o One or more of the experienced NGOs would be selected to organize and supervise the new savings/credit institutions;
- o The U.S. PVO would provide additional management training to the selected local NGOs.
- o From counterpart monies, a "multiplier money" fund would be established and would operate on the following principles:
 - The fund would be administered by a bank. Supervision of the rural credit institutions would be the responsibility of the local NGOs under the supervision and guidance of the U.S. PVO.
 - Money from the fund would never be advanced. It would be lent at market interest rates only after the members of the group first made a contribution of their own funds to their institution. Further loans would be made in proportion to the reimbursement of the first bank loan and to their continuing contributions.
 - In the case of credit unions, the "multiplier money" would only be advanced in proportion to the loans made for productive purposes and supervised as such. Consumption loans would not enjoy such facilities.
 - Regulations of the fund would ensure that women are offered an equal opportunity to become borrowers.

-- Innovative devices would be attempted to increase motivation. For example, a lottery might be held every year, with relatively substantial rewards to be given to groups that qualify by an appropriate set of indicators (e.g. high percentage of reimbursement, amount of productive investment per farming unit, investment in animal traction).

(d) Possibility of private sector involvement

- o All components of the project are in the private sector, provided that the bank which would administer the fund will have been already privatized, as planned, by the time the project starts.

(e) Anticipated level of resources required

- o \$750,000 over five years (possibly counterpart).

(f) Consistency with Government goals and objectives

- o The project is consistent with the Government's rural development strategy.

(g) Consistency with existing or planned other donor efforts

- o The World Bank intends to carry out a major study on ways to encourage rural financial institutions. Nothing in the present recommendation is intended as a rival activity. On the contrary, the task is so great, complex and urgent that the two activities can proceed along parallel lines and profit from one another's findings and experience.

b. Increase rice technology training at the University of Madagascar

(1) Discussion

Rice is Madagascar's principal crop. Much effort and donor assistance support rice research and production. Malagasy officials who work in these projects should have a solid grounding in the scientific aspects of rice cultivation, but in recent years many have not. Short-term training

now fills gaps yet is not the best solution. Training should be focused on the future generation in the Department of Agriculture at the University.

(2) Proposed Intervention

(a) Problems/constraints to be addressed

- o The Department lacks means to give its students in-depth exposure to rice cultivation in the field;
- o No computers are available for students to work on exercises in biometrics;
- o The Department is unable to call on international rice experts.

(b) Specific long-term objectives

- o To permit the Department of Agriculture to become staffed and equipped well enough to give students a solid grounding in rice science.

(c) Means to achieve objectives

- o M.S. degree training for three junior Department staff at a U.S. university which emphasizes rice, such as Louisiana State University;
- o Seminars and short courses given at the University of Madagascar by rice scientists from U.S. universities. (The opportunities would doubtless be few because instruction must be in French.)
- o Procurement of microcomputers and a 25-seat minibus to allow students to take field trips.

(d) Anticipated level of resources required

- o \$300,000.

(e) Consistency with Government goals and objectives

- o Rice production is the principal GDRM agricultural priority.

(f) Consistency with existing or planned other donor efforts

- o No donor supports the Department of Agriculture for rice technology but the Swiss have a virtually identical project in the Forestry Department.

c. Develop export promotion capacity

(1) Discussion

An exporter, especially a pioneering exporter of non-traditional products, needs assistance in information, logistics, establishment of business contacts and advice on product standards and business practices in target markets. The Export Promotion Directorate of the Ministry of Commerce, while possessing a clear conception of its task, is insufficiently equipped to perform it in an adequate fashion. For example, the Directorate has only very tenuous contact with the commercial attaches in Europe, United States and Japan.

The Directorate has a well-formulated program which, on a modest scale, shares the philosophy of the U.S. Department of Commerce and of the Foreign Agricultural Service (FAS) of the U.S. Department of Agriculture. That philosophy puts great emphasis on cooperating with and creating propitious conditions for the private sector. The Directorate currently has a campaign to form specialized associations of private exporters which would establish and police quality standards and would present to the Government the needs of their particular industries.

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o The Directorate lacks the basic communications and office equipment required to fulfill its responsibilities, including microcomputers, copiers and a fax machine;
- o Directorate personnel require training.

(b) Specific long-term objectives

- o To have Malagasy exporters on an equal footing with exporters from other nations trading in the same markets;
- o To increase capacity to provide information, logistics support, business contacts and advice on foreign product standards and business practices.

(c) Means to achieve objectives

- o Short-term training visits to major importing markets for six technical staff members. Arrangements for these visits could be facilitated by such institutions as the International Chamber of Commerce in Paris, the International Chamber in Washington, USDA-OICD, or a U.S. trade organization like the Produce Marketing Institute;
- o Staff attendance at courses on subjects including:
 - Standards of quality, packaging, quarantine regulations;
 - Customs procedures, fiscal and statistical regulations, execution of international trade agreements, quotas, etc.;
 - Financial instruments (letters of credit, etc.) and practices.
- o Acquisition of communication and reproduction equipment (telefax, copiers, microcomputers); of a very limited number of vehicles (for contacts with the port of Toamasina (Tamatave) and some major production areas); of literature on standards, packaging; of trade directories; of subscriptions to essential periodical publications; of membership in essential trade associations;
- o Support the Directorate's campaign to form exporter associations by a visit from a specialist of the FAS who could conduct a seminar with businessmen on the Collaborator Associations (in wheat, soybeans, etc.) which work with FAS to promote sales of U.S. commodities abroad;
- o Support in organizing the 1990 trade fair (if decided upon by the Government) and in participating in foreign trade fairs and similar promotional activities. (The U.S. Department of Commerce's travelling "catalogue exhibition" might be an

economical way to publicize Madagascar's products.)

(d) Possibility of private sector involvement

- o The entire program favors the private sector, which would participate through specialized exporters associations and other organizations, such as the Chamber of Commerce and the Association of Industries with which the Directorate already collaborates.

(e) Anticipated level of resources required

- o \$250,000 over three years.

(f) Consistency with Government goals and objectives and with existing or planned other donor efforts

- o Both the Government and the donors place a high priority on the promotion of exports at a time when imports have been liberalized and traditional export receipts have slumped badly.

4. Natural Resource Priorities

a. Support training and extension of sustainable rainfed agricultural techniques

(1) Discussion and recommendation

Soil erosion and loss of soil productivity are the principal natural resource constraints to the sustainability of agriculture in Madagascar. These problems are centered primarily on upland rainfed agriculture, although the downstream effects of soil erosion also threaten the productive bottomlands through the deposition of coarse, infertile sediments over rice fields, the silting up of irrigation reservoirs, and increased maintenance costs or destruction of irrigation canals.

The potential for increasing the area of irrigated croplands in Madagascar is relatively limited. Most new lands to be brought under cultivation will be on the tanety uplands. Most tanety soils in Madagascar have extremely low natural fertility and are highly erodible. Large areas of croplands and potential croplands have already been permanently lost from lavaka gully erosion. Sheet erosion is decreasing the productivity of most upland crop soils, and threatens the long term sustainability of rainfed agriculture.

Maintaining soil fertility of cultivated upland soils is one of the most difficult problems of tropical agriculture and is probably more difficult in

Madagascar than in most other countries. It is the reason for slash and burn tavy cultivation, which converts lush forest into unproductive grasslands. It is an agricultural problem that poses the greatest threat to the protection of the remaining natural areas in Madagascar and the preservation of the island's biodiversity.

Given the severity and the pervasiveness of the erosion and fertility maintenance problems in Madagascar, it is astonishing how little has been done to address these problems. We recommend that the main natural resource priorities for USAID be in the development and extension of sustainable, soil conserving, rainfed cropping systems.

These efforts should be focused within two agroclimatic zones:

- o The East Coast tavy zone. Given USAID's leading role in the protection of biodiversity, and the direct threat that tavy extension poses to the remaining East Coast rainforests, this should be a priority zone.
- o The more densely populated portions of the High Plateau. It is in areas where population pressures on the land are the greatest that farmers are generally willing to adopt new, more intensive cropping techniques.

Sustainable production systems would be based on improved wooded fallows, permanent contour bands of multipurpose woody and herbaceous plants leading to gradual terracing, maximum use of woody perennials for fruit or cash crops and other agroforestry techniques. Side benefits would include diversified production systems, improved human nutrition, production of fuelwood and secondary tree products, increased sedentarisation and reduced pressure on natural areas.

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o Unsustainable levels of soil erosion;
- o Shortened fallow periods, declining soil fertility, lower crop yields;
- o Continuing loss of remaining rainforest, pressure on reserves, loss of biodiversity.

(b) Specific long-term objectives

- o To increase the number of CIRVA, MPAEF and NGO field agents and managers who are knowledgeable about extension techniques in soil conservation and agroforestry;

- o To extend over a wide area improved techniques for controlling soil erosion and for maintaining soil fertility on rainfed agricultural fields; and
- o To have a wide distribution of agroforestry species to farmers.

(c) Means to achieve stated objectives and outputs

- o Long-term USAID commitment: Effectively addressing the problem of sustainability would require a long-term commitment on the part of USAID. The Swiss have just made a nine-year commitment to supporting soil conservation and agroforestry research on the High Plateau and in the East Coast tavy zone through the Soil Conservation Division of FOFIFA. What is needed is a major training and extension effort to accompany this research program. USAID should support these activities for a minimum of a seven-year period.
- o Major project elements: Major project elements would include development of effective extension methodologies, frequent short-term training and workshops for all collaborating extension personnel (contractual, MINAGRI, MPAEF, NGOs, other project's agents), support for extension services, long and short-term technical assistance and long-term training in the U.S.
- o Flexible approach to extension: The approach to extension should be highly flexible and may include one-year renewable contracts with specialized NGOs like ORIMPAKA, support for other NGOs or support for MINAGRI extension agents and MPAEF forestry agents. The organizations supported should realize they are competing for limited funds, and that each group's funding would increase or decrease following mid-term evaluation(s) of its performance. As the project would be concerned with agricultural lands, MINAGRI should be the lead ministry, not MPAEF.

- (d) Possibility for private sector involvement
 - o Excellent opportunities to contract ORIMPAKA or other NGOs to do extension;
 - o Contract private sector to perform aerial seeding of Grevillea banksii and other species over the tavy zone.
- (e) Anticipated levels of resources required
 - o Very roughly, \$10 million over seven years.
- (f) Consistency with government goals and objectives
 - o This is a high priority for the GDRM for protection of the natural resource base and sustainability of agriculture
- (g) Consistency with existing or planned other donor efforts
 - o This would be coordinated with the Environmental Action Plan, in particular the evolving plans for the National Environmental Fund (FNE);
 - o Excellent complement to Swiss support for FOFIFA's Soil Conservation Division.
- (h) Condition precedent
 - o USAID could make funding for this project conditional upon the GDRM granting to MINAGRI a mandate for soil conservation on agricultural lands.

b. Resolve issue of ministerial responsibility for soil conservation

(1) Discussion and recommendation

The Forest Service presently has the government mandate for soil conservation in Madagascar, but the major erosion problems are principally on agricultural lands and secondarily on range lands. Erosion on forested lands is generally negligible. Over 60% of the island is covered by rangeland, yet there is no range management service within MPAEF. We recommend that USAID work to resolve this paradox by supporting policy reform to make MINAGRI directly responsible for soil conservation on agricultural land and to make soil conservation (including agroforestry techniques) an integral part of MINAGRI's agricultural extension program. In the same vein,

we recommend that the Directorate of Animal Production in MPAEF be made responsible for soil conservation on rangelands. A range management unit should be created with soil conservation included in its mandate.

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o The two ministries best situated to address soil erosion problems in Madagascar have no mandate to do so;
- o There is no government agency responsible for promoting better management of the rangelands that cover 60% of the island.

(b) Specific objectives

- o To make MINAGRI responsible for soil and water conservation on cultivated lands;
- o To make soil conservation a standard part of the CIRVA extension packages wherever soil erosion is a significant problem;
- o To make the Directorate of Animal Production responsible for the promotion of improved range management to include the conservation of range soils.

(c) Means to achieve stated objectives and outputs

- o Policy dialogue;
- o Short-term technical assistance for an analysis of institutional structuring;
- o Resource transfer in return for ministerial restructuring and policy reform.

(d) Possibility for private sector involvement

- o None.

(e) Anticipated level of resources required

- o To be negotiated, possibly as part of program assistance.

(f) Consistency with government goals and objectives

- o The proposal is consistent with goals of environmental protection and food self-sufficiency.

(g) Consistency with existing or planned other donor efforts

- o No apparent conflicts with other donor efforts

c. Develop an effective range fire control system

(1) Discussion and recommendation

Present government policy, laws and enforcement regarding the use of fire are ineffective. Fire is probably the single most important factor affecting the vegetation cover and the environment of Madagascar. But with the exception of the tavy zone the reasons for burning in the different agroclimatic zones are very poorly understood. Likewise, the appropriateness of government fire policy cannot be determined. We recommend that USAID finance an in-depth study to determine the reasons for the burning practices in Madagascar with strong participation by Malagasy sociologists. Next, we recommend that a technical workshop be sponsored with Malagasy and expatriate specialists (sociologists, agronomists, hydrologists, foresters, range and livestock specialists and researchers from other relevant disciplines) to study both burning practices and the effects of fire on production systems and on the environment. The working group should then draft a set of pragmatic recommendations on what the Government's policies on fire should be and on the levels of government which should enforce these policies. USAID should use the workshop results to develop policy dialogue with the government and to work towards policy reform.

(2) Proposed intervention

(a) Problem/constraints to be addressed

- o The use of fire is the main factor controlling the vegetation cover of Madagascar and one of the main causes of soil erosion;
- o The Government's fire policies and their enforcement are ineffective.

(b) Specific long-term objectives

- o To develop and apply a pragmatic, enforceable national policy on fire that is based on traditional burning practices, the ecology and economic effects of fire.

(c) Means to achieve objectives

- o In-depth study of burning practices conducted by sociologists to determine who burns, why they burn, who benefits and who bears the burden of negative impacts;
- o Technical workshop to draft recommendations for a new national fire policy. Participants should include the sociologists that conducted the study on burning practices, spokesmen for herders and farmers identified in the course of the study, agronomists, foresters, hydrologists, range and livestock specialists and economists;
- o Policy dialogue based on results of workshop;
- o Potential resource transfer in return for policy reform.

(d) Possibility for private sector involvement

- o Sponsorship of burning practices study and workshops.

(e) Anticipated level of resources required

- o \$80,000 for burning practices study and policy workshop;
- o Potential resource transfer for policy reform.

(f) Consistency with government goals/objectives

- o Consistent with the general objectives of rational natural resource management and environmental protection;
- o Inconsistent with present Forest Service policy on fires.

(g) Consistency with other donor efforts

- o No other donors have made efforts affecting fire policy.

d. Resolve land survey, tenure and titling issue

(1) Discussion and recommendation

Under the Environmental Action Plan the government intends to launch a major land registration process, which will entail mapping, surveying registering and titling. However, these actions may well have impacts other than those intended because of current land tenure practices. Where customary tenure systems do not provide security of tenure, systematic and compulsory registration of all titles in an area can only be adequate when coupled with substantive tenure rules.

(2) Proposed intervention

(a) Specific Long Term Objectives

- o To identify priority issues for study related to the efficiency, effectiveness and impact of the land registration program to be undertaken under the Environmental Action Plan;
- o To assist in the implementation of an effective and cost- efficient land registration program that would have a minimum of negative impact on disadvantaged societal groups.

(b) Means to achieve objectives

- o USAID would provide the services of two land tenure specialists who would initially spend five weeks in Madagascar to review existing information, hold key informant interviews, organize and hold a seminar, provide initial guidance on urgent issues such as the feasibility of a freeze on land registration, and initiate a research study on priority issues identified at the seminar. The specialists would identify a firm or individuals who would serve as collaborators in the study;
- o After the research design receives USAID approval, one land tenure specialist would return to Madagascar to design the survey instruments in collaboration with the Malagasy counterparts, help test them and plan for data analysis. The specialist would return later to work with the

Malagasy on the analysis and report preparation;

- o The study would involve a senior Malagasy investigator and a deputy who would be responsible for supervising interviewers and carrying out field interviews. It would be completed over a five-month period;
- o 25 Malagasy from the private and public sectors would be trained about land tenure experiences in other developing countries and in analytical frameworks for studying land tenure issues;
- o The 4-day seminar would involve the participation of some 25 key individuals in government and the private sector.

(c) Possibility for private sector involvement

- o Approximately one-third of the participants at the seminar should be from the private sector;
- o The senior researcher for the study should be from the private sector; only the deputy position might be allocated to someone from the public sector.

(d) Anticipated level of resources required

- o \$150,000 over one year.

(e) Consistency with Government goals and objectives

- o The Government is committed to rationalization of land titles and requires an efficient system.

(f) Consistency with existing or planned other donor efforts

- o The proposal will need to obtain the concurrence of other donors associated with the Environmental Action Plan.

e. Promote reforestation by farmers and communities

(1) Discussion and recommendation

Interministerial Policy Document No. 3145/87 lays out a formal process whereby local governments in collaboration with the national technical services can set aside sections of undeveloped state land-- ZODAFARBs--within which individuals or groups can obtain deeded title to tracts upon which they plant and protect trees under specified conditions. It has some similarities to the Homestead Act of the 19th Century. The intent of the policy is to use the incentive of easily obtained, deeded ownership of land to promote a greatly expanded program of reforestation at the local level.

While the intent of the ZODAFARB policy is laudable, its application, in the limited time it has been in vigor, seems to have been bogged down in cumbersome, poorly understood administrative procedures. As applied so far, it offers little real advantage over pre-existing laws. Fees for land surveys, deed applications and other administrative procedures are often exorbitant. Conditions imposed upon participants can be highly unrealistic. They must, for example, maintain a bare (erodible) firebreak around each subparcel, and the local forester can impose his own choice of tree species. We recommend that USAID sponsor a study of the present ZODAFARB policy and the possible bottlenecks to its implementation, culminating in recommendations for revisions that would serve as effective incentives for reforestation by rural smallholders. We recommend that USAID then negotiate with the Government of Madagascar to achieve effective policy reform.

(2) Proposed intervention

(a) Problem/constraint to be addressed

- o The present ZODAFARB policy has so far been ineffective in inducing the broad-based rural reforestation effort it was intended to promote.

(b) Specific long-term objectives/outputs

- o To develop a national reforestation policy with the following characteristics:
 - Clear, effective, easily understandable, and easy to apply;
 - Containing incentives for reforestation based on rural citizens' motivations.

(c) Means to achieve objectives

- o USAID would assist in the conduct of a study of the present ZODAFARB policy and its land registration procedures to identify constraints and to recommend changes;
- o USAID would initiate policy dialogue with the government and negotiate for appropriate reforms using resource transfers if necessary.

(d) Potential for private sector involvement

- o The intent of the ZODAFARB policy is to promote private sector investment in tree planting and the privatization of state lands;
- o Local private consultants may be involved in the study.

(e) Level of resources required

- o \$30,000 for the study;
- o Possible program aid to encourage policy reform.

(f) Consistency with government goals and objectives

- o The purpose of the reform is to identify and overcome the constraints to achieving the Government's stated objective of promoting broad-based rural reforestation.

(g) Consistency with other donor efforts

- o It is essential to collaborate closely with other donors involved with village level reforestation efforts, especially the Swiss;
- o USAID should also follow closely the Environmental Actions Plan's proposed Mapping and Land Registration Program.

5. Other recommendations

a. Feeder roads

(1) Discussion

Much agricultural land which is presently or potentially capable of producing a marketable surplus is inaccessible to surface transport. Construction or repair of roads from these areas would facilitate marketing, reduce cost, and stimulate production. Since feeder roads are gravel surface, they can be built with labor-intensive methods at low cost and requiring little if any imported inputs. Their construction can provide off-season employment opportunities paid for, depending upon the circumstances with counterpart funds or as food-for-work community projects.

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o Lack of adequate farm-to-market roads (pistes de dessert);
- o Some productive areas are cut off during several months in the rainy season.

(b) Specific long-term objectives

- o To stimulate production of crops and provide for other opportunities;
- o To increase rural employment and incomes;
- o To contribute to domestic food self-sufficiency; and
- o To facilitate shipment of export products which currently cannot be marketed because of road conditions.

(c) Means to achieve objectives

- o USAID would propose that counterpart funds be programmed for construction by the private sector of sections of non-paved rural farm-to-market roads, subject to the following conditions:
 - An independent consulting firm or a qualified NGO would be contracted to supervise the execution of the construction contract and to certify

progress before payments are made to the contracting firm;

- The region to be selected would have substantial potential for diversified production, especially of non-traditional crops, and would presently be suffering from an inability to ship them to centers of consumption and/or processing;
- The farming community which is to benefit from the road would contribute voluntary labor and, if available, local materials;
- Arrangements for permanent maintenance of the road would be made;
- A private firm, preferably from the locality, would be selected to undertake construction, including the design and supervision of the voluntary local contribution;

(d) Possibility for private sector involvement

- o Farmers and traders would be long-term beneficiaries;
- o Executing agents of the project would be private sector;
- o Local community would contribute voluntary labor and inputs.

(e) Anticipated level of resources required

- o \$1.5 million (possibly counterpart) over three years.

(f) Consistency with Government goals and objectives

- o Food self-sufficiency, export-crop production and enhancement of rural employment and income are among the highest priorities of the Government.

(g) Consistency with other donor efforts

- o While other donors, particularly the World Bank, have road construction projects, the size of the country and the paucity of adequate roads ensure that there is no risk of redundancy for projects like the one proposed.

b. Implement critical socio-economic surveys and data collection initiatives

(1) Discussion and recommendation

The dearth of systematically collected field data reflecting regional differences hinders USAID, other donors and the Government from reaching a better understanding of the conditions, constraints and opportunities of agricultural producers and commercial entrepreneurs. It is more difficult for these organizations to develop effective programs and policies, to project their likely impact and to project the distribution of benefits.

The paucity of recent empirical data disaggregated by sex is revealed in the assessment team's study of women and agriculture. It shows that the existing information base is thin and old. The economic conditions over the past 10 to 15 years have undoubtedly led to significant changes in practices such as women's rights to and control over money, crops, and land. No recent studies on agricultural marketing gave attention to women.

(2) Proposed studies

We recommend that USAID incorporate the following questions into the studies it currently plans to carry out and for which money is already available.

(a) MAELP project

- o In the studies which would be carried out under the MAELP project, the following questions should be addressed, taking into account the distinctions between women who are heads of household and those who reside in male-headed households and between regions:
- o Rural Financial Markets
 - How does access to credit differ between men and women and by source and type of credit?

- What are the constraints to women participating in current credit projects, such as group credit through BTM and village crop storage schemes, and how might these be addressed?
 - What are the forms and basis of solidarity in villages or communities, noting these in terms of men and of women, how would these affect the establishment of viable group credit and saving schemes?
 - Do the credit needs of women differ from those of men and does willingness and ability to save money vary by sex?
- o Rural Household Income and Expenditure Survey
 - What are the significant differences in level and source of income and in level and pattern of expenditure between female- and male-headed households?
 - How do levels and sources of income differ by region and proximity to a main market center?
 - How do levels and sources of income, and levels and patterns of expenditure differ between women and men in male-headed households, and what are the differences by region; what factors influence the loci of control over money in such households and do these vary by region?
- o Proposed WID assessment
 - What is the extent, severity and impact of differential wage rates for men and women for the same or similar jobs? What is the effect of the practice of designating numerous unskilled and semiskilled jobs by sex? What is the likely acceptance and impact of a policy supporting

equal wage rates for equal work and/or declassification of jobs by sex?

- To what extent are official social statistics, e.g. on employment, disaggregated and published by sex?

(b) Study of Agricultural Education System

- o The National Agricultural Research Plan calls for 94 persons with B.S. or equivalent degrees. In Madagascar, under the existing system, a student cannot obtain a B.S. equivalent degree in agriculture, although it is possible in some other fields. After higher secondary school, a student has to attend the university for five years to obtain the Ingenieur Agronome degree. Furthermore, each of the five departments in agriculture and related fields can accept only 17 new students a year. This includes the agronomy and the forestry departments.
- o The government recognizes only diplomas and degrees granted by the state or those earned at qualified institutions overseas. This means that there is little incentive for the private sector to establish a agricultural training institute with a long-term program.
- o We recommend that USAID should finance a study of the country's agricultural education system, with the aim of identifying feasible opportunities to increase the number of qualified, bachelor degree equivalent agriculturalists. This would include a projection of the demand by the public and private sector for this level of person over the next 15 years and possible issues which should be incorporated into USAID's policy dialogue with the Government. The World Bank has expressed interest in collaborating on such a study.

c. Promote renewable energy: biodigesters

(1) Discussion

During the last 15 years we have seen considerable scientific, technical, economic and sociological research on biodigestion. The technique converts animal wastes to methane gas, which is used in place of wood or charcoal for cooking or other domestic use. Slurry, the digested waste, can be used as manure. It has the advantage of being odorless and has retained most of the nutrients of the animal waste.

Two very simple prototype biodigesters, made with local materials and cement, have been functioning near Antananarivo for more than 20 months without difficulty. They were built at a cost of less than \$400 apiece. The eight-cubic-meter digester was designed after extensive study of biogas experience in Africa and Madagascar. It is ready to be introduced on a wider scale.

(2) Proposed intervention

(a) Problems/constraints to be addressed

- o High rate of consumption of fuelwood and charcoal, with consequent harmful effects on the environment;
- o Lack of alternatives to fuelwood and charcoal.

(b) Specific long-term objectives

- o To establish 50 two-man teams capable of building biodigesters on demand for clients;
- o To have 250 functioning biodigesters in three years.

(c) Means to achieve objectives

- o Training sessions for groups of 10, divided into two-man teams. In the course of a year, up to 10 sessions could be conducted in different regions of the country. (Each region would be chosen with due regard to the ready availability of animals and water as well as other essential preconditions.)

- (d) Possibility for private sector involvement
 - o The construction teams would be private sector entrepreneurs who would work on their own account and on a part-time basis. After successfully completing training, they would be good candidates for credit from the rural credit project.
- (e) Anticipated level of resources required
 - o \$100,000 over two years.
- (f) Consistency with government goals and objectives
 - o This is consisted with forest conservation and energy production objectives of the GDRM
- (g) Consistency with existing or planned other donor efforts
 - o This project carries on the work of an FAO project, now completed, which financed research at the Ministry of Scientific and Technical Research (MRSTD).

V. TABLES

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 14: Comparison of Nominal Domestic Producer and Retail Prices
with International Market Prices
(Major Agricultural Commodities)

| | (FMG/kg) | | | | | Sept. 1989 | %nominal change 1984-8 | %real change 1984-8 |
|----------------------|----------|------|------|-------|-------|---------------|------------------------------|---------------------------|
| | 1984 | 1985 | 1986 | 1987 | 1988 | | | |
| Rice | | | | | | | | |
| Producer (1) | 118 | 115 | 222 | 178 | 239 | 336 | 103% | 10% |
| Retail-Official (2) | 182 | 225 | 251 | 297 | N/A | | | |
| -Market | 295 | 378 | 556 | 395 | 427 | 495 | 135% | 27% |
| Int'l (Thai B) | 137 | 128 | 116 | 213 | 355 | 550 | 159% | 40% |
| Manioc | | | | | | | | |
| Producer (1) | 98 | 97 | 116 | | | | | |
| Retail (fresh) | 125 | 153 | 205 | 176 | 140 | 175 | 12% | -39% |
| International | | | | | | | | |
| Maize | | | | | | | | |
| Producer (1) | 154 | 183 | 222 | | 140 | 183 | -9% | -51% |
| Retail | 250 | 320 | 450 | 300 | 340 | 340 | 36% | -27% |
| Export Unit Price | 119 | 117 | 0 | 263 | 288 | | 141% | 30% |
| Int'l (Thai) | 88 | 71 | 66 | 111 | 197 | | 123% | 21% |
| Wheat | | | | | | | | |
| Producer (1) | 213 | 247 | 247 | 333 | | 533 | | |
| Retail Off'l | 365 | 370 | 403 | 540 | N/A | | | |
| Market | N/A | N/A | 800 | 600 | 535 | 730 | 60% | -13% |
| Int'l (Australia) | 99 | 96 | 93 | 114 | 230 | | 133% | 26% |
| Groundnuts | | | | | | | | |
| Producer | 80 | 80 | | | | | | |
| Retail (shelled) | 408 | 650 | 890 | 780 | 910 | 940 | 123% | 21% |
| Int'l (Nigeria) | 202 | 219 | 652 | 997 | 2,859 | | 1317% | 666% |
| Sugar Cane | | | | | | | | |
| Producer | 10 | 10 | 12 | 14 | 14 | | | |
| Retail Off'l (sugar) | 374 | 412 | 400 | 523 | N/A | | 40% | -24% |
| Market | N/A | N/A | N/A | 750 | 860 | 810 | 130% | 24% |
| Export Unit Price | 200 | 202 | 471 | 613 | 698 | | 249% | 89% |
| Int'l (EEC M price) | 203 | 222 | 277 | 504 | 737 | | 262% | 96% |
| Seed Cotton | | | | | | | | |
| Producer | 155 | 155 | 155 | 320 | 320 | | 106% | 12% |
| Retail | N/A | N/A | N/A | N/A | N/A | | | |
| Int'l (US 10 mkts) | 865 | 807 | 784 | 1,492 | 1,775 | | 105% | 11% |

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 14: Comparison of Nominal Domestic Producer and Retail Prices with International Market Prices (Major Agricultural Commodities)
(FMG/kg)

| | 1984 | 1985 | 1986 | 1987 | 1988 | Sept. 1989 | %nominal change 1984-8 | %real change 1984-8 |
|-------------------------------|--------|--------|--------|--------|---------|---------------|------------------------------|---------------------------|
| Coffee | | | | | | | | |
| Producer | 332 | 427 | 495 | 716 | 881 | 800 | 165% | 43% |
| Retail (ground) | 1,480 | 1,480 | 1,684 | 1,812 | 1,782 | 1,810 | 20% | -35% |
| Export Unit Price | 1,651 | 1,584 | 2,346 | 2,506 | 2,609 | 1,300 | 58% | -15% |
| Int'l (Uganda) | 1,754 | 1,667 | 2,206 | 2,407 | 2,944 | 1,300 | 68% | -9% |
| Vanilla | | | | | | | | |
| Producer | 1,000 | 1,000 | 1,100 | 1,200 | 1,700 | | 70% | -8% |
| Retail | N/A | N/A | N/A | N/A | N/A | | | |
| Export Unit Price | 39,887 | 47,639 | 49,549 | 93,854 | 107,096 | | 168% | 45% |
| International | | | | | | | | |
| Cocoa | | | | | | | | |
| Producer | 435 | 435 | 525 | 600 | 600 | | 38% | -25% |
| Retail | N/A | N/A | N/A | N/A | N/A | | | |
| Export Unit Price | 3,657 | 2,108 | 2,562 | 4,518 | 4,416 | 2,720 | 21% | -35% |
| International | | | | | 4,221 | 2,720 | | |
| Pepper | | | | | | | | |
| Producer | 255 | 300 | 300 | 1,190 | 2,000 | 2,250 | 684% | 324% |
| Export Unit Price | 897 | 1,368 | 2,157 | 4,553 | 4,498 | | 402% | 171% |
| International | 1,307 | 2,362 | 3,259 | 3,528 | 3,236 | 3,360 | 148% | 34% |
| Beef (cut B w/bones) | | | | | | | | |
| Producer | | | | | | | | |
| Retail | 806 | 882 | 956 | 1,166 | 1,430 | 1,610 | 77% | -4% |
| Export Unit Price | 761 | 866 | 1,347 | 2,276 | 2,280 | | 200% | 62% |
| Int'l (US all orig) | 1,309 | 1,343 | 1,413 | 2,544 | 3,534 | 3,445 | 170% | 46% |
| Edible Oil (per liter) | | | | | | | | |
| Producer | | | | | | | | |
| Retail Official | 769 | 885 | 1,233 | 1,794 | N/A | | | |
| Market | N/A | N/A | 2,400 | 2,000 | 1,980 | 2,260 | 157% | 39% |
| Int'l (Soybean) | 387 | 333 | 214 | 331 | 601 | | 55% | -16% |
| Urea | | | | | | | | |
| Retail | 180 | 180 | 210 | 210 | 210 | | 17% | -37% |
| International | 99 | 85 | 72 | 125 | 218 | | 120% | 19% |

(1) milling rate is .67 for rice, .95 for manioc, .82 for maize, and .75 for wheat.

(2) Antananarivo retail price

Source: MPARA, "Bilan Oleagineux" and "Bilan des Cultures d'Exportation, 1988, and USAID, "Evaluation of the Food for Progress Rice Program", 1988.

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 15: Contribution of Agriculture to GDP

| | <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | estimated <u>1988</u> |
|---|-------------|-------------|-------------|-------------|--------------------------|
| Agricultural production | | | | | |
| (FMG billions) | 581 | 653 | 794 | 940 | 1,140 |
| (1987 FMG billions) | 876 | 893 | 950 | 940 | 950 |
| GDP | | | | | |
| (FMG billions) | 1,369 | 1,553 | 1,817 | 2,225 | 2,650 |
| (1987 FMG billions) | 2,111 | 2,160 | 2,188 | 2,225 | 2,265 |
| Ag production/GDP | 42.41% | 42.06% | 43.71% | 42.25% | 43.02% |
| | 41.50% | 41.34% | 43.42% | 42.25% | 41.94% |
| Percent composition of Ag production | | | | | |
| ----- | | | | | |
| Rice | >30 | | | | |
| Other Cereals | | | | | |
| Meat | 15 | | | | |
| Dairy Products | | | | | |
| Fruits and Vegetables | | | | | |
| Export Crops | 15 | | | | |
| Industrial Crops | 7 | | | | |
| Other | | | | | |

Source: IBRD, "Public Expenditure, Adjustment, and Growth", 1989.

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 16a: Public Expenditures in Agriculture
(billions of FMG)

| | 1984 | 1985 | 1986 | 1987 | 1988 | expected 1989 |
|--|-------|---------|--------|--------|-------|------------------|
| Agricultural Capital Expenditure (1) (FMG billion) | 40.50 | 32.00 | 60.00 | 78.00 | 86.30 | 121.00 |
| Agricultural Current Expenditure (FMG billion) | 6.00 | 6.80 | 20.00 | 25.00 | | 23.00 |
| Total Agricultural Expenditure (FMG billion) | 46.50 | 38.80 | 80.00 | 103.00 | | 144.00 |
| Real Total Ag Expenditure (2) (real FMG billion) | 21.67 | 16.30 | 29.19 | 31.24 | | |
| percent change | | -24.79% | 79.11% | 7.04% | | |
| As a percent of Total Public Expenditure | 16.42 | 12.48 | 17.94 | 16.53 | | 17.39 |
| percent change | | -24.02% | 43.78% | -7.83% | | |

(1) Figures are not directly comparable from year to year. 1989 figures do not include non-project grants for technical assistance and aid-financed scholarships. If these were excluded from 1986's totals, agriculture's share of total expenditures would fall to 13%.

(2) Deflated with implicit GDP deflator.

Source: IBRD, "Public Expenditure, Adjustment, and Growth", 1989.

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 16b: Public Investment in Agriculture (1)
(in millions of FMG)

| | <u>1989</u> | <u>1990</u> | <u>1991</u> |
|--------------------------------------|----------------|----------------|----------------|
| I. MPARA ----- | | | |
| Coordination and Planning | 9,674 | 10,620 | 6,538 |
| Rice | 56,342 | 69,839 | 75,746 |
| Edible Oils | 9,909 | 14,395 | 16,737 |
| Export Crops | 11,969 | 10,43 | 8,016 |
| Industrial Crops | 2,872 | 5,631 | 1,968 |
| Food Crops | 4,916 | 15,301 | 14,905 |
| Arboriculture | 235 | 230 | 233 |
| Vegetal Protection | 3,034 | 3,140 | 2,890 |
| Other | 1,600 | 8,956 | 11,869 |
| TOTAL | 100,551 | 138,547 | 138,902 |
| II. MPAEF ----- | | | |
| Administration and Planning | 2,045 | 2,770 | 2,240 |
| Ag. Training | 1,221 | 1,605 | 1,807 |
| Veterinary Services | 1,175 | 1,320 | 1,430 |
| Livestock Prod | 3,877 | 8,850 | 9,895 |
| Fisheries | 1,293 | 1,078 | 1,142 |
| Aquaculture | 1,474 | 2,011 | 2,597 |
| Conservation and Natural Resources | 1,394 | 2,915 | 2,760 |
| Reforestation Development | 10,900 | 11,700 | 8,500 |
| Industrial Crops | 1,800 | 1,300 | 1,300 |
| TOTAL | 25,179 | 33,549 | 31,671 |
| III. MRSTD ----- | | | |
| Foodcrop Research | 3,551 | 6,651 | 5,798 |
| TOTAL AGRICULTURAL INVESTMENT | 129,281 | 178,747 | 176,371 |

(1) Total investment differs from public capital expenditure due to the inclusion of self-financing investments by public enterprises.

Source: IBRD, "Public Expenditure, Adjustment, and Growth", 1989.

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 17a: Composition of Agricultural Production

| | <u>1983</u> | <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> |
|-----------------------------------|-------------|-------------|-----------------|-------------|-------------|-------------|
| PADDY PRODUCTION (1000S tons) | 2147.00 | 2131.00 | 2178.00 | 2230.00 | 2300.00 | 2235.00 |
| Area planted (1000S ha) | 1189.00 | 1198.00 | 1181.00 | 1187.00 | 1214.00 | 1189.00 |
| Yield | 1.81 | 1.78 | 1.84 | | | |
| MAIZE PRODUCTION (1000s tons) | 132.10 | 141.00 | 140.00 | 152.90 | 158.10 | |
| Area planted (1000S ha) | 126.00 | 132.00 | 140.00 | 148.00 | 140.00 | |
| Yield | 1.05 | 1.07 | 1.00 | | | |
| MANIOC PRODUCTION (1000s tons) | 1992.00 | 2047.10 | 2142.00 | 2190.00 | 2178.40 | |
| Area planted (1000S ha) | 329.00 | 336.00 | 350.00 | 359.20 | 311.20 | |
| Yield | 6.05 | 6.09 | 6.12 | | | |
| SWEET POTATO (1000s tons) | 463.00 | 462.50 | 450.00 | 467.00 | 466.70 | |
| Area planted (1000s ha) | | | 638.20 67.20 | | | |
| POTATO (1000s tons) | 252.70 | 263.50 | 263.60 | 263.90 | 266.60 | |
| Area (1000S ha) | | | | | | |
| COFFEE PRODUCTION (1000S tons) | 80.80 | 81.40 | 78.50 | 78.50 | 80.50 | 83.50 |
| Area (1000S ha) | 223.00 | 223.10 | 223.20 | 224.20 | 224.00 | 225.00 |
| Yield | 0.36 | 0.36 | 0.36 | | | |
| Volume mkted (1000S tons) | 47.10 | 65.20 | 46.60 | 51.30 | 44.50 | |
| VANILLA (1000s tons) | 2.20 | 6.90 | 7.00 | 3.30 | 7.80 | |
| Area (1000S ha) | 26.00 | 26.30 | 26.60 | 26.80 | | |
| Yield | 0.09 | 0.26 | 0.20 | | | |
| Volume mkted (1000S tons) | 0.50 | 1.50 | 1.60 | 0.70 | 1.70 | |

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 17a: Composition of Agricultural Production (cont'd)

| | <u>1983</u> | <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| CLOVES (1000s tons) | 4.20 | 18.00 | 13.50 | 7.10 | 7.10 | |
| Area (1000S ha) | 75.50 | 76.70 | 77.16 | 77.14 | 77.15 | |
| Yield | 0.05 | 0.22 | 0.18 | | | |
| Vol mkted (1000S tons) | 2.30 | 16.00 | 8.00 | 5.00 | 5.00 | |
| PEPPER (1000s tons) | 2.60 | 2.60 | 2.80 | 2.80 | 3.00 | |
| Area (1000S ha) | 6.10 | 6.12 | 6.20 | 6.10 | 6.25 | |
| Vol mkted (1000S tons) | 2.00 | 2.20 | 2.10 | 2.30 | 2.40 | |
| COCOA (1000s tons) | 2.80 | 3.00 | 2.30 | 2.40 | 2.60 | |
| Area (1000S ha) | 5.90 | 5.85 | 7.87 | 8.21 | | |
| Prod marketed (1000S tons) | 2.70 | 2.90 | 2.20 | 2.30 | 2.40 | |
| BUTTER BEANS (1000s tons) | 5.80 | 7.10 | 5.80 | 6.00 | 6.60 | |
| Area (1000S ha) | 5.00 | 6.40 | 5.30 | 5.50 | | |
| Marketed (1000S tons) | 3.90 | 6.00 | 5.00 | 5.00 | 5.80 | |
| SISAL (1000s tons) | 16.70 | 19.50 | 19.80 | 19.80 | 19.80 | |
| Area (1000S ha) | 16.50 | 16.60 | 16.70 | 17.60 | | |
| SEED COTTON (1000s tons) | 26.30 | 32.50 | 42.90 | 41.00 | 27.20 | 31.90 |
| area (1000S ha) | | | 33.00 | 42.80 | 22.20 | 26.00 |

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 17a: Composition of Agricultural Production (cont'd)

| | <u>1983</u> | <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| SUGAR CANE (1000s tons) | 1615.80 | 1660.00 | 1744.00 | 1950.00 | 1980.00 | 1990.00 |
| Area (1000S ha) | | | 59.00 | 59.00 | 59.50 | 60.00 |
| Mrketed (1000S tons) | 958.80 | 1069.70 | 1138.20 | 1380.00 | 1400.00 | |
| GROUNDNUTS (1000s tons) | 32.30 | 31.50 | 31.50 | 32.00 | 32.50 | |
| Area (1000S ha) | | | | | | |
| Marketed (1000S tons) | 23.30 | 18.60 | 18.60 | 18.50 | 19.00 | |
| WHEAT (1000S TONS) | | 0.31 | | | | 4.00 |
| PROD FLOOR P (FMG/KG) | 120.00 | 160.00 | 185.00 | 185.00 | 250.00 | |
| SOYBEANS (1000S tons) | | | | | 0.14 | |
| SHRIMP | | | | | | |
| Export val msdr | 22.22 | 21.31 | 21.75 | 24.94 | 27.04 | 22.33 |
| Volume | 3.60 | 3.80 | 4.26 | 4.49 | 5.34 | 4.94 |
| MEAT (1000s tons) | | | 35.00 | | | |
| Heads (1000S) | | | 44.70 | 36.90 | 44.60 | |
| LITCHIS (1000s tons) | 34.00 | 35.00 | 35.00 | | | |
| Area (1000S ha) | | | 5.70 | | | |
| LOBSTERS | | | | | | |
| Export val msdr | | | | | 0.50 | 1.78 |
| Volume | | | | | 0.05 | 0.14 |
| CRABS | | | | | | |
| Export val msdr | | | | 0.19 | 0.60 | 1.05 |
| Volume | | | | 0.06 | 0.20 | 0.29 |

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 17a: Composition of Agricultural Production (cont'd)

| | <u>1983</u> | <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| CINNAMON | | | | | | |
| Export val msdr | | | | 0.33 | 0.71 | 0.98 |
| Volume | | | | 0.73 | 1.16 | 2.92 |
| CASHEW NUT | | | | | | |
| Export val msdr | | | | 0.30 | 0.45 | 0.85 |
| Volume | | | | 0.53 | 1.08 | 1.44 |
| BEESWAX | | | | | | |
| Export val msdr | | | | 0.09 | 0.07 | 0.21 |
| Volume | | | | 0.04 | 0.04 | 0.11 |
| WOOD | | | | | | |
| Export val msdr | | | | 0.34 | 0.53 | 1.42 |
| Volume | 0.34 | 0.36 | 0.29 | 2.13 | 3.19 | 8.28 |
| TREPANG | | | | | | |
| Export val msdr | | | | 0.11 | 0.09 | 0.46 |
| Volume | | | | 0.04 | 0.04 | 0.13 |
| FISH | | | | | | |
| Export val msdr | | | | 0.17 | 0.21 | 0.25 |
| Volume | | | | 0.16 | 0.08 | 0.21 |
| ORN PLANT SEEDS | | | | | | |
| Export val msdr | | | | | | 0.03 |
| Volume | | | | | | 0.01 |
| RAFFIA | | | | | | |
| (1000S TONS) | | | 7.90 | 7.90 | | |
| Volume | 1.46 | 1.67 | 1.06 | 1.08 | 2.09 | |
| BANANA | | | | | | |
| (1000s tons) | 286.00 | 224.00 | 255.00 | 225.00 | 250.00 | |
| Export volume | 0.70 | 0.10 | 0.05 | 0.05 | 0.75 | |
| MED PLANTS | | | | | | |
| Export valu msdr | | | | | 1.15 | 0.57 |
| Volume | 0.90 | 1.20 | 0.80 | 0.90 | 1.03 | 0.46 |

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 17b: Summary of Composition of Agricultural Production
for 1985 by Data Source

| | EAP | DATA | CENSUS | EAP% | DATA% | CENSUS% |
|--------------------------------|---------|---------|---------|--------|--------|---------|
| TOTAL AG SURFACE (1000S HA) | 3000.00 | 2191.30 | 2087.20 | 100.00 | 100.00 | 100.00 |
| PADDY | 1350.00 | 1181.00 | 1080.00 | 45.00 | 53.90 | 51.74 |
| OTHER FOOD | 1200.00 | 567.00 | 642.90 | 40.00 | 25.90 | 30.80 |
| COFFEE | 210.00 | 223.00 | 147.20 | 7.00 | 10.20 | 7.05 |
| VAN, CLO, PEP | 90.00 | 114.10 | 85.90 | 3.00 | 5.20 | 4.12 |
| COTTON | 24.00 | 17.70 | 17.60 | <1.00 | 0.80 | 0.84 |
| SUGAR CANE | 26.00 | 45.70 | 45.70 | <1.00 | 2.10 | 2.19 |
| OTHER | 100.00 | 42.80 | 67.90 | 3.00 | 2.00 | 3.25 |

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 18: Patterns of Production

| | <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> | estimated 1989 |
|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------------|
| <u>Paddy</u> | | | | | | |
| Production (1) | 2,131.00 | 2,060.00 | 2,116.00 | 2,178.00 | 2,149.00 | 2,350.00 |
| | | -3.3% | 2.7% | 2.9% | -1.3% | 9.4% |
| Marketed | 140.11 | 136.00 | 148.00 | 152.50 | 150.40 | |
| | | -2.9% | 8.8% | 3.0% | -1.4% | |
| Area (2) | 1,063.00 | 1,081.00 | 1,085.00 | 1,098.00 | 1,111.00 | 1,221.00 |
| | | 1.7% | 0.4% | 1.2% | 1.2% | 9.9% |
| Farmgate val (current BFMG) | 171.8 | 158.00 | 315.3 | 259.2 | 343.8 | n.a. |
| <u>Manioc</u> | | | | | | |
| Production | 2,047.10 | 2,142.00 | 2,190.00 | 2,178.40 | 2,186.40 | 2,277.00 |
| | | 4.6% | 2.2% | -0.5% | 0.4% | 4.1% |
| Area | 336.00 | 350.00 | 359.20 | 311.20 | 312.00 | |
| | | 4.2% | 2.6% | -13.4% | 0.3% | |
| Farmgate val (current BFMG) | 190.40 | 197.00 | 240.9 | n.a | n.a. | n.a. |
| <u>Maize</u> | | | | | | |
| Production | 141.00 | 140.00 | 152.90 | 158.10 | 156.40 | 220.00 |
| | | -0.7% | 9.2% | 3.4% | -1.1% | 40.7% |
| Area | 132.10 | 140.00 | 148.00 | 140.00 | 152.00 | |
| | | 6.0% | 5.7% | -5.4% | 8.6% | |
| Farmgate val (current BFMG) | 17.8 | 21.0 | 27.8 | n.a. | n.a. | n.a. |
| <u>Sweet Potatoes</u> | | | | | | |
| Production | 462.50 | 450.00 | 467.00 | 466.76 | 466.98 | |
| | | -2.7% | 3.8% | -0.1% | 0.0% | |
| Area | 97.00 | 90.80 | 93.60 | 92.30 | N/A | |
| | | -6.4% | 3.1% | -1.4% | | |
| <u>Potatoes</u> | | | | | | |
| Production | 263.50 | 263.60 | 263.90 | 266.60 | 270.10 | |
| | | 0.0% | 0.1% | 1.0% | 1.3% | |
| Area | 33.90 | 40.70 | 40.80 | 41.20 | 41.80 | |
| | | 20.1% | 0.2% | 1.0% | 1.5% | |
| <u>Bananas</u> | | | | | | |
| Production | 224.00 | 224.50 | 225.20 | 250.90 | 226.80 | |
| | | 0.2% | 0.3% | 11.4% | -9.6% | |
| Area | | 90.50 | | | | |
| <u>Beans</u> | | | | | | |
| Production | 36.80 | 35.70 | 42.20 | 39.50 | 38.00 | |
| | | -3.0% | 18.2% | -6.4% | -3.8% | |
| Area | 44.20 | 46.00 | 48.10 | 47.90 | N/A | |
| | | 4.1% | 4.6% | -0.4% | | |

(1) 1,000s MT/ (2) 1,000s ha²

Source: "IMF, Madagascar - Statistical Annex", 1988; USAID, "Food Needs Assessment", 198 and MPARA 1984/5 Agricultural Census.

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 19 : MPARA's Sales of Agricultural Inputs

| | <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> | estimated <u>1989</u> |
|--|-------------|-------------|-------------|-------------|-------------|--------------------------|
| Fertilizer (tons) | 20,500 | 26,900 | 30,195 | 57,413 | 23,000 | 23,000 |
| Insecticides (tons) | 1,300 | 369 | 685 | 861 | 251 | 131 |
| Seeds | | | | | | |
| Plows (piece) | 299 | 215 | 140 | 75 | | |
| Rotating Hoe (piece) | 41 | 289 | 0 | 9 | | |
| Tractors (piece) | 70 | 45 | | | | |
| Veterinary Meds. (1000s doses/bovine) | 14,946 | 17,171 | 16,021 | 15,043 | 16,369 | |
| Animal Feed (tons) | 200 | | | | | |

Source: MPARA, "Annuaire Statistique", 1984-6 and 1987-8.

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 20: Domestic Food Availability
(metric tons)

| | <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>estimated</u> <u>1989</u> |
|----------------------------------|------------------|------------------|------------------|------------------|------------------|---------------------------------|
| Rice (kg per capita) | 1,294,085 133 | 1,254,687 126 | 1,325,293 129 | 1,230,361 121 | 1,220,341 112 | 1,280,550 114 |
| Manioc (kg per capita) | 1,341,875 138 | 1,404,081 141 | 1,435,545 140 | 1,427,947 135 | 1,433,120 132 | 1,492,574 133 |
| Maize (kg per capita) | 90,849 9 | 95,683 10 | 105,311 10 | 102,748 10 | 105,211 10 | 147,026 13 |
| Wheat (kg per capita) | 34,930 4 | 24,746 2 | 40,666 4 | 39,686 4 | 34,822 3 | |
| Vegetable Oil (kg per capita) | 9,383 1 | 3,917 0 | 14,567 1 | 9,410 1 | 7,556 1 | 8,275 1 |
| Meat (kg per capita) | 255,000 26 | 252,000 25 | 256,000 25 | | | |
| Dairy Products | | | | | | |
| Vegetables (kg per capita) | | 299,000 30 | 299,000 29 | | | |
| Population (1,000s) | 9,718 | 9,983 | 10,254 | 10,562 | 10,878 | 11,205 |

Source: USAID/Lowdermilk, "Madagascar - Food Needs Assessment", 1989.

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 21: Commercial and Donated Imports of Food Commodities

(unmilled metric tons)

| | <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>estimated</u> <u>1989</u> |
|--|-------------|-------------|-------------|-------------|-------------|---------------------------------|
| Total Food & Bev. (MUSD) (commercial imports only) | 50.00 | 50.00 | 52.00 | 49.00 | 21.00 | |
| Percent of Total Imports | 14% | 15% | 16% | 16% | 7% | |
| Rice | 111,400 | 106,000 | 162,000 | 94,000 | 86,000 | 87,000 |
| (commercial) | 57% | 54% | 32% | 11% | 34% | 0% |
| (donated) | 43% | 46% | 68% | 89% | 66% | 100% |
| Wheat | 46,312 | 32,479 | 53,767 | 51,047 | 43,109 | 30,600 |
| (commercial) | 31% | 10% | 28% | 20% | 0% | 33% |
| (donated) | 69% | 90% | 72% | 80% | 100% | 67% |
| Dairy Products (commercial) (donated) | 3,290 | 2,623 | 4,286 | 6,036 | | |
| Processed Foods | 700 | | | | | |
| Beverages | 267 | 112 | 11 | 375 | | |
| Oils and Fats | 8,718 | 8,685 | 11,163 | 14,998 | 5,744 | 2,400 |
| (commercial) | 89% | 91% | 40% | 13% | 0% | 42% |
| (donated) | 11% | 9% | 60% | 87% | 100% | 58% |

Source: USAID/Lowdermilk, "Food Needs Assessment", 1989 and MPARA, "Annuaire Statistique"

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 22: Summary of Major Donor-Supported Agricultural Projects

| <u>Category and Title</u> | <u>Donors</u> | <u>Estimated Duration and Financing</u> | <u>Brief Description</u> |
|---|--|---|---|
| <u>Planning and Coordination</u> | | | |
| Assistance to Agricultural Institutions | IBRD/IDA USAID | 1986-90 \$12.8 million | Strengthen capabilities of MPARA, MPAEF, MRSTD, and FOFIFA through increased planning, evaluation, nat. resource inventory, and extension |
| Program of Social Action and of Assistance in Ec. Management (PASAGE) | IBRD/IDA AfDB/F Coop. Suisse UNDP | 1989-94 \$41 million | Program to address some of social costs of adjustment, includes food security component |
| Agricultural Sector Adjustment (CASA) | IBRD/IDA W. Germany Japan | 1986-89 \$68.6 million | Financing import of agricultural inputs and some rice to encourage rice market lib. vegoil prod, and instit. strengthening |
| Public Sector Adjustment (CASEP) | IBRD/IDA AfDB/F Coop. Suisse | 1988-91 \$175 million | Program to increase efficiency of public sector through improved planning, rationalization of public ents., restruct. of finan. sector, export promotion and trade liberalization |
| National Agricultural Research Project | IBRD/IDA | 1990-96 \$24 million | Project to improve agriculture research capabilities through better planning, improved research quality and adaptability, human resource devt., and rehab. of research network |
| National Seed Program Analamahitsy | UNDP/FAO | 1989-91 <a> \$3 million (begun 1987) | To establish a national masterplan for seed supply, promote use of improved varieties, and strengthen private seed production and commercialization |
| <u>Crop Production and Input Supply</u> | | | |
| Rehabilitation of the Irrigated Small Perimeters (PPI) | CCCE IBRD/IDA AfDB/F Coop. Suisse UNDP | 1989-91 <a> \$35 million (begun 1986) | Project to rehabilitate entire system of small (200-2,500 ha CCA) state-built irrigation systems and transfer them to user management |

<a> Figure shows total funding for the 1989-91 period, actual project duration and total funding will differ.

Source: UNDP, "Cooperation au Developpement", various years, and DGP, "Programme d'Investissement Public, 1989-91".

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 22: Summary of Major Donor-Supported Agricultural Projects (cont.)

| <u>Category and Title</u> | <u>Donors</u> | <u>Estimated Duration and Financing</u> | <u>Brief Description</u> |
|--|-------------------------|--|---|
| Crop Production and Input Supply (continued) | | | |
| Operation Rice Devt. on the High Plateau (ODR) | IFAD CCCE | 1983-89 \$17.7 million | Regional project to increase rice production through extension, inputs (credit, fertilizer), and irrigation system rehab. |
| Village-Based Microhydraulics Project | EDF | 1987-91 \$10.1 million | Project to rehabilitate 21,000 ha CCA of small farmer or community built irrig. systems (microhydrauliques) |
| Intensification of Rice Cultivation at Lac Al. (SOMALAC) | FAC CCCE IBRD/IDA | 1983-91 \$43.7 million | Rehabilitate SOMALAC and its irrigation system, improve cultiv. practices w/in SOMALAC's perimeters |
| Integrated Agricultural Development, Port-Berge | W. Germany | 1982-89 \$10.3 million | Project includes components for microcredit, extension, and irrigation and road rehabilitation. |
| Mgt. of Lower Betsiboka (FIFABE) and watersheds | W. Germany AfDB/F | to start 1989 \$26.3 million | Coordinated projects to rehabilitate FIFABE and the irrigation system w/in its perimeters while introd. soil cons. practices |
| Development of Cotton Cultivation (HASYMA) | FAC CCCE IBRD/IDA | 1989-91 ,a. \$13 million (begun 1982, total cost \$34 mil) | Increase cotton prod by rehab. HASYMA, research input supply, tech. assistance, and road rehab |
| Oil Palm - Antalaha | AfDB/F | 1985-91 \$14.3 million | Project to establish oil palm plantation and processing facility |
| Agricultural Devt. in the Southeast (ODASE) | FAC CCCE | 1985-91 \$14.1 million | Rehab. of export crops, esp. coffee, in area where more than 1/2 of coffee crop grown, thru research, replanting, maintenance, and road repair. |
| FIFAMANOR | NORAD | 1984-88 \$4.9 million (continuing) | Promotion of wheat and potato production, devt. of forage crops and intensive dairy farming in Vakinankaratra region |
| Development of the Mid-West (ODEMO) | Italy | 1989-91 <a> \$6 million | Increase production of food and oil crops thru credit, extension, crop collection, watershed protection, research, and road rehab |
| Program for the Devt of Maize in the Midwest | EDF | 1988-91 \$11.5 million | Create maize seed center, encourage smallholder cultivation, and rehab roads |

<a> Figure shows total funding for the 1989-91 period, actual project duration and total funding will differ.

Source: UNDP, "Cooperation au Developpement", various years, and DGP, "Programme d'Investissement Public, 1989-91".

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 22: Summary of Major Donor-Supported Agricultural Projects (cont.)

| <u>Category and Title</u> | <u>Donors</u> | <u>Estimated Duration and Financing</u> | <u>Brief Description</u> |
|---|---------------|---|--|
| Crop Production and Input Supply | | | |
| (continued) | | | |
| National Maize Prod. Project | AfDB/F | 1990-96 SDR 9.6 million | To increase maize production through research, extension, and rural credit. |
| Malagasy Fertilizer Program (PEM) Phase III | FAO NORAD | 1987-90 \$1.2 million (begun in 1978) | Project to increase fertilizer use through research, demonstration, and extension |
| Integrated Rice Crop Protection Project Lac Alaotra | Coop. Suisse | 1984-92 \$5.45 million | Establish integrated system for the protection of rice in lac Alaotra against pests and disease. Includes rapid alert and intervention systems |
| Assistance in Plant Protection | W. Germany | 1988-91 \$4.3 million | Focuses on protection against insects and rodents in Toliara and Mahajunga provinces |
| Agricultural Credit Program | IBRD/IDA | 1986-94 \$19 million | To rehabilitate the BTM's loan portfolio and provide a line of credit to farmers |
| Hydroagricultural Mgt. Iazafy/Betsizaraina | USSR | 1989-91 <a> \$7.5 million | Project to begin in 1989, to develop new irrigation system |
| Development of Morondava Region | Italy | 1990-91 <a> \$4.8 million | To begin in 1990, to create a seed farm of 500 ha to both supply seeds and act as pilot |
| <u>Livestock and Fisheries</u> | | | |
| Rehabilitation of Slaughterhouses | EEC | 1986-91 \$9.2 million | To modernize, improve sanitary conditions, and increase potential for exports to EEC and Indian Ocean |
| Devt of Inland Fisheries and Aquaculture | UNDP EDF | 1989-91 <a> \$2.1 million (begun in 1977) | To develop aquaculture along coastal zones and fish farming on the Plateau, improve fish processing and marketing |

<a> Figure shows total funding for the 1989-91 period, actual project duration and total funding will differ.

Source: UNDP, "Cooperation au Developpement", various years, and DGP, "Programme d'Investissement Public, 1989-91".

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT

Table 22: Summary of Major Donor-Supported Agricultural Projects (cont.)

| <u>Category and Title</u> | <u>Donors</u> | <u>Estimated Duration and Financing</u> | <u>Brief Description</u> |
|---|--|--|--|
| <u>Natural Resources</u> | | | |
| Environmental Action Plan (EAP) | IBRD/IDA USAID Coop. Suisse UNESCO UNDP WWF | 1990-2010 \$300-400 million (estimated) | Program to address pressing environmental issues through projects in soil conserv, biodiversity protection. envt'l "sensibilisation", training and institutional strengthening |
| Forest Management and Protection Project | IBRD/IDA Coop. Suisse NORAD | 1989-95 \$14.2 million | To protect natural forests, promote private sector reforestation, and assist FANALAMANGA in attracting private investors |
| Village-level Reforestation | Coop. Suisse | 1984-89 \$4.3 million | Assist local communities in developing and managing reforestation and environmental projects |
| Support to Forestry Dept of EESSA, U of Mad | Coop. Suisse | 1977-89 \$3.7 million | Provide personnel and equipment to strengthen Dept, especially vis-a-vis field work |
| FANALAMANGA | UNDP IBRD/IDA | 1989-91 <a> \$3 million (1974-84:\$30mill) | Longstanding plantation project, now trying to develop sawnlog production and (over ST) enhance private charcoal production |
| Indust'l Reforestation Vakinankaratra | W. Germany | to start 1989 \$4.4 million | Project to develop industrial forestry in central High Plateau |
| Export Project: Cashew Nuts (FAMAMA) | AfDB/F | 1984-91 \$13.9 million | Project to rehabilitate cashew nut plantations and construct a processing plant |

<a> Figure shows total funding for the 1989-91 period, actual project duration and total funding will differ.

Source: UNDP, "Cooperation au Developpement", various years, and DGP, "Programme d'Investissement Public, 1989-91".

ANNEX 1

Revised Scope of Work

MADAGASCAR AGRICULTURAL SECTOR ASSESSMENT
TERMS OF REFERENCE

I. Introduction

A team of consultants will undertake an Agricultural Sector Assessment to underpin the development of USAID/Madagascar's 1990-1995 Agricultural Sector Assistance Strategy.

Recommendations from the Assessment will form the basis for the agriculture section of the Mission's Country Development Strategy Statement (CDSS) to be formulated in early 1990.

The Assessment will include: (1) a background description of Madagascar's agricultural sector; (2) a description and analysis of the sector's current structure; (3) an identification and analysis of the constraints to increased production and development; and (4) recommendations for sector assistance strategy options by USAID/Madagascar.

The Agricultural Sector Assistance Strategy resulting from this Assessment will be the first of its kind by USAID/Madagascar, and will be an essential component of the CDSS. The Assessment will allow the Mission to back away from its day-to-day activities and take a comprehensive look at the development problems and opportunities in the sector. After years of

declining agricultural productivity, the agriculture sector in Madagascar is set to respond to recently liberalized policies for the marketing of agricultural inputs and outputs, and the implementation of other macro-economic reforms. As the impacts of these policy changes begin to take effect, USAID, in conjunction with the Government of the Democratic Republic of Madagascar (GDRM), needs to reassess its goals, objectives, and strategies to address the current development problems and opportunities in the agriculture sector.

It is important that the eventual USAID/Madagascar strategy support the goals and objectives of the GDRM in the agriculture sector, to allow a coordinated effort in agricultural programming. Furthermore, the USAID strategy should coordinate with other donor activities in the agriculture sector in order to maximize the impact of donor resources and to facilitate achievement of the government's goals and objectives. Finally, the USAID/Madagascar agriculture sector strategy must be integrated with the other sectors of Madagascar's economy. The Assessment team must bear these factors in mind as it analyzes data and makes recommendations for the Mission's future programming.

II. PURPOSE/OBJECTIVES

A primary purpose of the Assessment is to enable USAID/Madagascar to establish its goals, priorities and strategies in the agricultural sector. These in turn will be determined by factors such as: 1) the government's own priorities and objectives; 2) USAID's comparative advantage; 3) its ability to make a development impact; 4) other donor activities; and 5) other ongoing and planned activities in the current USAID portfolio.

Finally, it will be necessary for USAID/Madagascar to establish its own operational and managerial approaches in the agricultural sector, such as whether or not to restrict its involvement to a limited number of high priority programs, and whether or not to integrate all available assistance instruments such as centrally funded activities, PL 480, etc. This Assessment is designed to present the Mission with options and alternatives to make these decisions.

The Assessment will accomplish the following specific objectives for USAID/Madagascar:

1. Identify and describe the major agricultural activities in the country, and their contribution to the national economy.
2. Assess the infrastructural base for agricultural development in the country, including the economic, physical, natural and human elements.
3. Identify and analyze the impact of government policies with regard to agricultural investment, production, and marketing research and extension.
4. Describe the current strategy of the government to expand agricultural productivity.
5. Assess the current and potential capabilities and contributions of public and private sector institutions affecting agricultural production.
6. Describe and analyze the major problems and constraints affecting increased agricultural production in Madagascar.
7. Identify the major donors to Madagascar in the agricultural sector, and describe their relevant agricultural activities and strategies.
8. Provide recommendations and strategy options for USAID/Madagascar interventions in the agricultural sector.

III. STATEMENT OF WORK

A team of consultants, as described in Section IV below, shall be assembled by a contracting firm to produce a written report addressing all of the following issues in Madagascar's agriculture sector:

Background: human and natural resource, productive activities and the endowments role of the state.

Part II - Constraints to Agricultural Development and Current Efforts to Address Them.

Part III - Major unsolved issues and new opportunities.

Part IV - Recommendations for potential Sector Assistance for the 1990-1996 period.

Part V - Tables.

The format of the final report shall be developed jointly by the Assessment Team Leader and the USAID/Madagascar Agricultural Development Officer (ADO). Specifically, the following information and analysis shall be provided by the Team in the report.

Part I - Background: Production, Macro-Economic, and Human Resource Factors

Part I of the report shall contain a background description of the natural and human resource endowment of current productive activity and of the role of the state. In most cases, data shall be collected and analyzed for the previous 5 year period. However, in some cases, and to the extent that data exist, it may be necessary to go back 10 years. This part of the report shall provide the reader with an understanding of the relative importance of agriculture in the national economy of how the sector is organized and of major trends. It shall be descriptive and general in nature. Only information from existing studies, reports, evaluations and interviews, etc. shall be analyzed.

Subjects to be discussed include, but are not limited to:

A. Production

1. Describe the natural environment including rainfall patterns, growing seasons, soil types and their distribution, and insect, plant and livestock disease problems and the prevalence of agricultural pests.
2. Describe the agricultural land use patterns such as size and location of areas under crop cultivation, forestry and livestock raising. Indicate any significant changes in these patterns over the past 10 years. Discuss land tenure issues including tenancy types, historic origins, land titling and land markets.

3. Describe the predominant plant and animal varieties and production technologies (including the sources of these varieties or technologies).
4. Identify the major production zones and describe how they are linked to consumption centers through existing transportation, communication, processing and marketing infrastructure.
5. Identify major water resources, including areas under irrigation, types of irrigation (large-scale, small-scale community-based) pumping systems used, crops irrigated, etc.
6. Discuss agricultural research - how it is organized and what it has accomplished during the past 10 years. How effective is it in disseminating results?
7. Discuss the organization and effectiveness of extension services and of agricultural input supply and distribution over the past 10 years.
8. Describe the types of agro-industries active in the agricultural or related sectors of the economy. These shall include industries such as food processing and marketing, agricultural input manufacture and distribution, storage and plantation farming.
9. Discuss the impact of natural resource and environmental degradation on sustainable agricultural development.

C. The Agricultural Sector in the Economy

Macro-Economic Factors:

1. Indicate the contribution of the agricultural sector to GDP over the last 5 years, and significant shifts in terms of trade.
2. Discuss the respective roles of the public and private sectors in agricultural production, marketing, research and extension over the past 10 years. Describe public sector institutions and assess their effectiveness.
3. Discuss sectoral policies, changes thereto and any equity implications of shifting agricultural policies over the last 10 years.
4. Discuss the respective roles of the public and private sectors in agricultural production, marketing, research and extension over the past 10 years. Describe public sector institutions and assess their effectiveness.
5. Discuss the government's agricultural sector strategies.

6. Discuss the allocation of public expenditures to the sector in the last 5 years, distinguishing between recurrent expenditure and investment.
7. Discuss the availability and use of credit, public and private in agricultural activities.
8. Describe the types of agro-industries active in the agricultural or related sectors of the economy. These shall include industries such as food processing and marketing, agricultural input manufacture and distribution, storage and plantation farming.

B. Human Resources

1. Discuss general farm size, farm family size, education levels, labor use patterns, health and nutritional status, employment rates and per capita incomes in the agriculture sector. Compare the latter two to other sectors.
2. Describe any relevant social characteristics that affect agriculture such as the population's ethnic and religious composition, economic classes and social status.
3. Discuss the importance of local private organizations such as cooperatives or traditional collective groupings.
4. Describe the role of women in agricultural production and marketing.

Part II - Constraints and Issues

Part II of the Assessment shall identify and then analyze the major constraints and major issues, policies, activities and institutions currently affecting the agricultural sector. Whereas Part I was primarily descriptive in nature, Part II shall be analytical. A second difference between Parts I and II is that Part II shall address factors which can be changed through policy or program interventions.

The following specific issues shall be examined in terms of both their current and potential contributions to agricultural development. The Assessment Team shall discuss the current roles of the public and private sectors in agricultural production, marketing, research and extension, and the role of environmental concerns in present and potential agricultural outputs.

B. Private Sector

1. Analyze the constraints to and prospects for improved smallholder agriculture. Discuss the effects of macro-economic policies (exchange rates, tariffs, etc.) on the agriculture sector over the past 10 years.

2. Describe the types of agro-industries active in the agricultural or related sectors of the economy. These shall include industries such as food processing and marketing, agricultural input manufacture and distribution, storage and plantation farming.
3. Analyze the constraints to and potential for improved formal and informal financial structures in the agricultural sector.
4. Analyze the potential for greater private sector involvement in agricultural research, extension, training information services, and exporting.
5. Analyze constraints to increased exports from the sector.
6. Analyze the potential for local, private agricultural organizations such as Producer Associations, Agricultural Cooperatives, 4-H Clubs, religious organizations or other PVO's or NGO's.

For each of the private sector organizations identified above, describe and indicate their capacity to financially sustain themselves, and any relevant interactions (financial or administrative) with public agencies or donors.

A. Government Policies and Public Institutions

1. Analyze the government's macroeconomic reform program, its objectives, strategy and impacts to date with respect to the agriculture sector.
2. Analyze the strengths, weaknesses and current effectiveness of agricultural sector policies concerning land use, input and commodity pricing, agricultural credit, market organization, food security, and agricultural exports.
3. Analyze the potential for improved performance by public sector institutions in agricultural planning, project implementation and policy development. Include agricultural research, extension, training, environmental interventions, marketing services, credit, information services. Assess their quality, sustainability and effectiveness to implement technical and policy solutions.
4. Analyze the capacity of local government units at both the faritany and fokontany levels to effectively implement agricultural policies, projects and regulations conceived at the national level.

C. Agricultural Input and Produce Marketing

1. Analyze and compare, over the past 5 years, the domestic and international agricultural commodity and input prices which producers and traders receive and pay.

2. Analyze the returns labor for major crops and to investment in typical production and marketing activities.
3. Analyze the types, strengths and weaknesses of the distribution systems for these inputs.
4. Discuss the domestic consumption of agricultural commodities, including percentages of production consumed by farm families.
5. Analyze the distribution and use of food imports (commercial and donor) over the past 5 years.
6. Identify and analyze potential for those crops and other sector products in which Madagascar might possess an comparative advantage.

Part III - Unresolved Issues and New Opportunities

The Assessment Team shall focus this part of the report on the unresolved issues and constraints which restrict the growth of agricultural production in Madagascar. It shall identify and analyze new opportunities for production and export.

In addition to the above analysis, the Assessment Team shall describe any on-going or planned policy adjustments, technological developments, institutional innovations, or external circumstances which are intended to enhance the prospects for agricultural development in Madagascar.

1. Discuss ways to relieve the principal constraints to agricultural development caused by government marketing, pricing, credit, land tenure, and labor policies.
2. Discuss ways to improve Government planning, policy development and its capacity to implement plans and policies
3. Discuss ways to relieve constraints to farmer productive capacity and access to inputs including seeds, implements, labor, fertilizer, credit and information.
4. Discuss ways to develop new or improved production technologies or cropping systems, and obstacles to their adoption by farmers.
5. Discuss ways to increase private sector access to inputs such as fuel, spare parts, and credit, and its marketing of output.
6. Discuss ways to improve natural resource management and counteract deforestation, erosion, drought, etc.
- 7.

8. Identify any donor or government programs/policies (on-going or planned) which are designed to implement the new approaches identified above. Describe the success, or likely success, of these programs/policies in relieving constraints.

Part IV - Potential Sector Assistance for the 1990-1995 Period

Part IV of the report shall provide the substance from which the Mission will develop its future programming in the agricultural sector. It shall pull together all of the information and analysis of the previous parts and offer specific recommendations for a future USAID Sector Strategy and possible policy and program/project interventions in the sector. It shall include an analysis of public versus private sector emphasis and recommendations for areas of concentration for investment for both. The Assessment Team shall review and assess USAID's current agricultural development strategy. With regard to the following factors: program focus; geographic focus; target groups; degree of emphasis on sustainable development and sound natural resource management; nature and timing of USAID assistance; relationship to other donor programs; policy reform effectiveness; and program accomplishments. This shall include specific recommendations for a future USAID sector strategy and areas for assistance. Part IV shall be composed of 2 sections as follows:

A. Current and Planned USAID Activities

The Assessment Team shall analyze USAID/Madagascar's current and planned agricultural development activities with a focus on their relevance to the current agricultural situation in the country, trends, government objectives and priorities, and other donor activities. Specifically the contractor shall analyze the following:

1. Describe USAID's agricultural program objectives, its focus on geographic areas and beneficiary groups, and its strategy to achieve the objectives.
2. Identify the resources available including DFA, ESF and PL 480.
3. Describe and analyze the focus of current policy dialogue and conditionality.
4. Identify, analyze and describe program accomplishments and policy reform effectiveness.
5. Describe and analyze the degree to which the current program supports sustainable agricultural development and sound natural resource management.
6. Describe and analyze related or complementary donor activities in the agriculture sector and identify recommendations for enhancing USAID/donor collaboration.

7. Describe and assess the timing, political, and social appropriateness of USAID interventions and any political implications.
8. Describe and assess the current and future "fit" of USAID activities with mission resources and AID/W policy.

B. Recommendations for USAID Sector Strategy

The analysis in this section shall contain specific recommendations for agricultural sector interventions. It shall identify where private resources can most efficiently bring about agricultural growth as well as where the public sector can most effectively contribute, focusing on:

1. Traditional and non-traditional export expansion.
2. Domestic food crop expansion.
3. Domestic traditional and non-traditional industrial crop priorities.
4. Private and public institutional development priorities including potential training needs.
5. Natural resource priorities.

Based on information gathered and analysis carried out, the Assessment Team shall identify the broad objectives and outputs in the agriculture sector to be achieved by the USAID/Madagascar program by the year 1997. Following the identification of these objectives and outputs, the Assessment Team shall identify and describe interventions directed at achieving them. Descriptions of the proposed interventions shall include the following:

- a) Description of the problem/constraint to be addressed.
- b) Specific long-term objectives and outputs (identified above) to be achieved.
- c) Means to achieve stated objectives and output.
- d) Possibility for private sector involvement.
- e) Anticipated levels of resources required.
- f) Consistency with government goals and objectives.
- g) Consistency with existing or planned other donor efforts to address the problem.
- h) Employment and income generation efforts
- i) Impact on women.

Part V - Assessment Tables

The Assessment Team shall include the following tables in the final report:

1. Domestic and international prices for the major agricultural commodities produced in or imported to Madagascar.
2. The contribution of agriculture to GDP including percent composition (for the last 5 years).
3. Trends in public expenditures in agriculture including rates of growth and where invested (for the last 5 years).
4. The composition of agricultural production including food, industrial and export commodities (for the last 5 years).
5. Patterns of production including area, volume, value (over the last 5 years).
7. Domestic consumption of food commodities (composition over 5 years).
8. Food imports (composition over 5 years).
9. Donor contributions for agricultural development for the last 5 years.

IV. METHODOLOGY

A team of consultants shall be assembled by a U.S. consulting firm to carry out the Assessment. The team will travel to Madagascar and review relevant documents, including those outlining recent agricultural development initiatives and agricultural sector studies carried out by USAID/Madagascar, the GDRM and other donor institutions. The team will also interview government officials and technical specialists, private sector technicians and managers, farmers, and representatives of USAID and other donor organizations. Data and information for completing the background sections of the report will be found in existing reports, evaluations and studies by USAID, various other donors, and the government. USAID/Madagascar will assist the Assessment Team in collecting background information by assembling and/or identifying available documents, and making appointments and introductions to various persons working in the government, other donors or individuals implementing donor funded projects. Some sections of Part I- Background may be drafted by USAID prior to the team's arrival.

The selected consulting firm shall assemble a core team which shall consist of technicians with the following minimum skill areas and qualifications.

a) Agricultural Economist - Team Leader

Must have at least 10 years professional experience in the public and private sectors developing, implementing, and evaluating policies and programs for agricultural production in developing countries. At least 5 years experience in African countries designing and evaluating agricultural policy and production programs would be desirable. Must have a PhD in Agricultural Economics or related field. Must have participated in similar agricultural sector assessment missions for donor or government organizations, and have served as a Team Leader on at least 1 mission. Must have knowledge of agricultural marketing systems in African countries. Must have knowledge and understanding of A.I.D. policy and programming objectives, strategies and procedures. Must have demonstrated writing and organizational skills and abilities. Knowledge of the agriculture sector in Madagascar, and other donor and Government objectives and strategies to address constraints in the sector would be desirable. Must have demonstrated fluency in reading and speaking French at the FSI 3/3 level at a minimum.

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b) Macro-economist

Must have at least 10 years professional experience designing, implementing, and evaluating agricultural policy programs in developing countries. Must have a PhD in Agricultural Economics or a related field focusing on agricultural sector policy planning and analysis. At least 5 years experience with designing and evaluating agricultural policy programs in African countries would be desirable. Must have participated in similar agricultural sector assessment missions for donor or government organizations. Must have knowledge of agricultural input and output marketing systems, and trade factors in African countries. Must have demonstrated writing and organizational skills and abilities. Knowledge of the agricultural sector, and agricultural marketing in particular, in Madagascar would be desirable. Must have demonstrated fluency in reading and speaking French at the FSI 3/3 level at a minimum.

c) Agronomist

Must have at least 10 years experience in the public and private sectors designing, implementing and evaluating agricultural research, production and extension programs. Must have at least a MSc degree in Agronomy or related agricultural production field. Must have experience in natural resource management issues, and in particular, soil conservation activities. Experience with agricultural production systems in Africa,

including knowledge of marketing and production constraints would be desirable. Must have experience participating in similar types of agricultural sector assessments for donor or government institutions. Knowledge of the agricultural sector in Madagascar, including research, production and extension would be desirable. Must have demonstrated fluency in reading and speaking French at the FSI 3/3 level at a minimum.

d) Rural Sociologist

Must have at least 10 years professional experience designing, implementing and evaluating socio-economic elements of agricultural production and policy programs. At least 5 years experience in working on these types of activities in Africa would be desirable. A PhD in Rural Sociology or related field is required. Must have experience with institutional development programs in developing countries, including the assessment of training needs. Knowledge of the agricultural sector in Madagascar would be desirable. Must have demonstrated fluency in reading and speaking French at the FSI 3/3 level at a minimum.

e) Natural Resource Management Specialist

Must have at least 10 years experience in the public and private sectors in designing, implementing and evaluating agricultural production programs with a focus on natural resource management.

Must have at least a MSc degree in Natural Resource Management, Soil Conservation or related field. Must have at least 5 years experience in developing countries working on environmental or conservation programs, including experience with public sector institutions responsible for policy formulation, training and implementation of natural resource management programs. Must have demonstrated fluency in reading and speaking French at the FSI 3/3 level at a minimum.

In addition, the core team will be augmented by up to 3 Malagasy technicians to assist with data collection and background descriptions, and to help analyze constraints and identify options for future sector assistance. The Malagasy technicians shall be identified and sub-contracted by the Team Leader in Madagascar following commencement of the work in country. The Malagasy technicians shall consist of the following skill areas and possess, at a minimum, the following qualifications:

a) Agronomist

Must have a PhD in either Agronomy, Soil Science or a related field of agricultural production, with at least 10 years of relevant professional experience in the public and private sectors. Must have knowledge and understanding of various rice-based cropping systems in Madagascar. Must be familiar with GDRM agricultural research activities and extension programs.

Prior experience with soil and water conservation activities, and the study of environmental problems affecting agricultural production in Madagascar would be desirable. Should have prior experience working on similar agricultural sector assessment activities with multi-disciplinary teams composed of international and local experts.

b) Sociologist

Must have a PhD in Sociology or Anthropology with a focus on sustainable agricultural production systems. Must have at least 10 years relevant professional experience in the public and private sectors analyzing the socio-economic elements of Madagascar's farming systems, and related constraints to agricultural production. Should have prior experience working on similar agricultural sector assessment activities with multi-disciplinary teams composed of international and local experts.

c) Economist

Must have a PhD in either Agricultural Economics or Economics with a focus on macro-economic policies affecting agricultural development. Must have at least 10 years relevant professional experience in the public and private sectors analyzing marketing and trade factors of the agricultural sector in Madagascar. Must have an understanding of and knowledge of agricultural

marketing systems in Madagascar for inputs and outputs. Must be familiar with GDRM policies with regard to agricultural research, extension and institutional development. Should have prior experience working on similar agricultural sector assessment activities with multi-disciplinary teams composed of international and local experts.

Finally, the core team will be assisted by the USAID ADO and up to two REDSO/ESA technical and program advisors familiar with Madagascar, such as the Forestry/Natural Resources Advisor and possibly an Economist. These persons will assist in the analysis of constraints and the formulation of potential strategy options. It is envisioned that a total of 11 weeks in Madagascar will be required to complete the Assessment. The Assessment Team Leader shall arrive in Madagascar at least 2 weeks prior to the rest of the Core Team to: a) identify and hire local consultants; b) locate and assess the availability of background documents; c) make initial contacts with resource persons, organizations; d) plan, with the assistance of the USAID/Madagascar ADO, an initial outline; and e) begin to formulate tasks and specific scopes of work for the other core team members.

Up to 4 weeks shall be spent by the team visiting major agricultural production/distribution areas outside Antananarivo to observe and assess production, marketing, infrastructural and institutional factors at the local level.

It is envisioned that the following time shall be required in-country by the core team members and Malagasy consultants:

| <u>Position</u> | <u>Time in Madagascar</u> |
|--|---------------------------|
| Team Leader | 11 weeks |
| Macro-economist | 9 weeks |
| Agronomist | 9 weeks |
| Rural Sociologist | 9 weeks |
| Natural Resource Management Specialist | 9 weeks |
| Agronomist (Malagasy) | 7 weeks |
| Sociologist(Malagasy) | 7 weeks |
| Economist (Malagasy) | 7 weeks |

V. REPORTS AND TIMING FOR COMPLETION

No later than 3 weeks after arrival of the Team Leader in Madagascar, the Assessment Team shall present USAID a detailed outline of the report. The outline shall be based on discussions between the Team Leader and the USAID ADO on the scope of work outlined in Section III above, and any needed adjustments thereto. Along with the outline, the contractor shall present to USAID a scope of work for each team member identifying the person(s) responsible for completing each section of the report.

No more than 5 working days prior to departure of the Assessment Team from Madagascar, the Team shall present to USAID, for its review and comments, a typed draft of the report. The Team shall hold an oral briefing for the Mission prior to its departure, at which time USAID will provide it with comments for incorporation into the final report.

The final typed report shall be submitted to USAID/Madagascar no later than one month following the Team's departure from Madagascar. The final report shall be typed in single space and submitted in 10 copies in English.

VI. RELATIONSHIP TO USAID/MADAGASCAR

The Assessment Team shall work under the direct supervision of the contractor Team Leader. The Team Leader will be directly responsible to the USAID/Madagascar ADO.

VII. PAYMENT

Following submission by the contractor, and approval by the USAID ADO, of the draft final report, the contractor may submit a voucher for payment of project costs.

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Final payment by USAID to the contractor will be made following submission and approval by the USAID ADO of the typed final report.

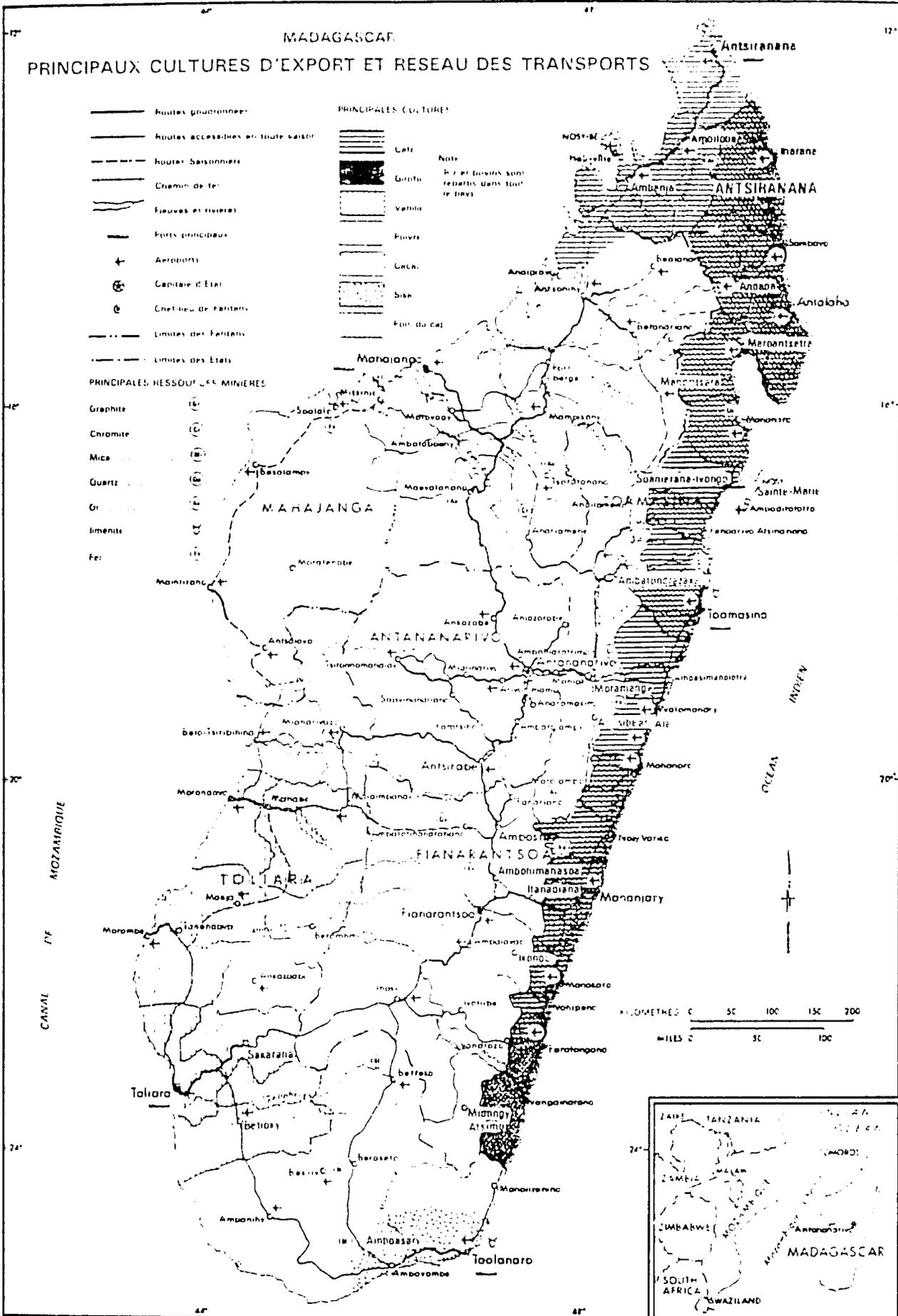
VIII. PERIOD OF PERFORMANCE

It is envisioned that the work in Madagascar shall take place during the period October 2 to December 15, 1989.

ANNEX 2

Map of Madagascar

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ANNEX 3

Summary of Donor Activity in Madagascar's
Agricultural Sector

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Summary of Donor Activity in Madagascar's Agricultural Sector

Between 1984 and 1987, annual development aid to Madagascar nearly tripled, rising from \$135 million to \$370 million. In 1988, the rate of growth of donor assistance slowed dramatically with total aid reaching only \$382 million. The composition of aid also shifted quite markedly away from project-oriented technical and financial assistance to structural adjustment lending. France, through the FAC and the CCCE, and the World Bank are the two largest sources of development assistance in Madagascar, providing \$124 million and \$111 million in 1987 and \$93 million and \$85 million in 1988, respectively. The decline in 1988 was made up by Japan, whose assistance rose ten-fold from 1987 to \$73 million. The fall in assistance from France and the World Bank in 1988 was in both instances the result of the winding down of a number of large projects. New projects are now taking their places.

France's program in Madagascar focuses on technical assistance, especially for education, as well as structural adjustment lending. A number of agro-industries, notably in the sugar sub-sector, are benefitting from French support. In 1988, the World Bank program in Madagascar was split almost equally between financial support to a number of large sector specific projects and structural adjustment lending. The agricultural sector has been an important focus of the Bank's strategy in Madagascar (see below). Other sectors benefitting from Bank funding include transport, housing, and public institutions. Japan's program in 1988 consisted of non-project donations of technical equipment and structural adjustment support through debt refinancing and co-financing of an industrial sector reform project.

Throughout the 1980s, the agricultural sector has generally attracted 26-30% of total donor support to Madagascar, although this share fell to 16.5% in 1988. Agriculture's share should recover: the Public Investment Program (PIP) for 1989-91 shows 124 projects with donor funding under the three main agricultural ministries MPARA, MPAEF, and MRSTD/FOFIFA. External financing for these projects is expected to total roughly \$220 million or 30% of total donor commitments under the PIP. Projects under other ministries, in such areas as rural transport development and export promotion, will also have a direct impact on the sector.

More than twenty donors are currently working in Madagascar's agricultural sector, including the multilaterals the World Bank/IDA, UNDP/FAO, the European Development Fund (EDF), the African Development Bank/Fund (AfDB/F), and the International Fund for Agricultural Development (IFAD) as well as the bilateral

donor organizations of France, Switzerland (Cooperation Suisse), Norway (NORAD), Italy, Japan, and the United States (USAID).

In 1988, the largest individual sources of technical assistance to the agricultural sector were West Germany and Switzerland. West Germany's program includes a regional project for integrated agricultural development and a large phyto-sanitary project. Switzerland has distinguished itself in its technical support for Madagascar's forestry sector. Its projects run the gamut from village level reforestation to strengthening of the forestry department at the University of Madagascar.

Financial assistance to the agricultural sector is dominated by the World Bank. Its support has focused on irrigation, forestry, agricultural credit, and agricultural institutions. In 1989, it has introduced a national agricultural research project and begun pilot testing for a national agricultural extension project. Other major sources of financial assistance are France, supporting projects in rice, cotton, wheat, and export crop production as well as irrigation rehabilitation, and Japan, which is providing funds for the purchase of agricultural machinery.

For all of the donors, projects within the agricultural sector tend to focus on rehabilitation rather than on new investment. In the 1989-91 PIP, more than 40% of donor funding to the sector is tied to the rice sub-sector with most of this money going towards irrigation rehabilitation. Cash crops also attract a fair amount of donor support and forestry and soil conservation projects are increasingly important. Relatively neglected areas are the non-rice food crops, non-traditional exports, and livestock. Projects with a nationwide scope are the exception; most projects are regional, focusing on improving production of one or more crops and often including components encompassing other aspects of rural development such as road repair, credit or other inputs.

ANNEX 4

List of Contacts

LIST OF CONTACTS

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| Christopher WARD | Agricultural Officer, World Bank |

ANNEX 5

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ANNEX 6

Reports by Malagasy Counterparts

- // - } A P P O R T -

" LES OBSTACLES AU DEVELOPPEMENT RURAL A MADAGASCAR ET LES
CAPACITES DES COLLECTIVITES DECENTRALISEES A METTRE EN
OEUVRE UNE POLITIQUE DE DEVELOPPEMENT DANS LE SECTEUR
RURAL. "

(Enquête dans les Faritany de Fianarantsoa
et de Toamasina - Novembre 1989)

RANOVONA ANDRIAMARO

Décembre 1989

// L A N DU /// E X T E

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INTRODUCTION

Le travail qui nous a été confié visant trois objectifs ; Analyser les capacités et le pouvoir des collectivités décentralisées et notamment le Fivondronampokontany à mettre en oeuvre les politiques de développement relatives au monde rural : Il faut se demander si les structures existantes sont appropriées et répondent aux nécessités de développement du monde rural malgache. Le second point qui devait fixer votre attention concernait les obstacles au développement agricole à Madagascar. Les contraintes sont multipliées et complexes, et les entretiens que vous avez eus dans les régions de Fianarantsoa comme dans celle de Vavatenina - Fenerive-Est (Toamasina) nous ont permis de mesurer l'importance et la complexité de ces contraintes. Ils nous ont permis également de réfléchir avec eux sur les solutions à apporter en vue de revitaliser les activités de production dans le monde paysan. Nous avons pu noter dans certaines régions telle que Isorana (Fianarantsoa) ou Ambohimahasoa (Fianarantsoa) qu'il existe réellement un dynamisme dans le monde paysan, mais ce dynamisme connaît des limites. Nous l'espérons que ces limites ne sont pas insurmontables, et nous pensons qu'avec un peu plus d'effort et de raison de la part des responsables et des acteurs concernés, il est possible d'apporter un changement notable dans la production agricole à Madagascar.

Dans un souci de clarté nous avons jugé préférable de consacrer la première partie de ce rapport à l'examen des difficultés que rencontre actuellement le paysan à entretenir la terre, à investir dans la terre, ou à vendre son produit. Dans une seconde partie, nous parlerons de la capacité et du pouvoir des collectivités décentralisées (le Fivondronana en l'occurrence), à mettre en oeuvre la politique de développement du monde rural, étant entendu que dans un pays comme Madagascar, une action du pouvoir local est souhaitée pour amorcer un processus de changement allant dans le sens de la libéralisation, entendu cette libéralisation elle-même n'est pas limitée à une suppression ou un allègement de certaines taxes mais doit être un cadre devant favoriser l'intégration des produits dans le système de marché, laquelle intégration devra avoir des effets positifs sur l'augmentation du volume de la production. Nous proposons un

certain nombre de recommandations ; ces recommandations tirent leur inspiration des contacts que nous avons eus avec les paysans et les responsables des collectivités décentralisées ainsi que des échanges que nous avons eus avec certains membres de l'équipe attardés sur certaines expériences en cours - le projet FCACD par exemple pour attirer l'attention du lecteur sur le fait qu'il peut qu'il existe un dynamisme dans ce monde réputé pour son traditionnalisme et qu'il est capable dans certaines conditions d'acquérir certains réflexes favorables au développement de la production et à l'expansion du marché. Nous avons consacré une partie importante de ce rapport à une analyse de la capacité de l'administration locale à oeuvrer pour le développement du monde rural. Mais ces actions mêmes bien soutenues financièrement ne seront efficaces en l'absence d'une prédisposition dans la masse paysanne à accroître de manière plus rationnelle le produit de son travail. Or le développement de cette rationalité dans le comportement économique est un processus relativement long, bien qu'essentiel dans l'optique d'une intégration réussie de production à la logique du marché.

a) Présentation sommaire de l'évolution de la production de certains produits agricoles à Madagascar

Avant de faire l'inventaire des difficultés inhérentes au développement agricole, il est de voir rapidement l'évolution de la production de certains produits agricoles à Madagascar.

Nous nous sommes intéressés dans notre enquête à la production du riz , du café, du girofle ; *

Le riz : La production du paddy est passée de 2 175 000 tonnes en 1987 à 2 149 000 tonnes en 1988 soit une légère baisse de 1,33 %. Elle est due essentielle à une pluviométrie insuffisante au début de saison.

La qualité commercialisée est de 429 500 tonnes et on a pu noter une baisse de la quantité de riz importée qui est passée de 162 178 tonnes en 1986 à 79 460 tonnes en 1987 et 60 000 tonnes en 1988.

L'observation de la production de riz de 1979 à 1988 montre qu'il n'y a pas de variation significative de la production. Le maximum (Année 1979-1988) se situe à 2 250 000 tonnes et le minimum est de 1 995 000 (Année 1982). Le niveau de la production de 1988 est inférieur à celle de 1979. Il y a une stagnation de la production

| <u>Année</u> | <u>Commercialisation</u> | <u>Production</u> |
|--------------|--------------------------|-------------------|
| 88 | 429,800 | 2 149,000 |
| 87 | N.D | 2 178,000 |
| 86 | 171,600 | 2 230,205 |
| 85 | 109,810 | 2 177,690 |
| 84 | 138,329 | 2 131,900 |
| 83 | 127,673 | 2 147,000 |
| 82 | 117,432 | 1 995,545 |
| 81 | 100,000 | 2 100,000 |
| 80 | 270,000 | 2 250,000 |
| 79 | 260,000 | 2 250,000 |

Source : Rapport financier B.T.M.- 1988 - Tonnage (Milliers)

Le même phénomène s'observe également pour le café en 1980. La quantité commercialisée a atteint au maximum 1 964 688 et en 1988 elle est descendue à 57 922 tonnes.

| <u>Année</u> | <u>Exportation</u> | <u>Commercialisation</u> |
|--------------|--------------------|--------------------------|
| 88 | 41,922 | 57,922 |
| 87 | 49,856 | 53,856 |
| 86 | 46,272 | 63,500 |
| 85 | 46,668 | 65,212 |
| 84 | 52,563 | 47,120 |
| 83 | 50,491 | 62,750 |
| 82 | 50,516 | 58,514 |
| 81 | 28,573 | 56,967 |
| 80 | 59,293 | 64,688 |
| 79 | 53,921 | 60,000 |

Source : rapport financier B.T.M. - 1988 - Tonnage (Milliers)

Enfin pour ce qui est du girofle. On a enregistré une baisse de 42,13 % de la production en 1988 par rapport à la campagne de 1987 qui était de 5 565 tonnes quant à la quantité exportée en 1987-1988 elle est de 7 273 tonnes contre 3 513 tonnes en 1985-1987.

| <u>Année</u> | <u>Production</u> |
|--------------|-------------------|
| 88 | 3,220 |
| 87 | 5,565 |
| 86 | 13,500 |
| 85 | 16,996 |
| 84 | 2,770 |
| 83 | 15,072 |
| 82 | 10,237 |
| 81 | 10,000 |
| 80 | 4,670 |

Source : rapport financier B.T.M. - 1988 . Tonnage (Milliers)

La population selon une étude de la Banque Mondiale. Etude sectorielle Population et santé juillet 1987, la population s'accroît à un taux annuel de 3 %. Les 17 millions d'habitants seront atteint en l'an 2 000.

Ces quelques chiffres nous donnent une indice rapide la population dans laquelle se trouve le monde rural à Madagascar. C'est un monde pauvre et ceux qui l'on connu depuis assez longtemps ont remarqué à quel point cette pauvreté tend à s'aggraver. Même si les biens de consommation courantes sont disponibles sur le marché par rapport à ce qu'il en était 3 ou 4 années auparavant, force est de reconnaître qu'ils ne sont pas à la portée de la bourse de la majorité de la classe paysanne. Les petits commerçants s'enrichissent relativement vite alors que le paysan s'enlève de plus en plus dans les difficultés du quotidien.

Dans les petits villages de Vavatenina les originaires de la région ont pris la place des chinois et des indiens dans les activités de collecte et les activités commerciales à Madagascar.

I - Les obstacles au développement de l'agriculture.

A- LA QUESTION DE SECURITE

Lorsque nous étions à Soatanana et Isokana, nous avons eu la désagréable surprise de trouver un village qui venait la nuit d'être attaqué par des dahalo (voleurs) armés, quatre heures avant notre arrivée. Et cette question de sécurité était un centre de nos débats avec les paysans de la région. La présence du président du Fivondronana nous a permis d'avoir une idée de la capacité du pouvoir local à assurer la sécurité de la population. En défaut de la fréquence des attaques des voleurs, aucun service de sécurité (armée, gendarmes) n'assurait la sécurité dans la région, et en l'absence de celui-ci, un tour de garde était organisé au niveau de chaque fokontany par les hommes. Mais cette précaution était dérisoire et symbolique puisque l'attaque est faite généralement par une bande armée et le service de garde assuré par un homme seul est manifestement inefficace. Le président du Fivondronana nous a clairement et franchement avoué son impuissance. A ses dires, en dépit de ses interventions au niveau du Faritany, on lui a souvent signifié que la population de son Fivondronana était pensée connaître les voleurs et faciliter les arrestations par la gendarmerie. Il se trouve également que les habitants du fivondronana accusent les responsables hautement placés dans la sécurité ou ^{la} justice, d'être corrompus à tel point que toutes les actions entreprises par la population pour contrecarrer ces actes de vandalisme peuvent se retourner contre elle, au point qu'elle préfère se taire et subir la situation.

Les conséquences par l'agriculture

Les actions de ces voleurs, ces derniers temps étaient répétées, et cette fréquence ne faisait qu'aggraver la situation dans laquelle se trouve l'agriculture. Ils volent les boeufs et le peu de charrues qui existaient restaient inutilisées. Ils devastaient les champs de culture et le paysan évitait de travailler loin du village ou de sa maison. Il y a de plus en plus des terres inexploitées. Face à la passivité du pouvoir public, certains préféraient tout simplement émigrer en ville. Il y a méfiance vis à vis de l'efficacité du pouvoir public, et cette méfiance est d'autant plus grave que l'on a affaire à une ^{terre} ~~ferme~~ très fertile ^{et} à une population très attachée au travail de la terre et qui ^{est} ~~est~~ hésité par exemple à développer ^{de} ~~des~~ nouvelles cultures (telle que le blé) sur ses terres.

Les gens de l'extérieur sont rarement sensibles au problème de sécurité.

Il est vrai que son importance n'est pas la même partout. Elle n'existe pas à Toamasina. Elle est l'action de groupes organisés aux alentours d'Antananarivo et elle a acquis une dimension de plus en plus importante dans la région de Fianarantsoa.

Les pouvoirs du Fivondronana dans ce domaine est nécessairement limité si celui-ci n'est pas épaulé par le Fakitany. Il est incompréhensible que les mesures qui s'imposent ne soient pas prises d'urgence par le pouvoir. Cette situation reflète ainsi l'impuissance du Fivondronana à solutionner un problème dont la pérennité génère des effets négatifs sur le développement agricole d'une zone qui possède cependant les moyens de produire plus et mieux. L'administration du Fivondronana est-elle capable de mobiliser les actions dans de pareilles situations, et d'assurer la sécurité de la population et la marche de production.

Et ceux qui nous avons fait part de cette expérience étaient surpris. Cet étonnement traduit l'insuffisance de l'information au sujet de ces actes de venialisme même si les voleurs opéraient à une quinzaine de kilomètre seulement de la capitale du Betsileo (Fianarantsoa). Solution : ce problème de sécurité est un problème profond et grave à Madagascar, il est accentué par la corruption d'un nombre de plus en plus importants d'agents publics travaillant dans la police, la gendarmerie ou la justice. Il témoigne de l'incapacité de l'Etat à faire respecter la loi d'une part et des conséquences sociales de la pauvreté grandissante dans le pays. S'il est difficile dans le cadre d'un tel rapport de conseiller les responsables pour ce qui des mesures éventuellement à prendre, il est nécessaire que l'Etat malgache se montre plus responsable, et efficace en ce domaine. D'autant plus que les régions concernées ne sont pas encore heureusement l'ensemble du pays mais seulement certaines zones, donc en théorie il devrait être plus facile à l'Etat d'indiquer cette vague de banditisme qui neutralise la production agricole.

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On a l'impuissance qu'on a peur d'en parler à Madagascar, peut être dans le souci de ne pas mettre à nu l'impuissance et l'insuffisance du service à coup sûr de sécurité publique, mais cette politique de l'autruche n'est pas la meilleure solution.

B - L'ACCÈS AU CRÉDIT

Le crédit tel qu'il existe à la B.T.M.* est fort critiqué dans le monde paysan dans des zones où les activités agricoles sont dominées par les cultures de rente tel Fénérive-Est ou Vavatenina. Les paysans sont très peu intéressés par le crédit bancaire. Dans ces régions, les investissements ne sont rentables qu'au bout de 5 à 6 ans, et le délai de remboursement est limité un an ou deux ans. Par ailleurs, les prix au producteur en raison de la fluctuation des cours mondiaux ne sont connus que peu de temps avant la vente effective. Il est impossible pour le paysan de faire une provision. Par ailleurs, l'évolution de la demande du marché extérieur est grosse d'impondérables, si bien qu'il est hasardeux de faire un investissement sur l'extension de litchis par exemple, qui est un produit très coté actuellement.

Dans la région de Fianarantsoa, par contre, les paysans sont intéressés par le crédit notamment lorsqu'il s'agit d'augmenter la production de la rizière. A la différence de ce que l'on peut observer sur la cote-est. Le paysan juge que son sol est suffisamment riche, et l'apport supplémentaire d'engrais n'est pas une nécessité, le paysan Betsileo s'efforce d'utiliser au maximum son domaine (on construit des rizières en étapes) et d'augmenter autant que faire se peut la fertilité du sol. Il n'hésite pas à investir dans les fertilisants et contracter des crédits pour les acquérir. Toutefois cet accès au crédit est fortement critiqué.

a) Les formulaires à remplir sont destinés à des gens bien instruits ; et le paysan intéressé, qui la plupart du temps, sait à peine signer, doit faire appel au service d'un tiers.

b) Le calendrier cultural ne correspond pas à la date de déblocage des crédits pour le groupe. Les crédits ne sont pas utilisés à temps, et le risque est grand de les affecter à d'autres fins (achat de biens de consommation courante par exemple).

* B.T.M. : Baniriny tantsaha mpamokatra

c) Dans le monde rural, l'échelle de la production agricole est fortement influencée par les fonctions climatiques. Aussi, nous avons remarqué à Ambohimanga, les dégâts causés par une forte pluie sur les rizières. Cette dure réalité aux conséquences sociales non négligeables se traduit chez le paysan par l'adhésion à une philosophie de résignation sur le plan économique, les revenus du monde rural restent assujettis aux variations interannuelles des conditions climatiques et plus particulièrement de la pluviosité. Or cette dimension des problèmes est rarement prise en considération par la banque, qui s'efforce envers et contre tout de récupérer la somme empruntée.

Solution pour le crédit, il faut que la banque connaisse un peu mieux problèmes du monde paysan et ne pas se contenter d'agir en financier, dans un monde où des facteurs difficilement maîtrisables infléchissent sur le volume annuel de la production. Le monde de la terre n'est pas assimilable au monde de l'industrie ou du commerce. L'apprentissage de nouvelles habitudes se fait lentement, et il n'est pas inutile de chercher les moyens de développer cette tendance à investir plus chez le paysan. Dans un milieu qui est suffisamment évolué comme Fianarantsoa, la production à beaucoup à gagner qu'il est possible d'assister plus le paysan à mieux gérer son domaine et à le rendre plus confiant à l'égard du système de crédit. Or il y a certaines représentations sociales qui bloquent le développement du crédit. Il est destiné à ceux qui "font des affaires" donc à des gens capables de faire fructifier très vite leur capital, ce qui n'est pas le cas pour le paysan très conservateur. Le crédit intéresse aussi ceux qui ont déjà réussi - le commerçant - ce qui exclut le paysan d'emblée qui généralement appartient à la catégorie sociale les plus pauvres de la société. D'ailleurs le nouveau système, que veut instituer la B.T.M., qui requiert la caution d'un groupe et qui en théorie permet au paysan de contracter un prêt est interprété comme un système qui profite plus à la banque, qui en tout état de cause récupère son argent puisque c'est au groupe de paysan que revient la tâche de récupérer chez les autres une somme qu'il n'a pas utilisée.

La Solution F.C.A.C.D. - Présentation

Nous présentons ici un schéma de crédit du projet F.C.A.C.D. (Formation de Cadres Animateurs des Collectivités Décentralisées), qui après avoir facilité un groupement de paysans mûs par la convergence de leurs intérêts, a mis sur pied un système de crédit plus adapté. Le paysan formule son projet, dont la faisabilité est analysée et corrigée au niveau du groupe ; et le projet aussi élaboré lui permet d'accorder à un crédit dont le taux d'intérêt est de 8 %. Le taux d'intérêt du crédit B.T.K. est de 18 %.

Cette alternative qui existe déjà ne doit pas chasser le système traditionnel, mais doit être développé, ne serait-ce que pour commencer le système de crédit traditionnel et obliger celui-ci à mieux répondre aux réalités paysannes. Par ailleurs, l'accès au crédit n'a d'intérêt pour le paysan que dans la mesure où se développe en lui, l'esprit d'entreprise, le goût du risque ou une meilleure connaissance du marché. Le développement de ces différents reflexes n'est pas le produit du hasard mais tient d'abord et surtout au développement de l'environnement économique du paysan et notamment à l'accès de celui-ci à un crédit plus adapté à sa situation. Une formation et information doivent être faites au niveau du Fivondronana par exemple concernant le rôle du crédit de manière à rendre plus confiant le paysan. La banque est trop souvent malheureusement considérée comme un corps étranger implanté dans la campagne pour faire plus de profit.

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LE SYSTEME DE CREDIT
DU PROJET FOACD EN MILIEU RURAL

Etape 1

Le Projet alloue au départ sur la base d'un programme initial, au profit du groupement, une subvention sous-forme d'intrants et de petits outillages agricoles.

Etape 2

Le groupement répartit ces intrants entre les membres, au prorata de leurs besoins.

Etape 3

Une fois l'opération de production terminée, chaque membre est tenu de réserver auprès du groupement la somme correspondant au coût des intrants - accompagnée d'un intérêt soit sur le bénéfice réalisé selon la décision du groupement qu'il avait obtenu.



Etape 4

En fait, le reflexe de remboursement est déjà acquis dans le cadre d'un tel système, qui plus est, le fonds reconstitué au profit du groupement dénote une possibilité de mise en oeuvre d'un crédit "tournant".



Le fonds ainsi constitué permet au groupement de faire face à de nouvelles demandes de la part de ses membres ou d'autres producteurs.

C- LE MARCHÉ

Toute production, en dehors de la partie destinée à l'autoconsommation du ménage est destinée à la vente au marché. L'accès au marché pose un certain nombre de problèmes au paysan.

L'éloignement de zones de production

L'éloignement de zones de production par rapport à la route et par rapport au marché constitue un handicap certain pour les paysans. Aussi, à Mahajanga Vavatenina nous avons rencontré de paysans qui ont porté leurs produits (les bananes) à dos d'homme pendant une journée, et qui ont déposé leurs marchandises au bord de la route, en attendant que le camion du collecteur passe. Il n'est pas question pour eux de revenir avec leurs produits lorsqu'ils peuvent pourrir au cas où le collecteur n'arrive pas sur les lieux. Le kilogramme est vendu à 25F alors que sur le marché de la capitale il est revendu en moyenne à 20CFmg.

A Antanifotsy, à 100 km d'Antananarivo, l'accès au marché n'est pas plus facile. Les pommes de terre et les fruits sont habituellement destinés aux marchés de la capitale. Toutefois, depuis quelque temps, les mêmes produits sont proposés par des paysans habitant plus près du marché d'Antananarivo. Or le coût de production étant pratiquement identique (prix de l'engrais, coût de la main d'oeuvre, prix des semences), les zones éloignées du marché se trouvent handicapées par le prix de transport (environ 10 Fmg par Kg) - 100 km). Par ailleurs on assiste actuellement à une saturation du marché de la capitale ; vu le prix élevé du riz, une fraction plus importante du budget destinée à l'alimentation du ménage sert à payer la facture du riz, et la consommation des autres produits considérées comme secondaires est minimisée, donc leurs consommations n'augmentent pas. Les paysans sont obligés de rechercher d'autres marchés, mais cette recherche se fait de manière aléatoire que les informations concernant les demandes ne circulent pas suffisamment. Ainsi par exemple à Ilepona, nous avons rencontré un groupe de paysans qui était disposé à chercher des nouveaux marchés ailleurs qu'à Antananarivo. Ils étaient partis prospecter du côté de Tamatave. Mais ils étaient découragés d'apprendre qu'à Tamatave où le prix des légumes était relativement intéressant, le marché était déjà contrôlé par un groupe qui assurait bien la

satisfaction de la demande. Et la marge de manœuvre de nouveaux venus était très restreinte. Le groupe a essayé de vendre ses produits à Morondava (à 450 km d'Ilepona, mais le frais de transport : 25 fmg X kilogr, les frais de séjour 2 000 fmg/jour) ne leur ont pas permis de dégager un bénéfice en vendant les pommes de terre à 350 fmg le kilogramme. A Antananarivo il est de 200 fmg.

Cette recherche de nouveaux marchés dont l'existence conditionne la motivation des paysans à produire plus est rendue difficile par le fait que

. Traditionnellement, le paysan se contentait du marché le plus proche. Or en raison de la contraction du pouvoir d'achat, certains produits ne trouvent plus d'acquéreurs. Lorsqu'il a la possibilité de produire beaucoup, les petits marchés locaux ne peuvent absorber la totalité de l'offre de produits.

. Les coûts de transport sont très variables. Lorsque l'embarquement se fait au départ d'un parc de camions, la variation du frais de transport est négligeable. Mais lorsque le départ se trouve ailleurs, il est plus difficile de trouver un transporteur et c'est ce dernier qui impose son prix parfois gré de son humeur.

En conséquence, au niveau de certains marchés l'offre de produit peut excéder la demande, il est par conséquent nécessaire que le paysan fasse une prospection plus rationnelle du marché. Or cette prospection peut être longue et coûteuse, si elle n'est pas faite en groupe. Il est utile que se forme un groupement de paysans-commerçants qui sont capables de placer vite sur les marchés des denrées qui sont souvent périssables.

Solution : Les commerçants viennent souvent de l'extérieur, il nous paraît important dans le ^{but} ~~but~~ d'augmenter le revenu du paysan que ce dernier contrôle plus et mieux la commercialisation de son produit. Il faut qu'il soit aidé par la mise en place d'un système d'information élaboré au niveau du Fivondronana capable de le conseiller sur les prix dans d'autres marchés, et sur les demandes potentielles dans d'autres régions. Une initiative du CAPR (Centre d'apprentissage d'animateurs pour la production rurale) de Fianarantsoa en matière de presse rurale peut être d'une aide réelle pour l'actualisation des connaissances techniques également pour la connaissance

de nouveaux marchés. C'est une initiative à développer et à multiplier
pouvait servir efficacement à l'intégration du paysan à des marchés plus
vastes. La nécessité économique de certains groupes minoritaires à
Madagascar (Pakistanais) à Madagascar devrait servir d'exemple. Les com-
merçants pakistanais travaillent en groupe, les informations concernant
l'évolution du marché se fait très rapidement, et certains marchés ont
été investis facilement et les autres concurrents ont été très vite élimi-
nés. Si le monde rural tient à tenir réellement un rôle dans la commerciali-
sation de ses produits, il est nécessaire que se constituent des groupe-
ments de paysans ^{mais} pas des intérêts identiques, et qui mettent leurs
efforts ^{en commun} pour faciliter le transport des produits, et pour trouver de
nouveaux marchés. Le paysan malgaché est conservateur mais il est pourtant
très individualiste or le groupement d'intérêts communs devrait à notre
avis faciliter l'apprentissage de l'édification future de sociétés
privées capable de prendre en charge un segment du marché ou bien le
développement de certains facteurs de production. Si la campagne ne tient
pas à dépendre encore plus de la ville où les gens de l'extérieur, il
est temps qu'elle forge elle même ses propres sociétés capable de défendre
ses intérêts. Il n'est pas exclu de réfléchir par exemple d'édifier des
sociétés privées gérées par les paysans ^{pour} de louer des matériels agricoles,
laquelle peut être subventionnée par le Fivondronana. Le monde rural ne
changera pas à coups de lois, les changements structurels de collectivités
décentralisées, s'ils sont souhaitables pourraient être amorcées par des
changements de comportements dans le monde paysan. Le développement de la
capacité de gestion du paysan passe par le développement de ses activités
et de ses responsabilités au sein d'une organisation plus vaste. Or jusqu'à
ici on a trop souvent dissocié le développement des connaissances techniques
agricoles et celui des compétences en matière de gestion. On parle souvent
d'opérateurs privés ; mais on a l'impression que le monde paysan en est exclu
comme si celui ci était foncièrement incapable de créer des sociétés
anonymes capables de défendre ses intérêts et développer la production.

D. - LA TERRE

a) La pratique du "tavy" ou défrichant de la terre après incendie

Cette pratique est très courante sur la Côte-Est, et constitue selon l'expression du président du Fivondronana que nous avons rencontré un "mal nécessaire". Le malgache est un grand consommateur de riz or les bas fonds de la rizière sont déjà utilisés, en raison de l'insuffisance ou de l'absence de fertilisants (dûs à ce prix actuellement élevé du NPK - 450 fr le kg au lieu de 100 Fr, il y a une douzaine d'années, et de l'idée très répandue selon laquelle le sol est suffisamment fertile pour que l'addition d'engrais soit nécessaire). Le rendement à l'hectare est stationnaire et tend à baisser en certains endroits. Le paysan est alors obligé de procéder à une culture sur brulis or en raison de la pression démographique, et de la baisse continue du rendement à l'hectare (si la moyenne est de 750 kg à l'hectare d'après une vulgarisation que nous avons interrogé à Fénétrive-Est, il descend à 250 kg - 300 Kg en certains endroits). Le paysan est obligé de revenir plus vite sur certains domaines (après 3 ans, alors qu'en principe, il faut à la terre 9 années pour se régénérer). Le résultat est foncièrement négatif ; plus on pratique le tavy, plus l'érosion est stimulée et plus la productivité diminue ; et la pauvreté du paysan s'accroît. Par ailleurs, la déforestation est accélérée en certains endroits. ENTRE Moramanga et Tamatave ; la demande de charbon de bois des commerçants venus de la capitale est très forte puisque la vente est très rentable. Le sac de charbon coûte 500 Fr. Alors qu'il est vendu sur le marché de Tananarive à 3.250 Fr ; les frais de transports dépassent rarement 700 Fr par sac.

Y-a-t-il une prise de conscience dans le milieu paysan ? Cette pratique relève de la tradition ; elle est profondément enracinée dans les habitudes des gens. Les actions entreprises par les pouvoirs publics sont insuffisantes puisque les campagnes de sensibilisation systématiques sont relativement rares ; les solutions proposées par les techniciens de l'A.I.V.F. dans le cadre de l'opération Savoka ne concerne qu'une partie

infinie de la région, donc les effets en matière de diminution de la pratique du tavy ne peuvent être satisfaisants. Par ailleurs, cette pratique prolonge les habitudes et renforce les habitudes d'une population vivant en auto-subsistance. Ils ont besoin d'une quantité de riz pour leur propre consommation, ils brûlent autant de surfaces qu'il est nécessaire, sans se soucier des conséquences néfastes de leurs actions, pour obtenir un certain volume de production nécessaire à leur consommation annuelle. Tant que le paysan est acculé à se satisfaire d'un certain état de pauvreté, il est ~~faute~~ probable que la pratique du "tavy" s'intensifie. Le changement des habitudes sera nécessairement lent, surtout en l'état actuel des choses, une campagne d'information intensive est nécessaire ainsi qu'une discussion avec les populations concernées et le pouvoir local nous paraît inévitable de manière à dégager une sorte de contrat social pour limiter la pratique. Nous avons le sentiment qu'il existe un certain laxisme de la part des responsables du Fivondranana, et ceci peut être interprété à ~~tant~~ comme une approbation de cette pratique de la part des représentants du pouvoir de l'Etat. A terme, il faudrait penser à infléchir un changement dans les habitudes de consommation des paysans. Les vulgarisateurs agricoles de la région de Vavatenina nous ont démontré à partir des essais qu'ils ont entrepris que la culture de légumes ou de maïs sont fort possible dans la région ; et qu'il est possible d'atténuer la dépendance alimentaire vis-à-vis des autres villes et même d'exporter certains produits dans d'autres régions, à partir du moment où la population accepte de changer ses habitudes et ne plus se contenter d'attendre les bénéfices tirés des cultures riches qui sont de plus en plus tributaires de la fluctuation du marché international. Or, les produits d'exportation ne sont pas toujours bénéfiques pour le paysan. Ainsi pour les litchis, produit très coté en dernières années sur le marché extérieur, le producteur est à la merci du collecteur qui peut facilement contracter un crédit pour acquérir les fruits, alors qu'ils sont encore verts, à un prix dérisoire. Ainsi, le pied de litchis qui peut porter entre 250 et 300 Kgs de fruit est acheté au mois d'Août à 30.000 Fmg, alors que le kilogramme est vendu par le collecteur aux sociétés d'import-export à 450 Fmg par kg.

b) L'accroissement de la superficie à cultiver

Il existe une idée très répandue selon laquelle il existe un lien entre l'attribution au paysan de nouvelles terres et l'accroissement de la production, le paysan propriétaire de nouvelles terres sera plus motivé pour exploiter la terre. Pour des raisons que nous analyserons maintenant, nous pensons que cette corrélation n'est pas toujours évidente en pratique même si elle est suffisamment fondée en théorie.

Il existe dans certains milieux, une interprétation assez originale des droits de celui qui a mis en valeur un domaine donné. Dans les médias, et notamment à la radio on a mis l'accent sur la nécessité de produire beaucoup et la mise en valeur urgente des terres encore disponibles. Aussi celui qui a pris la décision de mettre en valeur un terrain qui n'est pas exploité, se considère comme quelqu'un qui a mieux servi l'Etat en accomplissant un devoir envers la communauté nationale et estime qu'il doit jouir du droit de propriété sans avoir à payer la taxe y afférant.

La mise en valeur d'un terrain domanial lui confère au moins le droit de jouissance, jusqu'à ce qu'un tiers revendique le droit de propriété et s'oppose à l'exploitation du terrain. Une opposition de la part de l'Etat n'est pas très fréquente à moins qu'il y ait réalisation d'un projet d'aménagement du domaine. Or ce genre d'aménagement est accepté par l'ensemble de la communauté puisque sa participation est normalement requise. Or le titre de propriété ne lui est vraiment nécessaire que dans la mesure où l'exploitant entre dans le circuit monétaire et fasse état d'un titre de propriété pour bénéficier d'un crédit bancaire. Or comme nous l'avons remarqué à Vavatenina par exemple la banque sert plus aux commerçants qu'aux cultivateurs. Ces derniers peuvent se satisfaire de leur droit de jouissance. Cette situation est rendue complexe par le caractère ambigu du droit de propriété à Madagascar qui favorise une occupation traditionnelle de la terre génératrice de conflits

du terrain demandé avec leurs terrains. Dans le cas contraire, ils émettent généralement un avis favorable.

b₁ - Les conflits fonciers. Leur nature

Dans la région de Vavatenina, par exemple, les conflits fonciers datent depuis 1913 et sont dus au fait que les premiers paysans vers la fin du siècle précédent désiraient accaparer les terres les moins marécageuses (cas de l'Iazafio), plus faciles à cultiver. A cet époque, ils étaient réglés la plupart du temps au niveau du Fokonclona qui mettait en exil celui qui avait tort ; le pouvoir colonial annulait par la suite la plupart du temps cette mise en exil.

Actuellement, ces conflits ont pris une ampleur bien différente et sont devenus plus complexes. Ils se manifestent en 3 manières différentes.

a) Il peut s'agir d'un problème de délimitation des parcelles. Les paysans des villages en bordure des plaines qui ne sont pas encore mises en valeur, considèrent le périmètre comme leur appartement. En conséquence, ils se considèrent comme y ayant droit et chacun selon son principe, peut délimiter la surface où il veut travailler et qui lui sera reconnue automatiquement. Cependant, lorsque les paysans délimitent leurs champs, il arrive qu'un autre paysan intervient pour s'affirmer propriétaire de fait de la parcelle travaillée par le précédent. La plupart du temps, cette revendication n'est fondée sur aucune preuve et la question se pose alors de savoir qui est le véritable propriétaire de la parcelle.

b) Il arrive également qu'il y ait empiètement des parcelles voisines. Il engendre fréquemment des problèmes de délimitation. C'est ce qu'on appelle "ady fehiferana" ou litige de limites foncières.

c) Cette question se rencontre aussi dans le désir d'extension de la parcelle à cultiver imposée par la croissance démographique, le propriétaire voudrait étendre son domaine dans l'intention d'obtenir une plus grande quantité de riz. Il y a recherche d'augmentation de la production à la suite de l'extension des surfaces cultivées et non pas augmentation des rendements. Cette extension se heurte aux limites des parcelles voisines appartenant à d'autres paysans qui n'acceptent jamais un accaparement de leurs terrains. Il s'agit de l' "ady amin'ny fananantany" ou extension de parcelle.

Par exemple, les paysans de bordure de la plaine désirent s'emparer d'autres parcelles d'ailleurs pour les cultiver puisque les leurs s'avèrent trop exigües par rapport au nombre d'habitants. L'endroit recherché se trouve dans la partie qui reste incultivée à cause des conditions pédologiques sols très hydromorphes. Le défrichement est entamé. Au moment où celui-ci est presque achevé, les habitants des villages voisins descendent dans la plaine, en prétendant que les parcelles défrichées appartiennent à leurs ancêtres et qu'elles leur reviennent par héritage. Ce qui provoque des conflits qui risquent de s'aggraver.

Il peut arriver ainsi que certains citoyens désirent cultiver du riz à la campagne. Ils se rendent dans les bureaux des Services des Domaines à Toamasina et consultent les cartes. De nombreuses parcelles ne sont pas titrées. Ce qui signifie pour eux que ces parcelles ne sont appropriées, donc libres. Ils procèdent à une demande auprès de la circonscription domaniale; mais cette demande rencontre une opposition du fait que d'autres individus se prétendent propriétaires d'un terrain qui n'est pas mis en valeur. Est-il possible sans le mettre en valeur ?

Ainsi, dans la majorité des cas, on peut dire que ces conflits fonciers affectent les terrains non mis en valeur, titrés ou non. Ceux-ci peuvent se présenter de différentes façons. En premier lieu, la mise en culture de certaines parcelles a été rendue impossible par les conditions pédologiques. La profondeur du sol ne change pas avec la pluie. En dépit de cela, celle-ci est devenue l'objet de convoitise d'autres paysans à famille nombreuse. En second lieu, le terrain n'est pas exploité par le

propriétaire parce qu'il est trop vaste pour ses possibilités. En saison de culture, seul 1/3 ou au plus la moitié est cultivée, le reste étant en location, mais généralement en friche. Son voisin qui ne détient qu'une petite parcelle y pénètre, d'où lutte foncière. Enfin pour des raisons diverses, le propriétaire ne parvient pas à mettre en valeur son terrain.

b₂ - L'ambiguïté de la législation foncière

Le régime de la propriété a subi des modifications et des transformations, suite au développement de la civilisation. D'abord, il y a eu l'occupation des terres par les tribus errantes à la recherche de pâturage pour leur bétail ainsi que leur nourriture. Cette occupation n'est transformée en propriété collective, et enfin l'individualisation des biens, en raison du travail de mise en valeur du terrain et l'évolution vers propriété individuelle.

Les titulaires en droit de la propriété traditionnelle

a) Les communautés familiales

Les biens constituent une propriété exclusive des grandes familles et concernent par exemple les terres d'un ancêtre commun, confiées à l'administration du chef de famille pour éviter le morcellement successifs de ces terres. La propriété peut concerner également les parcelles laissées à la disposition de la communauté familiale pour la communauté familiale pour subvenir à ses besoins.

b) Les communautés villageoises

La propriété peut porter sur des terres, en raison de certaines traditions et de certaines habitudes de culture, les habitants à l'intérieur d'un périmètre donné constituent une unité économique de production et l'utilisation qualifiée de collective. L'organisation de la pro-

duction et de l'exploitation des ressources par le groupe entraîne la conservation par celui-ci de la propriété du sol et la répartition de la jouissance des différentes parcelles aux membres.

c) Les Fokonolona

Actuellement, les communautés familiales et villageoises sont devenues rares, absorbées par une communauté plus large, le fokonolona rassemble actuellement plusieurs communautés villageoises.

L'article 18 de l'ordonnance du 4 juillet 1962 souligne : le Fokonolona possède sur les biens domaniaux le droit de cultiver, le droit de parcours et de pâturage pour les troupeaux, le droit de récolte des produits qui s'y rencontrent à l'état spontané, le droit de pêche, le droit de couper dans la forêt le bois nécessaire aux usages domestiques... Ce droit d'usage collectif est reconnu comme un véritable droit de propriété par le droit traditionnel. D'ailleurs, le décret du 9 mars 1902 (pendant la période coloniale) avait permis au fokonolona de réquerir au nom de l'Etat, l'immatriculation des terres occupées par eux, mais seulement pour reconnaître leurs droits d'usage.

Exercice du droit de propriété collective

La répartition des terres est décidée par une autorité élue à la tête du groupe : le fokonolona. La terre est propriété du groupe et les habitants ont seulement le droit d'en jouir. C'est l'assemblée du village qui intervient pour prendre les décisions et c'est le chef du groupe qui est chargé d'en assurer l'exécution. Cette assemblée peut se montrer libérale et tolérante dans l'usage des terres communes. Dans ce cas, les territoires attribués ne sont pas délimités de façon précis.

Le passage de la propriété collective à la propriété individuelle.

Les propriétés individuelles proviennent des répartitions collectives. L'individu acquiert peu à peu une jouissance exclusive se transformant en droit de propriété et se transmettant aux générations. La propriété peut provenir également du défrichement et de la mise en valeur de celui qui a occupé le sol en premier.

Les conséquences

La propriété traditionnelle est dépourvue de titre. Il est difficile d'identifier et de nommer le véritable propriétaire ou du titulaire de droit de propriété.

Le législateur colonial a manifesté une hostilité à la forme collective de propriété traditionnelle par la présomption de domanialité et n'a reconnu qu'une sorte de jouissance collective aux terres des communautés. Une législation aussi rigoureuse n'a pu être appliquée à un pays aussi vaste que Madagascar, d'autant plus que les milieux ruraux n'ont pas eu de contact avec l'administration locale. En conséquence, il n'y a pas eu de bouleversement profond des structures traditionnelles faute d'un appareil administratif adéquat ayant pu couvrir l'ensemble du territoire.

La possession longue et paisible d'un terrain ne constitue qu'une simple présomption de propriété pour les Malgaches. Ainsi, il est difficile d'avoir une sécurité juridique pouvant garantir la transaction en matière de propriété. Le statut du propriétaire traditionnel est en théorie incertain et l'Etat reste maître du jeu dans la reconnaissance ou la non reconnaissance de la propriété traditionnelle.

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Les actes matériels d'appropriation

Ce sont généralement les marques distinctives de propriété : haie, clôture. Cette délimitation varie selon les coutumes du lieu. Ils sont sources de conflits puisque les marques des limites sont faciles à déplacer. Il y a des litiges fréquents à propos de leur détermination sur les régions côtières entraînant quelquefois une insécurité des propriétaires traditionnels pour ces biens immobiliers dans ces régions.

La mise en valeur

Dans certaines régions côtières, le premier occupant demeure propriétaire de la terre, une fois que celle-ci a été mise en valeur, même si la terre a été abandonnée pendant une période relativement longue. La durée de cet abandon est déterminée. Cette absence du prétendu propriétaire peut générer des conflits et des problèmes puisqu'au moment d'une exploitation industrielle, un prétendu occupant peut faire son apparition et s'opposer à une mise en valeur. Dans un Firaiana de Fianarantsoa, l'affichage d'un terrain domanial pouvant être mis en valeur, a rencontré l'opposition de certains individus qui visait à interdire à des étrangers l'occupation de ces terrains.

Il y a incompatibilité entre l'impératif de développement (mise en valeur de la terre) et le droit de propriété

Il y a conflit au cas où un nouvel exploitant exprime le désir de mettre en valeur une terre donnée et le prétendu propriétaire réclamant son droit sur le terrain et soutenu par le témoignage de la communauté.

En droit traditionnel, il n'y a pas de prescription acquisitive, donc l'ancien propriétaire demeure propriétaire si la propriété ne tombe pas au domaine éminent de la communauté au cas où un terrain donné est déclaré d'utilité publique et la réorganisation par la communauté est automatique.

Le développement économique nécessite la mise en valeur de la terre pour accroître la production. Le droit de propriété est subordonné à l'action de mise en valeur effective. S'agissant d'une propriété non immatriculée ou cadastrée, il est difficile d'attribuer à un prétendu propriétaire absent depuis un certain temps, et ne s'occupant pas de l'exploitation de son terrain le droit de propriété. Admettre le droit de propriété au premier occupant c'est freiner l'exploitation des terrains abandonnés. Mais, admettre le droit de propriété au dernier installant, c'est favoriser l'insécurité des propriétaires traditionnels car la non mise en valeur, même pendant une courte période, risque l'accaparement des premiers venus et provoque de graves dissensions au sein de la communauté. Il est difficile de démentir un témoignage aussi rigide que le témoignage de la communauté en raison de la valeur attribuée à ce genre de témoignage en droit individuel comme preuve de propriété. Le tribunal a recours à ce témoignage du Fokonglona comme nous l'avons dit pour décider en dernier ressort du véritable propriétaire d'un terrain donné.

Les problèmes d'acquisition par location ou prêts

Les conflits peuvent surgir en l'absence de documents écrits ou de dépérissement des preuves. Le locataire se déclare alors propriétaire en cas de disparition des derniers témoins. La situation juridique à ce moment ne résiste pas à l'épreuve du temps.

Très souvent, les contacts sont verbaux, location et prêts abritent des caractères abusifs. Il est alors impossible de savoir l'étendue des prestations. Les contrats constituent une acquisition par dénaturtion.

Le problème se pose alors de savoir s'il faut consacrer le droit de propriété au profit de ceux qui mettent en valeur les terres au détriment du propriétaire non exploitant.

Les preuves en matière de propriété traditionnelle

Dans les conflits fonciers, la justice se heurte toujours à la validité des preuves. Il n'est pas rare qu'en l'absence de documents écrits, le tribunal renvoie le problème au niveau du Fokonolona lequel doit fonder son jugement ou bien sur le témoignage des voisins, comme nous l'avons souligné précédemment, ou bien sur d'autres éléments.

La preuve testimoniale

Il s'agit de tout acte de déposition. La valeur probante du témoignage est tributaire de la personnalité du témoin, de la fonction sociale du témoin, du nombre de témoins appelés. Il faut souligner le fait qu'au cours du régime colonial, en raison de la pratique d'attributions parfois abusives de terres aux colons, d'une part et en vue d'harmoniser les impératifs économiques - mise en valeur des terres - et les vestiges du passé, les preuves testimoniales en matière de propriété demeurent valables. Jusqu'à présent, on parfois recours à cette pratique.

Les preuves matérielles

Il y a un certain nombre de signes visibles pouvant servir à faire respecter les droits de propriété traditionnelle. - par exemple les tombeaux, les autels de pierre, les clôtures - Un individu, par tradition, ne construira jamais son tombeau sur un terrain appartenant à autrui. Cela constitue une présomption irréfragable en matière de Droit coutumier de propriété.

Pour comprendre le mode d'occupation des terres et le mode d'appropriation des terres, il est utile de comprendre les fondements juridiques auxquels les individus se réfèrent pour s'installer ou bien pour accroître une zone qu'il veut mettre en valeur. En théorie, il paraît logique que le processus de transformation du monde rural l'on accorde une attention particulière à une distribution des terres. Cet objectif peut se heurter à une résistance de la part des Fokonolona dans

la mesure où certains membres de celui-ci peuvent prétendre à un droit de propriété, donc de jouissance sur ces terrains. L'acquisition d'un titre foncier n'est pas une urgence ou du moins une nécessité aux yeux de la majorité. Dans la mesure où la propriété traditionnelle prévaut sur la mise en valeur de la terre, il y a peu de chance d'espérer que sur l'ensemble d'un territoire donné, l'accroissement de la terre mise à la disposition du paysan puisse réellement jouer en faveur de l'accroissement de la production et plus tard du rendement.

Il faut aussi rappeler que si l'accroissement de la terre ou bien une politique de distribution des terres gratuites en moyennant le paiement des taxes s'y afférant, participe à la hausse de la productivité, cette croissance de la production est d'abord et surtout subordonnée à l'amélioration des moyens mis à la disposition du paysan pour exploiter la terre. D'une manière générale, nous avons noté que ces moyens sont encore rudimentaires et très archaïques. A Vavatenina, on doit se contenter d'une pioche pour labourer la terre. A ce matériel inadapté s'ajoute le système de crédit qui ne contribue pas toujours à accroître la production de manière significative.

b₃ - Les problèmes relatifs à l'enregistrement des terres

Comme nous venons de le dire précédemment, il n'est pas rare que des gens se contentent de s'installer tout simplement sur des terrains domaniaux sans éprouver le besoin d'en posséder un titre de propriété. Il arrive qu'ils fassent demande d'acquisition, mais dans l'attente d'une réponse de la part du pouvoir public, ils s'installent sur les terres et commencent leur exploitation dans les limites de leurs moyens. La procédure d'enregistrement, longue et fastidieuse, explique en partie ce non respect de la loi qui comme nous l'avons souligné est tout de même ambiguë et prête à des interprétations divergentes dans la réalité. Il se peut aussi que les taxes exigées dépassent aussi leur possibilité ou qu'ils jugent tout simplement inutile de s'en acquitter et sur la tolérance du pouvoir public dans une société en crise.

La procédure d'acquisition d'un terrain domanial

1 - Celui qui veut acquérir un terrain domanial (c'est-à-dire les nationaux jouissant de leur pleine capacité juridique, les sociétés légalement fondées et de nationalité malagasy, les établissements publics, les collectivités décentralisées; les étrangers sous réserve de l'obtention d'une autorisation du Ministère de l'intérieur, auprès du service de l'immigration) doit dans un premier temps faire une prospection. A partir de repères fixes : tombeau, arbre, rivière, il doit localiser son terrain et présenter au service topographique le plus proche (Le Service topographique est un service qui relève du Ministère public) le croquis et la localisation du terrain. Le Service des Domaines et la Topographie vérifient si le terrain convoité est effectivement domanial.. Le service topographique ou un géomètre agréé (société privée) un plan croquis après avoir bien vérifié que le terrain n'est ni immatriculé, ni cadastré.

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2 - Il doit déposer un dossier comprenant une demande officielle d'un terrain domanial en vue d'une exploitation future. Cette demande est accompagnée de l'extrait de repérage fourni par le service topographique et celui du domaine. Si la superficie excède de 50 hectares, le plan d'aménagement envisagé doit être fourni pour étude par le Ministère MPAEF puisque généralement, une telle superficie concerne les exploitants forestiers.

3 - Le dossier doit être déposé auprès de la Circonscription domaniale dont relève le terrain et un cautionnement réglementaire doit être versé à raison de 200 Fmg par hectare.

4 - Il doit prendre contact avec les autorités locales lesquelles affichent l'avis de demande pendant 1 mois sur le terrain et sur les placards des collectivités décentralisées (Firaisampokontany - Fokontany).

5 - On effectue une reconnaissance sur le terrain en présence du demandeur, des voisins, des membres du Fokonolona, des opposants éventuels.

6 - Un procès-verbal est déposé pendant 1 mois au bureau du Fivondronana ou de la Circonscription domaniale pour la réception des réclamations et oppositions éventuelles.

7 - Le dossier (incluant une demande de l'intéressé, le procès-verbal, le visa du Fivondronana) est envoyé auprès des services techniques intéressés.

a) à la circonscription forestière (pour les parcelles incluses dans le ZONAFORB)

b) au Service de l'agriculture pour information et l'obtention d'un visa.

c) au Service du Génie Rural, si éventuellement il y a des projets courant des digues ou des canaux exigeant des servitudes éventuelles sur le terrain demandé.

d) au Service Topographique pour une constatation d'une correspondance entre le plan et le procès-verbal pour des calculs divers sur la superficie attribuée.

Après consultation des Services Techniques intéressés (ceux que l'on vient de citer) le Fivondronana pet au point le dossier après un éventuel règlement des conflits. Il établit un projet du contrat (puisque le demandeur est tenu de mettre en valeur le terrain demandé. Si le terrain se trouve dans une zone urbaine, la mise en valeur doit être effectuée dans les 3 années qui suivent la notification officielle d'un titre provisoire. Dans une zone rurale, elle est variable. Ainsi, pour une surface inférieure à 10 ha, ce délai est de 4 ans, 5 ans si la superficie est comprise entre 10 et 25 ha, 6 ans si elle est comprise entre 25 et 50 ha et 7 ans si la superficie dépasse 50 ha.

Le titre officiel sera délivré après un constat sur les lieux de la réalité de la mise en valeur.

Les frais de Constitution du dossier + Le calcul de la valeur du terrain

La valeur d'un terrain varie en fonction du lieu, et des caractéristiques du terrain. Le Service des domaines possède une liste des prix concernant tous les terrains situés dans tous les Faritany et Fivondronampokontany du pays et établis par les services des domaines. Ainsi, la valeur du terrain varie entre 500 et 1.000 Fmg le m², à Fénérive-Est, si le terrain est ferme ; s'il est situé dans la zone rurale

et s'il est à vocation forestière, il coûte entre 40.000 Fmg et 80.000 Fmg par hectare.

Cette valeur est actualisée par le Service des domaines qui se réfère aux prix des derniers terrains vendus dans la zone intéressée. Une correction est donc faite pour calculer la valeur du terrain et en évaluer les taxes à payer.

- Les frais de constitution du dossier s'élève à 10 % de la valeur précédent calculée.
- Les frais de bornage : 2 % .
- L'enregistrement coûte 16 %.
- Le frais de conservation est de 4 % de la valeur (c'est un taxe prélevé pour la conservation du titre auprès du service des domaines).

| FIRASANA | ZONE URBAINE (m ²) | | ZONE SUBURBAINE (m ²) | | | ZONE RURALE (Ha) | |
|------------------------|--------------------------------|-------------------|-----------------------------------|----------|------------|------------------|-------------------------|
| | Terrain ferme | Autres catégories | Edilitaire | Agricole | Forestière | Agricole | Forestière ou pastorale |
| Fénériver-Est-ville | 500 - 1000 | 300 - 600 | 150 - 400 | 50 - 100 | 40 | - | - |
| Mahambo | 200 - 600 | 150 - 400 | 100 - 300 | 40 - 80 | 30 | 80.000-160.000 | 40.000 - 80.000 |
| Ambodimanga | 150 - 400 | 100 - 300 | 70 - 150 | 30 - 60 | " | 60.000-120.000 | 30.000 - 60.000 |
| Ampasimbe Manatsatrana | " | " | " | " | " | " | " |
| Ampasinimaningory | " | " | " | " | " | " | " |
| Antsiatsiaka | " | " | " | " | " | " | " |
| Vohipeno | " | " | " | " | " | " | " |
| Maromandia | " | " | " | " | " | " | " |
| Vohilengo | " | " | " | " | " | " | " |
| Saronambana | " | " | " | " | " | " | " |

OBSERVATIONS : Pour les ventes sous conditions résolutoires, les prix indiqués ci-dessus doivent être réduits de moitié. -

Exemple : Dans une zone rurale - un terrain à vocation agricole coûte entre 80.000 Fmg et 160.000 Fmg.

FIVOHOHONAHIPOKONTANY : VAVATENINA

| FIRAISANA | ZONE URBAINE (m ²) | | ZONE SUBURBAINE (m ²) | | | ZONE RURALE (Ha) | |
|-----------------|--------------------------------|-----------|-----------------------------------|----------|------------|------------------|-------------------------|
| | Terrain | Autres | Edilitaire | Agricole | Forestière | Agricole | Forestière ou pastorale |
| Vavatenina | 200 - 600 | 150 - 400 | 100 - 300 | 40 - 80 | 30 | 70.000-140.000 | 35.000-70.000 |
| Ambohibe | 150-500 | 100 - 300 | 70 - 150 | 30 - 60 | 20 | 60.000-120.000 | " |
| Andasibe | " | " | " | " | " | " | " |
| Anjahambe | " | " | " | " | " | " | " |
| Ampasimanava | " | " | " | " | " | " | " |
| Marontenty | " | " | " | " | " | " | " |
| Mjarinarivo | " | " | " | " | " | " | " |
| Sahatovy | " | " | " | " | " | " | " |
| Ambodimangavalo | " | " | " | " | " | " | " |

OBSERVATIONS : Pour les ventes sous conditions résolutoires, les prix indiqués ci-dessus devront être réduits de moitié. -

Unité : 1 Fmg.

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L'acquisition d'une parcelle incluse dans le ZODAF/RE

La personne intéressée par l'acquisition d'un terrain inclu dans le ZODAF/RE consulte un service spécialisé en la matière auprès de la Direction des Eaux et Forêts, qui lui présente les lots susceptibles d'être mis en valeur. Il fait son choix, descend sur terrain avec des techniciens du Service Topographique pour localiser le terrain.

Il commence à mettre en valeur son terrain suivant les directives de la Direction des Eaux et Forêts. Celle-ci envoie chaque année ses représentants pour constater de l'état d'avancement des travaux.

Au bout de 4 ans, il dresse un procès-verbal d'une mise en valeur effective. Il est demandé à ce que 90 % de la mise en valeur soit effectuée.

Une commission de reconnaissance de mise en valeur est convoquée. Elle est présidée par le Président du Fivondronana et ses membres sont les représentants du service topographique, du service des domaines du Ministère du Développement rural, du Ministère des Eaux et Forêts. Cette commission dresse un procès-verbal.

Le dossier (demande par l'intéressé et le procès-verbal) est envoyé par la Direction des Eaux et Forêts au service des domaines pour l'obtention d'un certificat de situation juridique et c'est ce service qui doit informer l'intéressé de la possibilité pour lui d'avoir un titre de propriété moyennant le paiement des taxes afférant à l'acquisition d'un terrain domanial que nous avons exposé précédemment.

Au total, il faut attendre environ 5 ans après l'établissement d'un procès-verbal de la mise en valeur fait par la Direction des Eaux et Forêts. En raison de la complexité de la procédure, il paraît que ce délai est un délai minimum.

Pour ce qui est des terrains inclus dans le ZODAFARE, le délai de 5 ans après la constatation de mise en valeur est évidemment très long. Ce délai peut être écourté si l'intéressé accepte de porter en main propre son dossier dans tous les services intéressés. Ce qui n'est pas possible s'il n'habite pas la capitale par exemple. Ce délai très long est dû aussi au nombre de demandes en étude auprès du Fivondronana. Chaque année, on compte près de 1.000 demandes d'après le Chef de Service qui travaille à la Direction du Patrimoine. Cette lenteur est excessive, mais en raison de l'insuffisance des moyens, il est impossible de faire mieux actuellement.

Les difficultés liées à l'acquisition d'un titre provisoire

• L'insuffisance des moyens

Les moyens de déplacement sont très insuffisants (voitures, et carburant), or très souvent l'accès de certains est très mal aisé. Plus le terrain se trouve loin, plus il est difficile pour le technicien d'accomplir la tâche.

Le nombre de technicien est très insuffisant. Ceci est aggravé par le fait qu'il est de moins en moins possible de faire de nouveau recrutement.

Le nombre des demandes est très élevé, alors que les opérations correspondant à chaque demande sont très nombreuses.

Les descentes sur terrain ne sont effectuées (par mesure d'économie) que si plusieurs demandes intéressent un même Fivondronana ou des Fivondronana voisins.

Il faut faire intervenir différents individus, au moment de l'établissement du procès-verbal. Il n'est pas facile de trouver une date qui convienne à toutes les parties concernées.

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Recommandations

La demande et l'enregistrement des terrains constituent à Madagascar une procédure longue et très lourde. La mise en valeur de terres cultivables ou le reboisement des zones imparcellées incluses dans le ZODAFARD est subordonnée à l'alignement des diverses procédures.

1 - Il faudrait intensifier l'information. Nous avons constaté que seule une minorité de gens est informé de la possibilité d'acquérir ces terrains domaniaux. Une information au niveau du Fivondronana, et par le canal des médias constitue un préalable important.

2 - Il faudrait que chaque Fivondronana fasse l'inventaire des terrains domaniaux qui peuvent faire l'objet d'une demande.

3 - Il faudrait également faciliter l'accès au crédit auxquels qui veulent valoriser ces terrains domaniaux et réétudier les conditions de remboursement ^{musai} ~~bien que~~ dans certains types d'exploitation, l'investissement n'est rentable qu'à long terme.

4 - Il ne faudrait pas tolérer une mise en valeur d'un domaine avant qu'un titre officiel ne soit attribué, cela suppose que l'attribution d'un titre officiel se fasse plus rapidement, pour éviter qu'un individu ne s'installe sur un terrain sans payer les taxes exigées.

5 - Il ne suffit pas d'attribuer les terres, moyennant le paiement des taxes, il faudrait aussi que chaque Fivondronana étudie les conditions d'une mise en valeur effective de ces terrains. Il est nécessaire d'assister les nouveaux acquéreurs de faciliter l'acquisition des matériels exigés pour la mise en valeur de ces terres. Jusqu'à maintenant le rôle du Fivondronana est limité à la réception des dossiers et à ^{des} ~~certains~~ ^{donner} avis concernant le bien fondé de la demande et à l'envoi du dossier auprès des différents services techniques intéressés.

6 - Pour accélérer la procédure, il n'est pas inutile que les techniciens susceptibles d'émettre un avis sur un dossier donné soient réunis en un seul lieu sur convocation du Faritany par exemple. Ceci éviterait la circulation des dossiers entre différents Ministères.

c) Le bas niveau de la technicité dans le monde rural

Lorsque l'on approche le paysan, et que l'on examine les matériels qu'il utilise pour exploiter la terre on est très étonné par le caractère très rudimentaire et archaïque du matériel qu'il utilise. Le paysan n'a plus les moyens de s'équiper, les matériels sont trop chers. L'exemple d'Ambohimasoà nous montre cependant que ce n'est pas le désir de moderniser son équipement qui fait défaut chez le paysan. En effet, il y avait dans le Fivondronana une mission catholique qui a cédé des charrues à un prix 40 % moins cher par rapport au prix du marché, parce qu'elle a bénéficié d'une subvention de la part d'une organisation (dont le nom ne nous a pas été dévoilé). Ces charrues ont été achetées très rapidement, et de nouvelles demandes se sont manifestées mais n'ont pu être satisfaites. D'après le Président d'un certain nombre de Fokontany de la même région, beaucoup de paysans veulent mieux s'équiper mais malheureusement, ils ne sont pas informés sur les prix et les centres d'achat. Il faudrait peut être à ce niveau, procéder au niveau du Fokontany à une vente exposition ambulante des matériels appropriés et nouveaux, car l'idée d'un groupement de paysan susceptible de partager les frais à l'achat est souvent avancé. Nous déplorons l'ignorance au niveau du Fivondronampokontany de l'évolution des besoins de la population en matière d'équipements nouveaux.

Le niveau de technicité qui reste à rehausser s'observe aussi en matière de gestion de l'exploitation. Nous avons pu remarquer que les produits cultivés ne sont pas suffisamment diversifiés. Le paysan se contente trop souvent de reproduire les cultures qui ont été déjà expérimentés par les générations passées. Il faut reconnaître que les ha-

bitudes alimentaires de la population à Madagascar ne sont pas très fléxibles si bien que la production des éléments nouveaux, présente un certain nombre de risques pour le paysan, d'autant plus que comme nous l'avons déjà souligné auparavant ils sont peu informés de l'évolution de la demande, et même si dans certaines zones telles que Moramanga et Beforona, ils cultivent le gingembre pour l'exportation, ils ne font qu'exécuter des demandes émanant des hommes d'affaires venant de l'extérieur. Donc, ils n'ont aucun moyen de contrôle sur le prix. Du côté d'Antsiranana, les expériences négatives en matière de soja n'ont fait qu'accentuer la méfiance de certains paysans à l'égard des demandes extérieures. En 1982-1983, il y avait une production de lait de soja à Madagascar, l'installation des usines devaient promouvoir la culture de soja, on a encouragé les paysans à cultiver le soja. Mais au bout de mois, l'entreprise a fait faillite et les commandes n'ont pu être honorées. Il n'empêche, nous avons vu du côté d'Ambohimahasoa que des paysans cultivant le blé pour alimenter l'usine KOBAMA (usine de fabrication de farine de blé), les dirigeants de cette usine offre un certain nombre de facilités aux paysans : avances, engrais, et l'assurance que toute leur production sera achetée par l'entreprise. On a pu noter une satisfaction réelle de la part du paysan qui peut tirer un bénéfice substantiel dans cette liaison entre l'industrie et l'agriculture mais se plaignent de leur impossibilité d'utiliser des machines appropriées (batteuses). Beaucoup espèrent doubler leur production dans l'hypothèse d'une accession à ces machines. Or jusqu'à présent, à notre connaissance, leur projet d'achat de ces machines n'existe pas encore.

Nous avons pu constater également qu'il est difficile pour le paysan malgache de bien gérer son stock en raison de l'insuffisance de la diversité de sa production. Il n'est pas rare et c'est fréquent qu'il soit obligé de vendre à un prix très en dessous de la moyenne son riz pour subvenir à ses besoins. Il faut aussi reconnaître qu'il y a une détérioration du pouvoir d'achat du paysan. Il y a un écart croissant entre le montant de ses dépenses pour les produits de première nécessité et ses revenus. Il est nécessaire d'accroître la productivité, les con-

ditions propres à l'élévation de la productivité sont loin d'être réunies. Il faut un équipement agricole adéquat, un traitement régulier des sols (engrais et autres intrants chimiques, et des actions d'encadrement et de vulgarisation suivies). Nous pensons qu'un centre de formation comme le CAPR à Fianarantsoa devra être multiplié à travers le pays. A la différence de l'école traditionnelle, un tel centre s'efforce au moins de retenir les jeunes dans le monde rural en lui offrant une formation susceptible d'être utilisée et actualisée si besoin est.

II- Capacité du Fivondronana à mettre en oeuvre une politique de développement rural

1. Structure des collectivités décentralisées

Le Fokontany

Le Fokontany est une portion territoriale de base au sein de laquelle l'ensemble de la population. Il peut comprendre un ou plusieurs villages, une ou plusieurs agglomérations ou tout simplement la fusion d'un village ou d'une agglomération. Il se définit par des critères économiques, géographiques sociaux déterminés par des intérêts communs complémentaires.

Les institutions du Fokontany sont :

- a) l'assemblée générale, comprenant l'ensemble des électeurs hommes et femmes en âge de voter.
- b) Le comité exécutif, un collège formé d'individus élus au suffrage universel.

Le fokonolona, l'ensemble de la population vivant dans un fokontany donné décide de façon démocratique et publiquement des activités d'ordre économique, social et culturel. Ce fokonolona prend des parts actives dans des activités telles que la construction des routes, des ponts ou des écoles. A ce titre, il élabore des dinan'asa, c'est à dire un contrat social de travail exigeant la participation de la majorité. Par exemple dans le fokontany de Soatanana, le maintien de la sécurité, la nuit est assurée par les hommes habitant le Fokontany.

Le fonctionnement

L'assemblée générale est l'organe délibérant du fokontany. Elle prend des décisions, fait des propositions par voie de délibération.

Le Firaisampokontany

Il est une collectivité décentralisée constituée par le regroupement de plusieurs fokontany. Ce regroupement est motivé par des intérêts communs et complémentaires des Fokontany qui le composent.

Les institutions

a) Le conseil populaire qui est constitué par le président des comités exécutifs issus des différents fokontany. Ce conseil décide des actions pouvant répondre aux objectifs économiques et sociaux des différents fokontany. Par ailleurs il est chargé d'établir des programmes d'investissement dans le cadre du plan national et d'administrer et gérer les biens de son patrimoine.

b) Le comité exécutif, dont le président est le représentant du pouvoir central veille à l'application et au respect des lois et règlements, renseigne le pouvoir central sur les événements de tous ordres intéressant la vie de la collectivité décentralisée.

c) Le comité administratif qui comprend les services publics mis à la disposition de la collectivité décentralisée par le pouvoir révolutionnaire. Le délégué du comité administratif assiste le président du comité exécutif. Il contrôle et coordonne les activités (économiques, culturelles et agricoles) mises à la disposition de cette collectivité décentralisée par le pouvoir central. Il vérifie pour le compte du comité exécutif les documents comptables des structures d'opérations du Firaisampokontany, et prend sous le contrôle du comité exécutif toutes mesures en vue de maintenir l'ordre et la sécurité publics et préserver l'environnement (hygiène et salubrité publiques).

Le Fivondronampokontany

Il est constitué par regroupement de plusieurs firaisampokontany. Il est doté de la personnalité morale et de l'autonomie financière.

Les institutions du Fivondronampokontany :

a) le Conseil populaire qui est un collège formé par l'ensemble des représentants du Fivondronampokontany qui le composent. Sur le plan législatif, il élabore des "dina" (contrat appelant la participation effective de chaque membre de la collectivité) service agricole, service de l'élevage. Sur le plan de la défense, il participe à la défense du territoire et de la sécurité publique. Et sur le plan administratif, il dispose des services publics.

b) Le comité exécutif. Il est chargé d'établir la révision de la liste électorale, éventuellement de réquérir en cas de besoin les forces de l'ordre, s'assurer de la rentrée des impôts, droits et taxes de contributions directes ou indirectes. Son président dirige les activités des services publics installés dans sa circonscription, et veille à l'application et au respect des différentes lois et règlements.

c) Le comité administratif, constitué par l'ensemble des services placés sous la direction du comité exécutif pour l'assister à sa tâche. En tant qu'administration, il est responsable mais à un niveau supérieur des tâches administratives dévolues aux autres niveaux des collectivités décentralisées.

Le Faritany. Il se situe à un niveau supérieur de l'administration locale. Il englobe l'ensemble des fivondronampokontany d'une région donnée. Il y a 6 faritany correspondant aux 6 provinces : le Faritany d'Antananarivo, le Faritany de Toamasina, le Faritany de Majunga, le Faritany de Fianarantsoa, le Faritany de Diègo-Suarez, le Faritany de Tuléar.

A l'instar des autres collectivités décentralisées, il possède un conseil populaire, un comité exécutif et un comité administratif. Le président du comité exécutif est élu. Son fonctionnement et les attributions des institutions qui le composent sont à peu près identiques à ceux des autres collectivités décentralisées. Ses activités sont plus étendues, dans la mesure où elles embrassent l'ensemble d'une région. Il peut intégrer à son niveau les différents problèmes intéressant le développement du pays. Sur le plan économique en général et agricole en particulier, le Faritany est censé participer activement aux différents projets de développement ainsi que le plan intéressant la région dont il est responsable.

Les ressources des collectivités décentralisées

Elles proviennent essentiellement aux termes de l'article 45 de l'ordonnance N° 76 044 du 27 Décembre 1976.

- des prélèvements et taxes spécifiques divers :
- du revenu de leurs biens et de leurs unités de production
- de la part leur revenant sur les activités entreprises en commun avec les autres collectivités
- de la rémunération des services rendus
- de la part leur revenant sur les impôts et taxes levés sur leur territoire
- des subventions, prêts, dons, legs des autres collectivités et de l'Etat.
- du remboursement des prêts et de leur intérêt
- des recettes en exécution des "dinan'asa"
- des recettes accidentelles et non classées

Les problèmes :

Les difficultés des recouvrement sont liées essentiellement aux facteurs conjoncturels :

- . diminution du pouvoir d'achat de la population et paupérisations de certaines couches sociales
- . La population est de plus en plus indifférente devant le devoir fiscal, elle est due essentiellement à un manque de civisme et à un changement de la mentalité.
- . des hommes politiques haut placés interviennent fréquemment pour favoriser certaines catégories de contribuables.

Par ailleurs, on note dans beaucoup de localités l'absence d'agents de poursuite pour les taxes non payées.

Les charges d'investissement

Les textes existant actuellement sont imprécis concernant la délimitation et l'orientation des investissements à la charge des collectivités décentralisées, ainsi qu'au sujet des modalités de leur participation dans l'élaboration et l'exécution du plan national.

Les ressources sont insuffisantes, si bien qu'il est impossible pour les collectivités décentralisées de respecter le taux de 15 % du budget à consacrer aux investissements. (*de leur budget*)

Ce sont les investissements à caractère social et administratif qui dominent, les projets d'investissement à caractère économique sont trop souvent coûteux si bien qu'il est difficile pour certaines collectivités décentralisées de les prendre en charge.

L'organisation interne des collectivités décentralisées est ^{pas} suffisamment compétente si bien que très fréquemment, les responsables sont incapables de gérer des projets d'investissement. Le choix des titulaires des marchés, malgré l'existence d'une commission nationale des marchés, ne s'effectue pas de manière rigoureuse, si bien la réalisation des travaux est souvent insatisfaisante.

La personnalité du président du comité exécutif peut souvent gérer l'organisation, par exemple lorsqu'il refuse de donner une délégation de pouvoir aux délégués du comité administratif en matière de tutelle, alors que leurs qualifications ne leur permettent pas toujours d'assurer efficacement la fonction.

Pour améliorer les conditions d'existence des collectivités décentralisées, et en particulier le rendre capable de financer leur développement, il est urgent de mettre de l'ordre dans l'organisation et la gestion des collectivités, mais surtout d'améliorer de manière substantielle leurs ressources en fonction des compétences qui leur seront dévolues et, dans l'immédiat d'entreprendre des actions rigoureuses de recensement et de recouvrement, à leur partie, pour optimiser la rentrée des impôts et taxes mis à leur disposition.

On assiste souvent aussi à un blocage de la capacité d'initiative en termes réels et psychologique, alors qu'il n'est pas rare que des initiatives dépassant la compétence et la possibilités des collectivités sont prises. Les notions d'activités locales. et d'activités de l'Etat s'interfèrent dans bien des domaines et tendent de ce fait à s'estomper particulièrement en matière de planification. La frontière qui sépare ces deux séries d'activités ne sont pas toujours très claires. La classe générale de compétence selon laquelle la collectivité décentralisée détient sur son territoire le pouvoir révolutionnaire et exerce ce pouvoir par délibération est génératrice de confusion, et se trouve à l'origine de nombreux transferts de charges non suivi de mesure d'accompagnement; et de dilution de responsabilité.

Solution : Il faut responsabiliser chaque catégorie de collectivités dans l'exercice des attributions afférentes à une compétence donnée qui tiendra compte des besoins fondamentaux de la population concernée. Il leur appartient aussi, à notre avis de définir désormais les projets et les politiques de leur collectivité respective et d'assurer la réalisation des équipements et la gestion des services.

Il est nécessaire aussi de déterminer de manière précise dans un texte législatif la répartition des compétences entre les collectivités et l'Etat, en ce qui concerne les activités visant le développement économique et social. Mais cette délimitation ne sera utile sans une réorganisation structurelle des collectivités qui accorderait plus d'intérêt à la gestion des ressources propres aux collectivités.

Il existe aussi un déséquilibre entre les pouvoirs techniques actuels des collectivités décentralisées et les moyens dont elles disposent. Elles sont souvent vouées à demander de l'aide à l'Etat. Cette situation conduit à une paralysie dans leur fonctionnement. Il faudrait rendre effective leur autonomie financière afin de leur permettre d'assurer pleinement leur rôle de structure d'expression et d'intervention.

En effet, les collectivités décentralisées et notamment le Fivondronana constituent l'échelon intermédiaire qui doit favoriser la participation de tous dans l'effort de développement. Il est nécessaire de reviser en fonction des compétences dévolues la répartition des ressources fiscales entre les collectivités décentralisées et l'Etat. Une décentralisation financière doit accompagner la décentralisation de pouvoirs.

2. Capacité du Fivondronana à mettre en oeuvre une politique du développement rural.

Se demander si les collectivités décentralisées sont capables de promouvoir une politique de développement serait à notre avis insuffisant du contexte social et économique dans lequel travaille la collectivité décentralisée. Il y a une interdépendance entre les actions menées par l'administration et d'autres facteurs tels que le comportement économique de la population (la population est-elle disposée réellement à produire plus, la représentation que possède la population du rôle économique de la collectivité décentralisée exclu exigente vis à vis des responsables qui travaillent dans le Fivondronana par exemple, ou bien ne voit-elle dans les élus ou les délégués du Faritany auprès du Fivondronana que de simples représentants politiques du pouvoir central, dont elle ne perçoit pas exactement son rôle politique. Il y a aussi la personnalité du président de la collectivité décentralisée. Est-il suffisamment capable pour amorcer le développement économique de la région, et suffisamment compétente pour imaginer un cadre socio-économique susceptible de favoriser les initiatives individuelles ?

La représentation de son rôle économique par le Fivondronana

Le rôle du fivondronana en matière de développement économique n'est pas clair. Beaucoup affirment (14 membres du comité exécutif d'Ambositre, d'Ambalavao) que l'orientation de la politique de développement rural n'est pas clair. " Nous savons qu'il faut produire encore plus, et se montrer plus responsable" nous confie le président d'Ambohimahasoa, mais les moyens sont insuffisants et l'orientation exacte de la politique nous échappe on nous consulte, nous donnons notre avis, on reçoit des directives concernant tel ou tel projet, on facilite de notre mieux la réalisation, et on observe. Nous avons un rôle d'observateur puisque les décisions viennent d'en haut, et nous devons nous satisfaire de ce que

l'on nous envie. Et puis nous sommes en période de crise - l'insuffisance ou même le manque de moyen excuse tout le monde. On ne peut parler de pouvoir économique d'une collectivité décentralisée si celle-ci est constamment à court de moyens. Et en plus le niveau de motivations des agents publics baisse avec ce mouvement inflationniste que personne ne contrôle."

Ces quelques mots résument assez clairement la situation dans laquelle se trouve le pouvoir au niveau du Fivondronana et nous donnent une idée des limites des actions pouvant actuellement être entreprises au niveau du Fivondronana.

Nous prenons pour notre part que le problème de moyens est un problème réel, mais ce qui manque surtout c'est la faculté d'imaginer un système de relations sociales, ou un cadre social pouvant faciliter le démarrage économique d'une région donnée. Dans l'état actuel des choses, il faut faire preuve de beaucoup d'imagination pour amorcer un processus de changement. La collectivité décentralisée ne doit pas être tout simplement une déconcentration du pouvoir central mais plutôt un lieu où naissent de nouvelles initiatives surtout en matière économique. Il est indéniables que l'orientation de la politique de développement rural n'est pas facile à saisir à Madagascar, et il est temps que chaque région Paritany, chaque Fivondronana, prenne en main sa destinée sans attendre tout simplement que les directives viennent d'en haut. Il faut imaginer un savoir adapté aux spécificités socio-économiques de chaque zone et créer les conditions favorisées pour mobiliser les ressources humaines et physiques.

Par exemple, le Fivondronana aurait organisé des foires ou des expositions ouvertes pour faire connaître mieux le potentiel économique de la région et stimuler les créations des sociétés privées intéressés par l'exploitation du travail de la terre. Le paysan vit isolé sans sa région, et il vit utile que des mesures soient prises pour développer son information ; nous avons pu constater par exemple que la presse qui circule dans ce milieu relate essentiellement des questions publiques, on y rencontre également des magazines de spectacles édités hors de Madagascar.

A notre avis les campagnes de sensibilisation faites en matière d'environnement seront nécessairement limitées, si l'information est perçue comme accidentelle par le paysan. Développer un support d'information capable d'intéresser le paysan aux réalités économiques de la région est une condition nécessaire pour espérer un changement de comportement chez les producteurs.

Le Fivondronana ne sont plus de contenter d'attendre qu'un modèle de développement valable pour toutes les régions du pays soit élaboré au niveau de la capitale. Chaque Fivondronana doit apprendre à concurrencer sa propre stratégie de développement. De même que l'on parle d'une dépendance accrue du paysan vis à vis du monde extérieur, on doit aussi souligner la subordination du pouvoir local aux directives issues du Faritany ou de la capitale.

Il est nécessaire de développer un peu plus le dialogue entre le pouvoir local et la population. D'habitude, on évite de débattre de problèmes économiques de la région ou du paysan raison d'une confusion possible entre le débat économique et la critique politique du régime en place, d'autant plus que le président du Comité exécutif est d'abord un homme. ^{personne de ce} Or nous imaginons comment on peut trouver une solution à un problème donné si l'on refuse d'en délimiter objectivement le contenu. Ceci limite considérablement la participation de la population aux débats relatifs au développement.

A une période où l'on parle de plus en plus de l'utilité du développement de la privatisation de l'économie; le Fivondronana doit favoriser les groupements de paysans pour l'achat en commun ou la location de différents matériels agricoles. Si le Fivondronana n'est plus à même de louer des tracteurs (il y a 20 ans c'était possible), il devrait favoriser le développement de petites sociétés privées dans le monde rural. On a l'impression à observer à qui se passe ~~à~~ à Madagascar que seules les citadins sont capables de créer une société et devenir des ^{opérateurs} ~~acteurs~~ économiques actifs. Et notre enquête nous a démontré que les paysans peuvent élaborer des projets économiquement intéressants et qu'ils peuvent aussi s'associer en groupes.

Les responsables élus auprès des collectivités décentralisées sont plus préoccupés de leur rôle politique plus pressigieux que forger une rôle économique plus responsable dans sa région.

La représentation du rôle économique du Fivondronana par la Population.

Cet attentisme est accentué par l'image que possible généralement la population quant au rôle du Fivondronana. Le paysan, peu informé de son droit et devoir politique ou social, est peu exigeant vis à vis du pouvoir. Il s'accommode assez facilement à un pouvoir peu enclin à l'autoritarisme. Au temps de la colonisation, l'administration locale est un corps étranger et le rôle de la population consistait uniquement à obéir à des lois dont la genèse lui échappe. Après l'indépendance, le pouvoir en place n'a fait que prolonger les habitudes de la période précédente. Actuellement, même si l'on invite la population à participer aux décisions, on doit reconnaître que cette participation n'est pas toujours positive en raison des manques d'information du paysan et de la complexité des questions relatives au développement et de l'absence de cadre dans lequel se développerait l'esprit d'entreprise de la population. En conséquence la population d'un Fivondronana estime que les ressorts du développement rural de sa région relèvent plus du pouvoir central que de l'initiative du président du comité exécutif. Ce qui à notre avis, n'est que partiellement valable.

Au total, nous estimons qu'il y a une interdépendance entre les actions du pouvoir local et une prédisposition de la population à sortir de la logique d'une économie d'autosubsistance. Cette prédisposition n'est pas le produit du hasard, il est du devoir de l'administration locale d'imaginer les conditions de son développement. En dépit de l'insuffisance des moyens, nous pensons qu'il y a lieu de développer les initiatives et l'esprit d'entreprise à ces deux niveaux ; au niveau de l'administration locale, et au niveau de la masse paysanne. Les moyens ne sont pas une condition suffisante bien que nécessaire au développement du monde rural.

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Nous avons énuméré précédemment un certain nombre de points qui expliquent la difficulté de développement du monde rural. Il importe maintenant de savoir si le pouvoir économique et politique que l'on rencontre au niveau des collectivités décentralisées est capable de réaliser une politique de développement agricole décidée au niveau national ou de stimuler le développement dans ces zones défavorisées.

Le caractère encore embryonnaire des infrastructures tant publiques que privées donne pouvoir d'orientation aux initiatives du Fanjakana (l'Etat) pour peu qu'elles n'apparaissent pas hostiles au monde paysan. La société paysanne malgache est beaucoup moins figée qu'on ne pourrait le croire, et les structures sociales qui s'y constituent, combinent aux principes anciens d'organisation, la prise en compte de la nécessité matérielle. Une nouvelle politique sociale et économique est possible pour peu que chaque partie, -c'est-à-dire l'Etat et la population paysanne- tienne clairement son rôle.

A l'Etat (donc représentant dans les collectivités décentralisées) reviennent un certain nombre de fonctions. A lui d'avoir, plus que tout autre groupe de citoyens, une vue globale et claire du présent et des devenirs possibles, et de faire un choix parmi ces derniers. Il lui revient notamment d'assurer la préservation de l'équilibre hydrologique des bas fonds, la sauvegarde des pentes accentuées, de parer aux processus d'érosion. Si une telle oeuvre est inconcevable sans la participation des communautés paysannes, elle est irréalisable sans des connaissances et secondairement des moyens techniques, dont celles-ci ne disposent pas. Au pouvoir, il revient aussi la tâche, très délicate, d'éviter l'accaparement foncier, au lieu de le favoriser, comme trop souvent du moins de façon indirecte. Les textes législatives, quand bien même elles sont appliquées n'y sauraient suffire ; trop d'exemple

en effet nous montrent comment les lois, quand elles prétendent garantir la terre à ceux qui la mettent en valeur, assurent en définitive la prééminence des plus forts. Sans verser dans une égalisation utopique, l'Etat peut en fait, s'il prend connaissance des réalités de la répartition foncière, assurer à chacun la libre disposition du minimum qui lui est nécessaire, ce serait chose essentielle dans la conjoncture actuelle.

L'action de Fivondronana peut être importante et efficace dans les régions de faible peuplement parce qu'il y doit parer aux insuffisances de l'infrastructure générale. Il s'agit par exemple d'assurer la sécurité de la production par une lutte effective contre les maladies des plantes. A Vavatenina, les paysans se plaignent de leur impuissance à lutter contre les maladies. Il en est de même pour les paysans d'Iakona à Fianarantsoa, qui ont pu facilement accéder à l'utilisation des insecticides il y a une vingtaine d'années, ne garde plus qu'une nostalgie certaine de ces années passées.

A moyen terme, le pouvoir dans le Fivondronana doit diversifier ses intérêts et réduire ses interventions directes en exerçant l'essentiel des fonctions de suppléance temporaire et d'incitation permanente. Mais cela n'est pas concevable sans une connaissance minutieuse des situations dans des régions aux caractères très différenciés. Quelle que soit l'importance de ses moyens, le pouvoir ne parviendra à ses fins que s'il sait diriger le courant en tenant compte de la dynamique présente du peuplement et de l'organisation sociale, des seuils d'évolution que connaissant les diverses régions, selon les changements du rapport entre la population et les ressources naturelles. Cela suppose une analyse comptable, le recours à l'établissement des données précises sur les densités, les surfaces cultivées, les potentialités, les techniques de production, les rendements et recherches de corrélations entre ces différents facteurs. Il faut aussi l'intense imbrication des faits sociaux et des techniques de production, le rapport profond entre héritage et pratique, culture et action. On doit reconnaître que bon nombre de communautés rurales sont profondément enracinées mais non point sclérosées. Elles sont par ailleurs hiérarchisées,

bridées par les intérêts d'autant plus solidement ancrés qu'ils s'ancrent à la fois dans la tradition et la modernité. On dire, qu'il existe en germe les éléments d'un changement positif, mais la simple élaboration de nouvelles lois ne suffisaient pas à provoquer les mutations nécessaires. Le changement relève aussi des structures mentales mais il est d'abord subordonné à la mise en place de nouvelles structures visant à réorganiser le rôle du pouvoir de l'administration locale.

On peut déplorer l'inadéquation de l'administration des collectivités décentralisées aux exigences des transformations économiques souhaitées actuellement. Ainsi le président du comité exécutif d'un Fivondronana, personnage élu, peut bénéficier de l'estime de ses concitoyens en raison de son âge, ou bien du soutien de son parti politique, mais il n'est pas toujours capable de prendre en charge les leviers des changements sociaux économiques de sa région. Il détient sa fonction moins en raison de sa compétence à gérer les affaires publiques que pour des raisons politiques et sociales. Nous retrouvons également au niveau du Fivondronana, les représentants des différents ministères intéressés par le développement. Cette organisation est inadaptée puisque les coordinations des différentes actions des agents qui représentent le pouvoir central sont rarement bien réalisées. Dans la mesure où chaque représentant se limite à exécuter les directives émanant de la Direction d'un Ministère dont il est issu, nous assistons tout simplement à une régénération permanente de la centralisation des décisions et des initiatives au niveau des collectivités. L'insuffisance des moyens (voitures, carburant) ne les incite pas à prendre des initiatives. On parle évidemment de la participation de la population aux décisions, mais en raison de la complexité même des sujets, cette participation de la population est très souvent restreinte à la définition et à la distribution de certaines tâches collectives.

Or, nous pensons que plus que jamais chaque région a besoin de définir son mode de développement et de concevoir des stratégies pour maîtriser le changement. Sur ces points, il y a un manque manifeste de compétence. Si la décentralisation des décisions et des initiatives constitue actuellement à la fois une urgence et une nécessité, elle ne sera effective en l'absence d'un groupe d'individus capables de gérer rationnellement les ressources matérielles et humaines propres à une région donnée. Or, jusqu'à présent, l'administration malgache a beaucoup plus favorisé la multiplication des administrateurs et des hommes de loi que des managers capables de promouvoir le développement économique de l'ensemble de la région. Il y a fort peu de chance d'assister dans un avenir proche à des changements importants dans le monde rural, si l'avenir de celui-ci continue d'être modelé dans les bureaux des planificateurs qui siègent dans les ministères de la capitale.

À Madagascar, comme dans d'autres pays du Tiers-Monde, on assiste à un renforcement de la domination citadine sur la paysannerie. La fraction de la population qui, en définitive, a pu tirer profit des modèles extérieurs est la plus étrangère au milieu paysan, franchement citadine ou en tout cas plus ou moins liée au milieu technicien, elle y a trouvé l'occasion d'une main mise foncière, et par le crédit auquel elle a plus facilement accès, les moyens d'une mise en valeur.

Il est utopique d'espérer que cette relation se renverse dans un proche avenir, ce que nous pouvons souhaiter néanmoins, c'est que cette domination s'atténue en élargissant les marges de manoeuvre de ceux qui travaillent la terre.

Comment élargir ce champ d'action du paysan, si l'on a le pouvoir au niveau du Fivondronana ?

- En élevant le niveau d'information des paysans au sujet des prix, de la structure du marché, de l'évolution de la demande des produits agricoles.

En aidant le paysan à gérer son patrimoine. L'analyse de la vulgarisation nous a permis de constater que celui-ci se limite à développer les compétences dans le domaine des techniques agricoles, les travaux d'entretien de la terre. Elle néglige complètement la capacité de gérer l'exploitation, d'accroître son profit, et d'écouler les produits de son travail (celui du paysan). L'analyse du contenu de cette formation donne l'impression que l'on peut dissocier l'individu capable de bien gérer son exploitation et l'individu soucieux de tirer le maximum de profit de son travail. L'objectif de la formation révèle bien la division du travail dans le monde rural, au colon ou au citadin, ou à la société implantée en ville le pouvoir et la liberté de gérer, de commercialiser les produits du monde rural, et au paysan le soin tout simplement de produire. Mais peut-on produire plus, si l'on n'est pas capable de ne pas rationaliser l'utilisation des ressources matérielles et financières dont on tient disposer. Le cas de la banane illustre bien l'actualité de cette division du travail, le paysan de la campagne de Fénériver-Est produit sa banane qu'il la transporte sur une distance d'une journée de marché à pied ; le grossiste de la ville a passé sa commande, attend sa marchandise entassée au bord de la route et vend le kilogramme sur le marché d'Antananarivo à 250 Fmg.

L'élévation du niveau de vie du paysan est difficile d'autant plus que le paysan malgache travaille en solitaire. Nous n'avons pas rencontré des groupements de paysans capables de produire mieux et de vendre plus. Le monde paysan travaille en lourde dispensée. Cette situation présente des inconvénients sur le plan économique. Il est nécessaire de susciter les groupements des individus qui présentent des intérêts communs. Les responsables des collectivités décentralisées devraient favoriser ces groupements, qui devraient être le germe de futures sociétés privées d'exploitation d'un produit bien défini, gérées par les paysans eux-mêmes et capables d'affronter les assauts des sociétés citadines ou

ou de l'extérieur. L'exemple de regroupements de paysans pour édifier un silo communautaire à Antanifotsy et Ilempona - Antsirabe ("Sompitra iombonana"), montre bien que l'idée est réalisable, et qu'elle a bénéficié du soutien de la collectivité décentralisée de la zone. Elle est une initiative positive pour maîtriser la chute des prix en certaines périodes de l'année et permet au paysan, d'emprunter les liquidités nécessaires pour subvenir à ses besoins du moment, la quantité de riz qu'il livre au groupe est emprunt sur la base d'un prix supérieur au prix du marché au moment où l'offre de riz est très important.

Nous avons souligné les nécessités de mettre sur pied au niveau du Fivondronana des structures capables d'assurer le "management" des ressources du Fivondronana, d'informer les paysans sur l'évolution des prix, de les aider à acquérir une stratégie de production plus rationnelle. Les actions d'une telle structure ne seraient positives que dans la mesure où elle rencontre auprès du monde paysan des groupements d'intérêt ou des sociétés privées suffisamment motivées pour prendre des initiatives et aller un peu plus de l'avant.

Dans la période précédant, la libéralisation, les fonctions économiques du Fivondronana étaient axées en majeure partie sur le contrôle de la collecte, celui du flux des biens ; bref à faire respecter par la population et les étrangers les mesures en vigueur. A partir du moment où les licences de collecte ou d'exportation des produits pouvaient être acquises par tout le monde, ce rôle allait s'amenuiser. Or nous pensons et nous l'avons souligné auparavant que le Fivondronana ne doit pas rester passif ou simple observateur. Le pouvoir au niveau du Fivondronana doit s'engager un peu plus dans la définition et l'élaboration des conditions de réussite de cette nouvelle orientation de la politique économique à Madagascar.

LES FEMMES ET L'AGRICULTURE

DOCUMENTS DE TRAVAIL SUR L'EVALUATION

DU

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LES FEMMES ET L'AGRICULTURE

De Janine Ramamonjisoa
1er Décembre 1989

INTRODUCTION

La condition réelle des femmes à Madagascar nous semble généralement occultée, et ceci, pour un certain nombre de raisons:

- les observateurs, étrangers comme malgaches, se réfèrent de façon sous-jacente et inconsciente à des clichés sur l'Afrique Noire où les femmes assurent la majorité des travaux agricoles et occuperaient un statut notoirement inférieur. Par comparaison, le sort des femmes malgaches serait tout à fait enviable.
- l'existence, dans le passé, de reines, et à l'heure actuelle, de quelques femmes à un haut niveau de la hiérarchie administrative, politique, laisse croire que la question d'inégalité selon les sexes ne se pose pas dans la société et la culture: le sort enviable des femmes de la classe supérieure dispense souvent d'étude sur la condition de la majorité.
- des femmes assurent des fonctions de médiatrices avec l'au-delà dans certains rites religieux, de possession (tromba) principalement, et ce trait - inversion probable, dans l'imaginaire, de leur situation réelle - est interprété comme un imaginaire signe de puissance. La communication avec les ancêtres et les divinités est un privilège masculin, plus précisément d'âge et de sexe puisqu'il est réservé aux fils aînés.
- l'inégalité des conditions selon les sexes est traitée dans la symbolique comme une complémentarité: hommes et femmes ne seraient pas des êtres supérieurs et inférieurs mais des êtres différents, aux fonctions spécialisées nécessaires au fonctionnement de l'univers, qui suppose avant tout la fertilité, la continuation de la vie. (1)
- le rôle des femmes dans la production est méconnu, leur travail, perçu comme celui de ménagères et d'aide-familiales, n'est pas comptabilisé mais demeure invisible, en conformité avec le mode d'établissement des statistiques et les habitudes intellectuelles.
- Madagascar ne connaît qu'avec retard les débats internationaux en matière de question féminine.

La vision de cette question féminine, quand il est admis qu'il en existe une, est, semble-t-il, une vision citadine, de classe, productiviste et souvent masculine, même si elle émane des femmes elles-mêmes: les femmes sont perçues comme des êtres tantôt oisifs, tantôt arriérés, qu'il faut "sensibiliser" pour qu'elles participent davantage à la production; le centrage est porté sur les fonctions procréatrices, domestiques, éducatives qu'elles assurent.

Une réflexion s'organise toutefois au niveau officiel, qui se traduit par l'existence d'une Direction de la Condition de la Femme et de l'Enfant au Ministère de la Population, de la Condition Sociale, de la Jeunesse et des Sports. Le rôle productif de la femme commence à être l'objet d'études. Pour cette Direction, "le rôle productif de la femme est généralement méconnu et limité par des facteurs multiples, notamment:

- la difficulté d'accès aux moyens de production (la terre et les matériels de production), et au crédit,
- un niveau technologique assez bas,
- un niveau d'instruction, de formation insuffisant,
- l'analphabétisme,
- une charge trop lourde au sein du foyer: soins des enfants, ménage, lessive, préparation des repas, corvées d'eau et de bois etc...
- Les grossesses multiples et rapprochées,
- Une santé déficiente aggravée par une malnutrition patente etc..." (2)

L'on pourrait ajouter à cette liste de handicaps déjà longue le fléau naturel que constitue depuis quelques années l'alcoolisme: ses conséquences sur le budget des ménages, sur le travail, la socialisation des enfants n'ont fait l'objet d'aucune recherche. La femme est bien souvent la seule responsable de la famille.

Les mesures prises en faveur des femmes ont été jusqu'ici, outre les mesures législatives, la création de coopératives agricoles en milieu rural, de précoopératives de production pour femmes en difficulté, l'établissement du système préscolaire (garderies d'enfant), la création de centres de formation professionnelle, tels que les foyers sociaux. L'évaluation des résultats de ces actions, au demeurant très récentes, n'est pas faite. Les moyens de travail dont disposent ces organismes sont par ailleurs très faibles.

Il nous est demandé, en l'absence d'études, de recherches sur la condition des femmes dans le secteur agricole, de défricher la question du rôle productif de celles-ci, et d'examiner en quels domaines se situent les obstacles éventuels à leurs activités. Nous aborderons ici la question foncière, le travail, le crédit, l'approvisionnement en intrants. Faute de temps, les autres obstacles à l'élargissement de la production féminine tels que les problèmes de sécurité, de transports, de commercialisation, d'érosion ne peuvent pas être abordés ici. Nous regrettons particulièrement que des études n'existent pas sur la communication en milieu rural: il nous semble en effet que les campagnes, parce qu'elles sont isolées les unes des autres et aussi du reste du monde, accomplissent leurs tâches en l'absence quasi-totale d'information sur les réalisations et les potentialités agricoles, voire sur tout l'univers qui leur est extérieur: cette situation entre autres facteurs, empêche la réalisation d'un effort national et participe à renfermer les paysans sur leurs problèmes spécifiques de survie.

Il n'existe pas non plus de données sur les formes de solidarité féminine à partir desquelles pourraient être pensées et élaborées d'éventuelles formes de regroupement.

POLITIQUES ET REALITES FONCIERES, HERITAGE, PROPRIETE DE TERRES

A - La loi no 68-012 du 4 Juillet 1968 sur les successions, les testaments et les donations accorde les mêmes droits aux filles et aux garçons.

B - En matière d'héritage il faut semble-t-il, distinguer les pratiques concernant les terres immatriculées cadastrées de celles qui touchent les terres régies par le droit coutumier.

. Pour les terres immatriculées et cadastrées, en l'absence de testament, les règles du droit positif s'appliquent automatiquement, qui les répartissent de façon égalitaire entre les descendants masculins et féminins.

La marque des coutumes et des valeurs se manifeste lorsqu'un testament existe: les filles sont toujours moins bien pourvues que les fils, et fils aîné et fils dernier-né sont privilégiés. Les filles obtiennent une portion congrue de l'héritage: biens meubles, bijoux, très peu de terres.

. Dans les régions, majoritaires à Madagascar, régies par les règles coutumières, plusieurs variables explicatives, qui interfèrent les unes sur les autres déterminent la propriété féminine. Ces variables nous apparaissent être:

1- les activités et la division du travail selon les sexes au sein des différentes entités socio-politiques précoloniales.

2- le traitement fait à la femme par les règles, usages, valeurs des systèmes de parenté.

3- La vocation assignée par la colonisation aux différentes régions selon les potentialités, la démographie, les rapports de force politique.

Les activités nouvelles (café, girofle...) s'ajoutent aux anciennes; une nouvelle division de travail s'établit; les deux logiques, lignagère comme marchande modèlent les conditions d'existence des femmes, les règles foncières se modifient. Le sens de l'argent se développe principalement dans les zones de cultures marchandes.

L'on peut, avant de passer à la description des différents cas rencontrés, en conclure que partout l'accès à la terre est défavorable à la femme; des différences sensibles existent d'un type de société à l'autre; que dans la limite des contextes précis où elles vivent, les femmes ont élaboré des stratégies, ou du moins des réponses.

- A la dissolution du mariage, le régime coutumier du Kitay telo an-dalana (trois tas de bois sur le chemin) au mieux, reste en vigueur dans la plus grande partie du pays: il permet au mari de garder les deux tiers des biens communs, laissant le tiers à la femme.

Le droit positif laisse aux couples la possibilité d'opter pour le régime qui leur convient, partage égal ou Kitay telo an-dalana, mais il n'est connu et appliqué que dans une frange urbanisée et restreinte de la population.

Nous avons tenté, à partir des documents disponibles, et dans la limite du temps imparti à l'étude de dresser une typologie provisoire des conditions de la production agricole féminine, tenant compte des systèmes de parenté et du sort qu'ils font aux femmes, des types d'activité et, quand cela était possible de le faire, des réponses féminines. Cette typologie n'a rien de définitif et l'on remarquera entre les régions dégagées des similitudes et des ruptures; beaucoup de micro-sociétés n'ont pu être étudiées, ce genre de recherche toutefois mérite d'être réalisé.

1- LES HAUTES TERRES

Parenté - Le recrutement dans les groupes de parenté est de type indifférencié, l'individu pouvant se rattacher aussi bien au groupe de son père que de sa mère (3)
- L'idéologie est patrilinéaire, le côté paternel de la parenté est valorisé.
- La résidence des couples est virilocale (résidence au village de l'homme), mais de plus en plus ceux-ci vivent là où il y a le plus de terres et de moyens d'existence
- L'on se marie entre gens appartenant à des groupes de descendance de rangs égaux, les couches supérieures de la société ont des pratiques matrimoniales endogames, les unions entre descendants de deux soeurs sont prohibées.

Héritage - les fils et les filles, théoriquement, héritent de leur père et de leur mère

- dans la pratique, du vivant du père, des terres sont données (tolotra) aux fils qui se marient, du moins lorsque la taille de l'exploitation en permet la segmentation. Aux filles on donne traditionnellement, lors de leur mariage, boeuf et argent. Elles peuvent aussi recevoir des terres, à l'égal des fils, mais il est précisé (Vakinankaratra, Betsileo) que les terres données ne s'accompagnent pas de charge, à savoir les devoirs d'enterrement et de deuxièmes funérailles (4).

L'inégalité entre les sexes dans la répartition des terres aurait donc un fondement religieux, les filles étant exclues de la communication avec les ancêtres.

La fille par ailleurs reçoit peu - ou ne reçoit pas - de terres car l'on considère qu'elle suit la "montagne d'autrui" (tendrom-bohitr'olona) - Elle est sensée se réaliser par son mariage. Durant son union, si elle habite au village de son mari et donc sur les terres de celui-ci, sa part de terre est exploitée, gratuitement ou en métayage, par des parents restés au village paternel.

Types d'activités - Région d'agriculture de subsistance et de petites cultures marchandes,
- Elevage associé à l'agriculture

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- Riziculture irriguée
- tanety: tubercules, légumineuses, pommes de terre, blé, soja etc...
- maraîchage sur berges
- vergers
- salariat agricole villageois
- Migrations saisonnières et définitives
- Activités complémentaires importantes (5)

Représentations: La femme-bijou, meuble fragile, détenant le pouvoir dans la sphère du privé, de l'arrière-scène (6)

Réactions des femmes

- Les jeunes filles échappent au pouvoir parental par les migrations, qui leur permettent de se vêtir, de participer aux dépenses familiales
- des efforts considérables sont effectués dans le domaine de l'instruction, pour remédier à la pénurie de terres qui ne permet pas d'enrichissement.

NOTE. La SOMALAC, dans le lac Alaotra, lors de l'attribution des terres, n'a reconnu qu'un attributaire et ce fut généralement, dans le couple, le mari. A la mort de celui-ci, ou en cas de séparation, la femme est démunie, c'est le fils aîné qui est reconnu comme le gestionnaire autorisé des terres. (7)

2- L'OUEST (8)

Parenté Filiation patrilinéaire, mais référence à un ascendant féminin du lignage, importance de la famille maternelle.

exogamie

dot (moletry) en boeufs, argent et marchandises, circulation matrimoniale contrôlée par les chefs de lignage, les boeufs recus rejoignant le troupeau familial.

résidence avec le segment de lignage du mari

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résidence nocturne séparée pour les jeunes filles pubères

Héritage

Traditionnellement les terres de cultures, dans cette civilisation d'éleveurs, n'ont qu'une importance secondaire, à la différence des espaces de parcours des boeufs. Fils et filles en héritent. La propriété des terres de parcours est aux segments de lignage (ampehiny) et aux lignages (tarehy), celle des terres sèches de brûlis aussi. Les rizières comme les baibo, berges alluvionnaires, sont propriété individuelle des fils comme des filles

Agriculture

- sur brûlis (tetik'ala) : maïs, riz
- en marais et vallées : rizières
- petite agriculture marchande et grandes entreprises agro-industrielles: coton, arachide, canne à sucre, haricots, pois du cap.

Transformations foncières et sociales:

avec la pénétration de l'économie marchande, accueil de migrants et de salariés dans une société d'éleveurs, où l'agriculture est un travail de femmes (et d'esclaves, autrefois). Les migrants assurent les défrichements des cultures, ont accès aux terres, à condition d'épouser des femmes locales. Les anciens déstabilisent les unions, élèvent le montant des dots, les mariages répétés des filles permettent l'extension des terres cultivées comme l'accroissement des troupeaux (dots versées par les migrants).

Réaction des femmes

- Elles échappent en partie au pouvoir des anciens;
- Elles valorisent leurs corps;
- Elles peuvent accumuler des richesses par des mariages répétés; terres aménagées (ce qui est rare, c'est le travail d'aménagement masculin) et enfants leur restent lors des divorces - Elles peuvent se constituer en quasi-chef de lignage.

- Les femmes mûres s'attachent des jeunes gens (jaloko) qui les aident dans l'exploitation de leurs terres
- migrations régionales (cf. Antsirabe).
- rôle actif dans la sphère religieuse.

3- LE SUD-OUEST (9)

Parenté: filiation indifférenciée
 exogamie
 résidence virilocale
 polygamie autrefois
 comme dans l'Ouest et le Sud, la femme autrefois
 était l'objet de razzia par les groupes
 supérieurs, comme les boeufs et les esclaves.

Héritage et types de terres

- les terres de parcours sont lignagères
- pour les terres de brûlis forestier (hatsaka), accès individuel par défrichement, à l'intérieur du territoire lignager ou villageois, pour la culture du maïs.
- propriété individuelle héritée (terre lova), ou achetée (terres fila), pour les berges alluvionnaires (baibo) portant les patates douces, les pois du cap et haricots etc... Héritage des fils comme des filles.
- propriété individuelle pour les champs de coton, propriété d'Etat dans les périmètres cotonniers et rizicoles de sociétés d'aménagements.

réponses féminines : pas étudiées

représentations : inconnues

4- LE SUD (10)

Parenté - filiation et idéologie fortement patrilinéaire
 - résidence virilocale
 - endogamie de rang et lignage, mariages
 préférentiels

- lévirat et polygamie de vieux riches autrefois; actuellement cas de polygamie et union avec de riches vieillards pour les jeunes filles.
- rôle central du boeuf dans la reproduction de la société: mariage, enterrements, cérémonies religieuses diverses.
- cases de jeunes filles: apprentissage de la sexualité, cohabitation avec les parents en relations d'interdits évitée (ex: père et fille, frère et soeur)
- servage stoïque des femmes, silence
- justification religieuse du statut inférieur des femmes
- autrefois objet de razzia

Héritage - terres de parcours et de transhumance claniques
- avec l'insécurité actuelle, surpaturages des parcours proches des villages
- les terres sont offertes aux fils du vivant de leurs pères; en cas de polygamie, elles sont distribuées entre les fils du polygame

Activités

- élevage masculin
- agriculture: tubercules, coton - riz de bas-fonds
- sous la colonisation, vocation de réservoir de main d'oeuvre, organisation des migrations vers tous les pôles de développement, du Nord et de l'Ouest principalement. Succès des migrations car elles permettent l'accumulation en boeufs.
- agriculture vivrière féminine: la production souffre relativement des migrations masculines

Réaction des femmes

- concurrence entre épouses dans le cas de polygamie, production pour le mari
- intériorisation des normes

5- L'EST (11)

Parenté: filiation indifférenciée, dominante patrilinéaire
résidence virilocale de préférence (rembin'olona en pays tanala), avec le segment de lignage (fehitra), dot, exogamie

Héritage

- propriété des terres de collines (tavy) aux segments de lignage mais forte tendance à l'appropriation individuelle
- conflits fonciers avec la pression démographique
- multiplication des immatriculations
- individualisation des rizières lignagères de bas-fonds
- la femme cultive sur le tavy de son mari ou de son père
- propriété individuelle des terres de cultures arbustives (café, girofliers etc..), héritée du père et de la mère, l'homme comme la femme cultivent les parcelles héritées de leurs parents.

Cultures

- tavy: riziculture sur brûlis forestiers ou de savoka (terres de forêts qui ont été défrichées et cultivées), maïs, légumineuses, brèdes associées au riz
- rizières de vallées et de bas-fonds, problèmes de maîtrise des eaux (précipitations)
- cultures arbustives de rente: vanille, café, girofle, poivre: vieux plants, économie de cueillette
- concurrence de terres entre cultures vivrières et cultures de rente
- région déficitaire en vivres, aux revenus irréguliers

Réaction des femmes

- départ vers les grandes villes
- travail artisanal accru

Périmètres d'aménagement:

Dans les périmètres d'aménagement les femmes peuvent avoir accès aux terres; la régularisation de la propriété foncière se déroule de façon inégale selon les périmètres.

D. Métayage

L'on sait peu de choses sur la situation des femmes-métayers, sauf que les propriétaires ne donnent leurs terres en métayage à des femmes qu'avec beaucoup de réticence et une fois certains qu'elles auront les moyens de les mettre en valeur, d'assurer les travaux de labour surtout.

E. Coopératives agricoles

- Pas d'études fouillées à ce sujet
- Selon le document "Analyse de la situation de la femme et de l'enfant à Madagascar":
Il n'existe pas de coopérative agricole composée exclusivement de femmes.

On peut dire que le nombre de femmes rurales membres des coopératives est le 1 tiers de celui des hommes.

Aucun obstacle majeur n'empêche les femmes rurales d'avoir le droit d'être membres à part entière des coopératives agricoles sauf que la plupart du temps les propriétés agricoles appartiennent aux hommes, (1) donc les femmes sont membres simples mais non membres propriétaires pour les coopératives du type II et type III c'est-à-dire où les terres restent propriété des membres.

Le nombre de femmes rurales participant à des cooperatives depuis 1980 est évalué à environ 4.000

Les droits des femmes rurales de participer aux organisations collectives comme les syndicats et autres organisations au niveau du village sont à peu près égaux à ceux des hommes."

(1) Rappelons que la femme généralement vit sur les terres de son époux.

TRAVAIL

1. Les femmes contribuent à 49,5% à la population agricole. 45.3% de la main-d'oeuvre salariale est féminine. La main-d'oeuvre féminine se caractérise, entre autres choses, par son faible niveau d'instruction puisque 41% de la population agricole féminine est illétrée. (12)

2. Les chefs de ménages féminins représentent, selon les statistiques, 9,93% des chefs de ménage, taux qui varie selon les provinces.

| | | |
|--------------|--------|------|
| Antananarivo | 10,65% | |
| Fianarantsoa | 6,31% | |
| Toamasina | 10,84% | |
| Toliary | 6,32% | |
| Mahajanga | 11,62% | |
| Antsiranana | 20,88% | (12) |

Ces chefs de ménage ont un niveau d'instruction inférieur à celui des chefs de ménage masculins (13). Les femmes, moins bien dotées en terre, figurent parmi les parents pauvres de l'agriculture.

3. Les femmes cumulent leurs tâches productives agricoles avec celles de gestion des ressources et des produits du ménage

- la procréation
- les tâches domestiques
- l'éducation des enfants
- les activités complémentaires: artisanat, salariat
- le commerce des travaux collectif (14)

et leurs domaines d'activité sont étroitement liées au point que le succès ou l'échec, les difficultés dans une sphère ont des répercussions sur toutes les autres.

Les études démographiques ont souligné la précocité des mariages, sa fréquence et le rapprochement des grossesses, la longévité inférieure, lot de la condition féminine à Madagascar

4. En matière de division du travail selon les sexes, les tâches et les gestes expriment, en même temps que le statut social de ceux qui les exécutent, la symbolique religieuse et politique d'un univers dominé par les hommes.

Des changements importants sont à l'oeuvre, l'on assiste, à une certaine homogénéisation des tâches. Les femmes, lorsqu'elles y sont obligées, prennent la charrue ou l'angady (bêche), instruments de travail traditionnellement masculins; dans les zones de migration, hors de leur résidence ancestrale, dans les zones de travail saisonnier surtout, des hommes se livrent au repiquage du riz. L'on assiste à une disparition des valeurs attachées à tels ou tels gestes, dans le contexte d'un besoin aigu et général d'argent.

5. Les salaires agricoles ont toujours été, légalement, inférieurs aux salaires non agricoles. Les salaires féminins en milieu rural agricole ont toujours été inférieurs à ceux des hommes. Il est d'usage d'affirmer que la raison en est le travail plus difficile, l'effort supérieur, qui est demandé aux hommes. Les cas se rencontrent pourtant où, pour les mêmes tâches, les femmes sont moins bien payées (récoltes, transport).

6. La division du travail selon le sexe prend des aspects différents selon les régions; la constante semble en être que les tâches de préparation du sol sont masculines, le reste des opérations après les semis étant accompli par les femmes. L'on peut conclure, sans risque d'erreur, que l'agriculture à Madagascar, incorpore principalement du travail féminin et qu'il faut tenir compte de cette donnée dans l'élaboration des stratégies de développement.

7. Des études doivent être faites sur les différents budgets-temps selon les sexes, en cette époque de transformation rapides de la division du travail. Elles ne doivent pas seulement concerner le riz, mais aussi les autres cultures.

HAUTES TERRES

Les données -les plus détaillées, les plus complètes dont nous disposons- sur les temps de culture du riz sont exposées par Conrad Ph. Kottak : cet auteur montre qu'il faut (15) annuellement:

- pour 1 ha 70 de rizières, 2.345 heures de travail soit 1010 heures de travail masculin (43,1%) et 1.335 heures de travail féminin (56,9%). Nous sommes là loin des calculs usuels et rapides des temps de travaux

- en un autre cas, la culture d'1 ha de rizières, demande 1586,5 heures de travail total, soit:

755 heures de travail masculin: 47,6%

831,5 heures de travail féminin: 52,4%

Ceci, sans compter le temps de travail consacré aux autres activités, et les semaines, voire les mois, passés en migrations saisonnières de travail.

Une étude récente (16) montre que, pour Fandriana, les départs saisonniers se situent:

- d'août à décembre, pour la cueillette du coton dans la province de Mahajanga;
- d'avril à juillet, pour la moisson dans les régions rizicoles, au Lac Alaotra principalement;
- de façon permanente, en va et vient, vers le Moyen-Ouest, dans la zone de Bemaha. "Les retours se font dans des conditions lamentables: grande fatigue et paludisme"

L'on estime que les femmes travaillent entre 10 et 16 heures par jour (NORAD, page 52).

OUEST

- L'on peut estimer qu'il faut, pour cultiver, dans le contexte de la FIFABE, une société d'aménagement rizicole dans le deuxième grenier agricole du pays, dans le Nord-Ouest, où les labours sont assurés mécaniquement par la société, 18 jours de travail masculin et 41 jours de travail féminin. (17)

- La canne à sucre est une culture essentiellement masculine. (18)

- Une étude sur les migrants des exploitants paysanales de la Sirama d'Ambilobe, dans le Nord, a montré que sur les 2.363 travailleurs migrants des fermes et des villages agricoles l'on dénombre 1090 femmes. Les femmes originaires de la province de Mahajanga ont pris l'habitude de migrer toutes seules. (18)

SUD-OUEST

En dehors des brûlis, du défrichage, à l'occasion du piétinage, c'est-à-dire de la préparation des terres, l'agriculture est essentiellement mixte qu'il s'agisse du maïs, du coton, du riz, du pois de cap (19), mais l'évaluation des temps de travail reste à faire.

SUD

La production agricole repose sur les femmes. Abandon de nombreuses parcelles (20). Les migrations des hommes, tout en augmentant les tâches féminines ont fait fléchir la production.

EST

- pour le riz, le défrichage, le piétinage, de même que le semis sont des tâches accomplies par les hommes, les femmes, individuellement ou en entr'aide, assurent le sarclage, la cueillette des épis.

- pour les cultures arbustières "les hommes ont le monopole des travaux de force (défrichage, brûlis, travail à la houe) alors que les femmes et les enfants sont chargés de la préparation du café et du clou de girofle" (21)

Notons aussi que collecte, séchage, pilonnage sont tâches de femmes.

SUD-EST

Le Sud-Est et l'Est connaissent des situations similaires:

- pour le riz, travail féminin d'arrachage des plants, de repiquage, de récolte, de vannage;
- pour le café: récolte, séchage, pilonnage, transport;
- manioc: bouturage, sarclage féminins.

Note: Les régions de la vallée de l'Onilahy, tout en se trouvant dans les régions Sud Ouest et Sud, ont une culture rizicole de type Sud-Est. Les femmes, à qui l'on prête avec condescendance une grande fatigabilité, en fait peuvent accomplir ce qu'il est convenu d'appeler ailleurs des travaux d'hommes, à savoir le labour à l'angady quand cela est nécessaire, la coupe de paddy. Le couple constitue une unité de travail. (22)

CREDIT

L'on peut distinguer, de façon très grossière, plusieurs types d'endettement en milieu rural (23):

- de subsistance, à rendre en nature au double au moins au moment de la récolte si l'on emprunte auprès des propriétaires fonciers, en argent au double de la valeur empruntée, auprès des commerçants, situation qui concerne vraisemblablement un nombre majoritaire et grandissant des exploitations agricoles;
- de maladies, de décès, de cérémonies qui peuvent mettre en cause jusqu'au patrimoine foncier.

- d'équipement.
- de frais de production, principalement auprès des organismes de développement.

Endettement de subsistance et pour frais d'exploitation sont liés; la période de soudure partout correspond au début des travaux agricoles; avant de s'endetter pour mieux produire, l'on s'endette d'abord pour survivre.

Aucune donnée n'existe sur le comportement des femmes en matière d'endettement et de crédit.

Lors d'une étude de cas menée au village d'Amerinerina sur les Hautes Terres (ODR 1984), l'évaluation des actions de crédit ODRI (Opération de Développement Rural Intégré) nous avait permis de constater que:

- les prêts pour achats d'intrants n'avaient pu être utilisés dans la mesure où les produits n'existaient pas sur le marché régulier.

La situation a évolué depuis: l'engrais, les pesticides sont disponibles mais trop coûteux pour le budget des petits exploitants.

- les prêts pour achats d'équipements agricoles (charrettes, herse) avaient donné des résultats incotestablement positifs, leurs nouveaux détenteurs ayant rentabilisé leurs acquisitions en offrant leurs services aux autres villageois.

- les crédits pour achats d'animaux (embouche) avaient occasionné des résultats contradictoires:

- soit les bêtes achetées pour engraissement avaient été soignées selon les normes et l'opération s'était révélée rentable pour l'emprunteur.

- soit la peur de ne pas pouvoir rembourser le crédit contracté avait poussé certains exploitants à des départs de travail. Tel est le cas de ce couple qui avait emprunté à la BTM pour l'achat d'un boeuf d'embouche, dans cette région où la nourriture pour les bêtes est rare. Le mari préféra partir en migration, scier du bois dans le Nord-Est, chercher de quoi rembourser la banque, laissant sa femme et ses enfants assurer seuls la production sur l'exploitation et l'engraissement du boeuf.

Une étude de terrain (ICTAD 1982 - vol II, page 106) effectuée dans la zone de la FiFABE a permis d'établir:

- que les petits emprunteurs, petits propriétaires étaient satisfaits des services de la BTM et du taux d'intérêt pratiqué alors (6% par an), sans commune mesure avec les pratiques de prêts auprès de particuliers;
- que les gros emprunteurs, dans l'ensemble, ne remboursaient pas leurs emprunts, fait confirmé par l'agence locale de la BTM;
- que les petits emprunteurs, du fait de la fermeture des fokontany à tout crédit officiel, étaient redevenus les débiteurs des grands propriétaires;
- qu'il était reproché à la BTM un déblocage tardif des crédits de campagne.

La procédure d'emprunt est ostensiblement peu adaptée aux exploitants agricoles du monde rural: "délai d'instruction long, possession d'un compte en banque, établissement obligatoire d'un projet, besoin d'encadrement suffisant, échéances fixes et inéluctables, caution de garantie assurance-vie etc..." (24)

Il semble évident que si les femmes seules, de façon générale, font partie des petits exploitants, voire des paysans sans terres, elles sont de par ce fait éliminées du crédit sous sa forme actuelle.

En dehors du crédit BTM, ou en liaison avec lui, chaque société de développement a mis au point des modalités spécifiques d'avances de campagne. C'est ainsi que Hasyma, qui encadre et collecte le coton, se rembourse à la récolte des frais de culture avancés. La Somalac, Société d'aménagement du Lac Alaotra, à travers les organisations paysannes (OP) tente d'établir un nouveau système de crédit BTM dont elle encadre l'octroi, le suivi et le remboursement (25).

Il semble acquis à ce jour que le crédit, pour être efficace (et donc aussi recouvré, donc possible) doit:

- être lié étroitement à l'encadrement et à la collecte, à une recherche-développement qui pare rapidement aux difficultés des cultures et garantisse les résultats promis par la vulgarisation,
- être lié à une sécurité foncière bien établie
- être recouvré en produit, dans la mesure où l'on se défait plus difficilement de l'argent, chose rare en milieu rural

- répondre dans le temps aux besoins des paysans, s'accorder avec les calendriers culturels.

Il faudrait également prendre le mal à sa racine et étudier diverses formes de crédit, répondant aux besoins des ruraux: allègement de l'endettement, appui à l'alimentation, prêts de campagne pour l'ensemble des activités, équipement. Les formes, les termes des remboursements seraient établis à partir de calculs de rentabilité réalistes des exploitations, et d'une vulgarisation agricole plus présente auprès de tous les paysans.

COMMERCIALISATION

Il n'existe aucun obstacle légal, à la commercialisation par les femmes des produits agricoles. La décision de vendre ou d'acheter est prise, généralement, sauf peut-être dans le Sud, par l'homme et la femme du couple, après échange de points de vue et discussion. Dans la plus grande partie du pays, les salaires obtenus, les revenus monétaires, sont gérés par la femme du couple. La gestion des récoltes est une des fonctions assurées par les femmes. La majorité des ventes de produits agricoles est écoulee sur les petits marchés communs à plusieurs villages, où tous viennent offrir des produits similaires aux mêmes moments (riz pilonné, légumes, fruits, céréales, tubercules.... Les régions sont extrêmement cloisonnées les unes des autres et les échanges commerciaux restent faibles, la découverte des marchés où écouler les produits et donc la décision de produire plus, se fait avec difficulté.

INTRANTS

Hommes et femmes se livrent à la fertilisation des terres, connaissent les mêmes difficultés: coût élevé lorsque les intrants sont commercialisés et présents, absence d'intrants lorsque la commercialisation n'en n'est pas faite, méconnaissance des doses à employer, ignorance des produits dans les zones où les services de vulgarisation ne sont pas présents.

Les engrais chimiques sont utilisés principalement sur les Hautes-Terres. Autant que leur coût, leur raison d'être, leur efficacité même ne semblent pas avoir totalement convaincu. La vulgarisation n'en n'a pas été répandue ailleurs. Le fumier animal n'est utilisé aussi que sur les Hautes-Terres. Partout ailleurs son utilité n'est pas reconnue. Dans les zones d'éleveurs, la richesse

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se comptabilise par le nombre des boeufs et par l'épaisseur du fumier dans les parcs. Sur les terres extrêmement érodées du centre, la fertilisation de la terre est le travail aussi bien des hommes que des femmes et des enfants. L'on utilise ainsi à Amerinerina:

- du fumier de boeuf pour les pépinières, les rizières, les tanety, et aussi du NPK,
- du fumier de lapins, de poulets, de canards, mélangé à des herbes et à de la terre pour la culture des légumes,
- du fumier végétal: les pailles de riz, les herbes séchées sont laissées à tremper dans des fosses, avec parfois de l'urée, pour macération.

L'on procède aussi au brûlis d'un mélange de terre rouge et d'herbes coupées; la terre cendrée obtenue - vendue par charrettée- est laissée sur place une semaine, puis transportée dans les champs de tanety. Du son brûlé est aussi parfois ajouté au mélange, ainsi qu'une petite quantité de NPK.

Dans beaucoup de régions, l'on considère encore, argument sentimental, que les terres léguées par les ancêtres sont encore fertiles.

EQUIPEMENT

De façon générale, là où des actions de développement n'ont pas eu lieu, l'équipement des exploitations est des plus sommaires.

L'on note que les perfectionnements technologiques qui permettent d'alléger le travail concernent surtout les phases de travail masculin, jugées plus pénibles. A l'époque du GPR, des machines à repiquer japonaises et des houes rotatives formosanes à sarcler avaient été introduites. La houe rotative avait eu le succès le plus large (10j/ha contre 30j/ha en rizières), sauf pour les terres boueuses où elle s'avérait inefficace. Cette innovation, qui aurait pu accroître la productivité du travail féminin, fut confisquée par les hommes. "... lorsqu'on a introduit dans la région (d'Antsirabe) des outils modernes, tels que le semoir, le rayonneur, la herse, le pulvérisateur...; les hommes ont de droit accaparé l'usage de ces outils et avec eux la part de tâches incombant normalement aux femmes..." (26). L'on devrait adapter les modèles introduits aux conditions locales, améliorer leur fabrication, au lieu d'en abandonner la diffusion.

- Une des raisons de l'abandon de la culture en ligne après l'effondrement du GPR fut le fait que cette pratique - jugée pourtant fertile - avait entraîné pour les femmes un supplément de travail pénible.

- Les charrues à boeuf ont été rapidement acceptées, d'une part dans les régions où les boeufs étaient trop rares pour assurer le piétinage, d'autre part dans les zones d'élevage converties à l'usage productif de leurs bêtes: tel est, à la différence de l'Anosy actuel où même la charette n'est pas utilisée, le cas de l'Androy, dans l'extrême Sud désertique, après l'opération-charrue.

CONCLUSION

Les quelques données que nous avons pu recueillir, incomplètes, ne peuvent que donner une idée des contraintes que rencontrent les femmes dans l'agriculture. Dans ce domaine en effet, tout reste à faire.

La dimension de sexe, plus même que celle de l'âge et du groupe social d'appartenance, n'apparaît en effet qu'exceptionnellement dans les travaux consacrés au développement agricole. L'on raisonne comme si les motivations à la production, les conditions de celle-ci (accès à la terre, cumul de fonctions et de tâches donc disponibilité en temps, statut de mineure, niveau de la vulgarisation), les moyens disponibles (qualité de la force de travail, possibilité d'extension des surfaces et d'intensification etc...), priorités dans l'utilisation des produits et des revenus étaient similaires. L'on se prive ainsi de disposer des moyens intellectuels qui pourraient favoriser un développement plus grand de la moitié de la population agricole.

La recherche doit veiller également à éviter un autre type de généralisation simplificatrice: la position des femmes malgaches dans la production diffère considérablement d'une région à l'autre, comme elle diffère selon les groupes sociaux. Fonds culturel commun à toutes les sociétés et spécificités régionales ne sont pas par ailleurs antinomiques. La recherche - développement a tout à gagner à intégrer ces dimensions sociales de la production dans ses programmes.

RECOMMANDATIONS

- 1 - Au vu des projets de cadastrage de l'ensemble des terres cultivées du pays, procéder à des études pour s'assurer que la réforme ne fixe pas, ne fige pas une répartition foncière aux femmes; de façon générale, étudier les impacts sociaux des mesures envisagés, selon les types de situation rencontrées
- 2 - Aider à ajuster davantage la recherche-développement aux conditions concrètes des ruraux, en appuyant des études sur:
 - Le budget-temps des femmes
 - des équipements agricoles, dans le sens d'un allègement, en pénibilité et en temps, des travaux
 - des formes de crédit viables, selon les catégories de paysans, selon les régions
 - la communication: informations sur les techniques, ouvertures sur le monde extérieur, formes et modalités de vulgarisation définies à partir des structures sociales de départ.
 - la mise au point de cultures qui mettent fin ou du moins abrègent la période de soudure.
- 3 - Soutenir les mesures prises pour l'amélioration des conditions de réalisation des fonctions féminines: procréation, santé, éducation des enfants.
- 4 - Soutenir une opération transistor_

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N O T E S

- (1) A titre d'exemple de la dimension symbolique des éléments et des gestes de l'agriculture, voir l'article de Chantal Radimilahy intitulé "Condition féminine chez les Tanala de Ranomafana", dans la brochure: Le Tanala, la Forêt et le Tavy-(Musée d'Art et d'Archéologie), 1987 - page 144:
"Dans la conception de la nature, les mêmes termes et les mêmes conceptions, notamment pour le sexe féminin, sont utilisés indifféremment pour le monde humain aussi bien que pour les mondes minéral et végétal. Le riz, comme la femme par exemple est dit: bevohoka (enceinte) ou miteraka (enfanter). La récolte sera bonne dans une terre chaude (mafana), bien arrosée (lonaka), à l'image de la femme fertile (lonaka) qui a un ventre chaud (mafana kibc). A Ranomafana, dans cet environnement forestier et pluvieux, la femme peut être associée à certaines entités naturelles aussi importantes les unes que les autres: la forêt, l'eau, le feu (la chaleur). La terre-mère qui garde ces entités en son sein est le domaine des esprits (angatra) que l'on respecte et dont on sollicite la bénédiction".
- (2) Synthèse de l'analyse de la Situation de la Femme et de L'enfant à Madagascar - Novembre 1989.
- (3) Voir le livre de Maurice Bloch: Placing the Dead - Tombs Ancestral villages, and Kinship Organization in Madagascar, consacré à la parenté en pays merina. Seminar Press, London and New York, 1971.
- (4) Voir, par nous-mêmes: Etude de cas, Le village d'Amerinerina (Imerina Imady), réalisée en 1984 pour le compte de l'Opération de Développement Rizicole, dactylographié: "Selon l'idéologie lignagère, les fils, seuls en principe héritent et ceci du vivant de leur père, au moment de leur mariage ou à celui de la naissance de leur premier enfant. De partage en partage, le père agé vit de surfaces diminuées. En fait, les fils, lorsque leur propre famille est encore peu nombreuse, vivent et cultivent avec leur père, tout en s'adonnant à une activité complémentaire. Aux filles, on donne habituellement lors de leur mariage boeufs et argent, elles peuvent aussi recevoir des terres, à l'égal des fils, mais il est alors précisé que les terres données ne s'accompagnent pas de charge, "tsy itondrana loloha, tsy ivesarana adidy, En l'absence de fils, les terres peuvent être héritées par les petits enfants masculins, les fils des filles..."

(5) Nous avons réalisé, pour le compte de l'ODR, en 1984 également une Bibliographie thématique (224) traitant des aspects sociologiques de la vie rurale dans les deux zones de première implantation de l'ODR (Antsirabe, Ambositra) et débattant de questions soit socio-économiques, soit agro-socio-économique. L'histoire, la civilisation et la culture qui constituent le soubassement de toute action de transformation ont été aussi abordés. Les ouvrages existants ont été classés autour de 9 thèmes: (1) données démographiques, (2) les rapports villes-campagnes, (3) la logique des exploitations paysannes (monographies, techniques, travail, budget, et alimentation, collecte, crédit agricole, (4) les activités économiques, (5) problématiques (utilisation sociale du surplus, résistances aux changements, transformations sociales, avec une sous-rubrique vulgarisation agricole), (6) l'Opération Productivité Rizicole, (7) l'intensification des cultures de collines, (8) les migrations, la mise en valeur des terres neuves, (9) Histoire, Civilisation, Culture.

(6) Voir à ce sujet SKJORTNES, 1987 - Participation des femmes aux travaux de réhabilitation et de maintenance des routes rurales dans le Vakinankaratra (Madagascar), NORAD,-

- page 55: "Les femmes ont ainsi tendance à être reléguées dans les retranchements du ménage (le privé), et les hommes à être propulsés sur les postes de commande (le "public")

- page 41: Au niveau des ménages..."la complémentarité est de règle.... Dans les questions spécifiquement économiques, il revient à l'homme de produire et à la femme de liquider les dépenses ordinaires, et si possible d'épargner. Autrement dit, la co-gestion est de règle..."

- page 47: "Au niveau du fokonolona, des collectivités décentralisées et de l'organisation sociale en général, elle n'est plus qu'un personnage dominé, dépendant entièrement de l'homme. A ce niveau, l'homme est dit loham-pianakaviana, "chef de la famille"; il est le maître du discours et le "faiseur de normes" (norm maker), pour reprendre une expression d'Elinor KEENAN (1974) qui a aussi étudié la société du Vakinankaratra. Quant à la femme, elle est "une propriété des autres", une étrangère habitant chez les autres, "tendrombohitr'olona", "Ambohitr'olona"; elle doit alors suivre le chemin tracé par l'homme, comme le fil suit l'aiguille, (kofehy manara-pamjaitra), et se garder de parler en public.... C'est sans doute cette situation de domination qui fait qu'à certains moments la femme "explose" et est souvent taxée de "lava lela", "ayant une langue longue".

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- page 48: "Un certain nombre de représentations soutiennent ces différentes visions de la place et du rôle de la femme: la femme-objet et l'homme-sujet, la femme-meuble fragile et l'homme-force incarnée, la femme-"intérieur" et l'homme-"extérieur".

(7) Voir les rapports ICTAD, 1981, notre chapitre sur la répartition des terres .

(8) Voir, de R. WAAST, dans l'ouvrage Changements sociaux dans l'Ouest malgache, 1980, Mémoires N0.90, ORSTOM,
- Développement des sociétés occidentales malgaches du XXème siècle,
- Les concubins de Soalala.

Voir aussi, dans le même volume de E. FAUROUX, Les rapports de production sakalava et leur évolution sous l'influence coloniale (région de Morondava)

(9) Pour le sud-est, il faut se reporter à:
- LAVONDES (H) 1967: Bekoropoka, quelques aspects de la vie familiale et sociale d'un village malgache: 188 pages, Paris-Editions, Mouton.

- HOERNER (J.M.) 1978: Géographie régionale du Sud-Ouest de Madagascar, Collection Tsiokantsimo, Série Recherche No. 5, Centre Universitaire régional de Toliary.

- OTTINO (P) 1963: Les économies paysannes malgaches de Bas-Mangoky, Berger Levrault, Paris.

- RAMAMONJISOA Janine, 1982: Etude Agro-socio-économique de la Samangoky.

(10) Pour le Sud, voir:
- Bibliographie des Colloques du Département d'Histoire, Université d'Antananarivo.

- DECARY (R), 1933, l'Androy, Essai démographique régionale, Paris.

- FRERE(S), 1958, Panorama de l'Androy, Editions Anthropos, Paris.

- GUERIN (M), 1977, l'Androy et l'appel à la vie, Librairie Ambozontany, Fianarantsoa.

- RABETSINTONTA Hanta, 1984 - La femme et le développement de l'Androy, Mémoire de maîtrise, Filière sociologie, EESDEGS. Cet auteur livre des descriptions sur la situation inférieure des la femme dans cette région - porte réservée aux femmes, être impurs et inférieurs, comme les garçons non-circonsis: - services sexuels au frère du mari, dans les campagnes reculées (... "comme la femme est un bien du groupe patrilocal, elle doit aussi s'accoupler avec le frère du mari si celui-ci est absent... pour certains villages reculés, la femme reste encore bien communautaire. La femme doit accepter le frère du mari, sinon elle doit lui remettre un pagne, signe qu'elle ne refuse pas à être sous le même drap que le frère, mais qu'elle a un empêchement (page 127).

- aspects de la polygamie dans l'agriculture: "Le mari donne à chacune de ses femmes une parcelle et ne garde pour lui qu'une partie. La valy be (épouse principale), comme la valy masay (2ème épouse) ne ménagent pas leurs forces pour surpasser l'autre dans la production... car elles ont appris aussi bien que l'homme à préparer et entretenir le sol, à manier la charrue et tout cela au profit du mari: les forces que déploie ce dernier pour aider ses épouses ne dépassent pas de beaucoup l'unité travail homme d'un adolescent.

Les épouses font concurrence non seulement pour être bien vues du mari; la valy be déploie ses forces pour garder son statut d'aînée, la valy masay pour égaliser sinon surpasser celui de son aînée (p125) et encore: "Le mari propriétaire des parcelles voit dans ses épouses une assurance pour une meilleure rentabilité. Comme les enfants respectifs des épouses participent aussi à ces travaux, le mari se trouve avoir une réserve de main-d'oeuvre pour la fructification de ses terres. On peut dire que la polygamie est un dispositif d'exploitation en terme économique: sous-couvert de la relation d'alliance et de parenté (mari-femme et enfants, aînée-cadette), les forces déployées par la famille du polygame lui permettent d'accaparer le surplus de travail et de dégager un surplus monétaire. A la fin de la récolte, chacune des épouses ne reçoit qu'une partie du prix de leurs forces de travail; les épouses du polygame et leurs enfants constituent un capital humain incontestable" (page 125).

..."Pour les femmes divorcées, démunies de leurs enfants.. elles réintègrent dans le lignage paternel les mains presque vides et ne peuvent se remarier tant que son mari (sic) n'avait pas proclamé devant toute la communauté que "telle femme ne m'appartient plus; que celui qui vient se marier avec elle est libre de la faire" (page 127).

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- L'on compterait 15% de chefs de ménage polygame en 1980. Voir Etude socio-économique de l'Androy - Division Economie Rurale FOFIA - p. 55

(11)

Pour l'Est, voir:

- ALTHABE (G) 1969: Oppression et libération dans l'imaginaire. Les communautés villageoises de la côte orientale de Madagascar - Maspero, Paris.

- Etude socio-économique du village d'Andrakata, 1980, SECMO.

- Etude socio-économique du village de Tsaramainandro, 1980, SECMO.

- DANDOUAU (G) 1973 - Terroirs et économies villageoises de la région de Vavatenina (côte orientale malgache), ORSTOM 1973.

- RADIMILAHY (Ch) 1987 - Condition féminine chez les Tanala de Ranomafana - in le Tanala, la forêt et le tavy - Musée d'Art et d'Archéologie.

- en matière de propriété, DANDOUAU page 41: "A l'intérieur du lignage chaque chef de famille restreinte jouissait d'un droit d'usage sur une partie du domaine lignager. Sur ces terrains dont les limites étaient connues de tous, l'usufruitier pouvait cultiver à sa guise riz, manioc, etc, mais ne pouvait planter d'arbre qu'avec l'accord de tous les membres du lignage. Le groupe familial exerçait un certain contrôle sur l'utilisation du terrain.

- L'implantation des cultures permanentes (caféiers, girofliers) a en effet provoqué une transformation du droit d'usage temporaire réglé par la collectivité lignagère en un droit d'usage permanent que le lignage ne contrôle plus et qui semble très proche du droit de propriété."

- Cf ALTHABE page 18: "L'unité de base de l'organisation sociale de la communauté villageoise est le "Fehitra", c'est-à-dire le petit groupe de descendants dont la généalogie ne remonte qu'à la cinquième génération.... Le territoire de colline sur lequel s'effectue la culture itinérante du riz appartient collectivement au fehitra: au début du cycle de production, chacun des foyers conjugaux reçoit une zone de défrichage incluse dans ce territoire; c'est là aussi qu'évolue le troupeau de boeufs qui est la possession du fehitra.

- L'unité du fehitra éclate quand on passe dans le terroir caféier. La plantation est individualisée; les membres d'un même groupe de descendants possèdent leurs plantations les unes à côté des autres; il n'y a en aucune façon constitution, comme pour le territoire des collines, d'une plantation collective lignagère."

- p. 214 "... Chacun des deux époux travaille dans la plantation de son propre père; si ce dernier est décédé, il est acteur d'une propriété indivisée, et d'une activité commune avec ses frères et soeurs, descendants directs du créateur de la plantation. Ainsi la femme, en août, septembre et Octobre, quitte régulièrement le foyer conjugal; elle retourne dans son village, parmi ses frères et soeurs réunis pour effectuer la cueillette du café... Cette non-émergence du couple dans l'activité de production de café se perpétue au niveau du revenu monétaire: le café étant l'unique source d'argent, chacun des deux époux possède un revenu monétaire qui lui est propre et sur lequel son partenaire ne peut exercer nul contrôle. Il n'y a pas de budget conjugal, l'argent tiré du café est intégré (excepté le montant de l'impôt pour les hommes) par l'un et l'autre époux dans cette circulation monétaire cérémonielle de descendants respectifs".

(12) Main d'oeuvre des exploitation agricoles, Campagne agricole 984/1985 - MPARA.

(13) Dans le même document:
- 29% de la population agricole masculine
- 41% de la population agricole féminine
sont illétrés.

L'on a les pourcentages suivants, en matière de niveau d'instruction (page 27) de la population âgée de plus de 6 ans.

| Province | Illétrés | | | Primaire | | | Secondaire | | |
|---------------|----------|--------|------|----------|------|------|------------|-----|------|
| | Hommes | Femmes | Ens | H | F | Ens | H | F | Ens |
| Antananarivo: | 14,1 | 21,1 | 17,5 | 74,9 | 69,3 | 72,2 | 11,0 | 9,6 | 10,3 |
| Fianarantsoa: | 25,3 | 39,6 | 32,3 | 64,4 | 52,9 | 58,8 | 10,3 | 7,5 | 8,9 |
| Toamasina | 26 | 38 | 32 | 64,7 | 54,3 | 59,5 | 9,3 | 7,7 | 8,5 |
| Mahajanga | 34,1 | 51,2 | 42,7 | 57,9 | 51,2 | 50,9 | 8 | 4,9 | 6,4 |
| Toliary | 57,5 | 67,9 | 62,6 | 35,9 | 27,6 | 31,8 | 6,6 | 4,5 | 5,6 |
| Antsiranana | 27,8 | 41,7 | 34,7 | 61,7 | 51,7 | 56,8 | 10,5 | 6,6 | 8,5 |
| Madagascar | 28,7 | 40,8 | 34,7 | 61,7 | 52 | 56,9 | 9,5 | 7,2 | 8,4 |

Pour les deux sexes réunis, on constate que plus du tiers de la population agricole de 6 ans et plus est illétrée, tandis que les 2/3 ont au moins atteint le niveau primaire (59% primaire et 8% secondaire)

(14) Cf. Ramamonjisoa Janine, 1986 - Riziculteurs des périmètres d'irrigation - in Recherches pour le Développement. Série Sciences de l'Homme et de la Société No.1 - page 77-78: "Plus généralement, dans l'évaluation du temps paysan, en dehors des travaux sur l'exploitation, il ne faut pas oublier les diverses tâches qui incombent à la population rurale, abstraction faite du temps de travail agricole et d'élevage et du temps cérémonial:

- dans le cadre des paroisses, églises ou mosquées, la participation à la construction, à la réparation des édifices;
- la participation aux divers travaux de fokonolona décidés en commun et par conséquent obligatoires: construction d'écoles, de bureaux, dispensaires, réfection et réparation de pistes, campagnes de propreté, tâches de vigilance pour la sécurité, réunions, commissions, tours d'eau pour le dispensaire, etc.;
- les travaux d'entretien des réseaux, routiniers comme exceptionnels..."

(15) KOTTAK (C.Ph) 1980, The past in the present - History, Ecology, and Cultural variation in Highland Madagascar - The University of Michigan Press.

- (16) SECMO 1988 - Aperçu socio-économique sur le fivondronana de Fandriana - Annexe I à: Evaluation des résultats des études agrosocio-économiques et analyse des blocages dans le déroulement du programme de vulgarisation de l'Opération de Développement Rizicole sur les Haut-Plateaux.
- (17) Nous-mêmes pour ICTAD, 1982 - Volume 2 Environnement, page 82.
- (18) Pour la culture de canne à sucre en milieu de travailleurs migrants, voir:
RAKOTOZAFY N.F. 1983: Main-d'oeuvre agricole et dynamique sous une économie agro-industrielle. Mémoire de Maîtrise - Filière Sociologie. EESDEGS - Etablissement d'Enseignement Supérieur de Droit, d'Economie, de Gestion et de Sociologie - Université de Tananarive.
- (19) Voir HOERNER (J.M.) 1986 - Géographie régionale du Sud-Ouest de Madagascar. Association des géographes de Madagascar - Antananarivo, page 75, la description de la culture du maïs sur brûlis (hatsake).

"- choix puis division en lots par famille de la forêt à brûler;
- Défrichage tetika en août; on épargne les gros arbres.
Travail des hommes;
- Mise à feu bolo en septembre, toujours par les hommes;
- semis tselika en décembre, au moment des premières pluies.
Travail mixte;
- sarclages avà limités, un la première année de culture, deux pendant la seconde. Les sarclages sont effectués par les femmes;
- récolte mihaza, essentiellement du maïs tsako, voire de quelques cucurbitacées (surtout en Mahafale), dès avril.
Travail mixte";

Pour le manioc, cultivé en champs clôturés, pour être protégé des boeufs, l'on a les opérations culturelles suivantes:

"- Désherbage à la bêche fangaly;
- Mise à feu des herbes séchées;
- Labour à la fangaly par l'homme; position agenouillée;
- Plantation ou semis au début de la saison des pluies.
Travail mixte;
- Sarclages fréquents exécutés par les femmes; les herbes peuvent être laissées sécher entre les différentes cultures (effet de paillis ou de mulching);
- Les récoltes sont effectuées par tous, généralement en mars-avril; le manioc dont le cycle végétatif dure près d'un an, est ramassé en août-septembre. Parfois, on laisse les bovidés brouter les chaumes, ce qui constituera une fumure naturelle".

Pour les rizières horaka voir page 80.

- (20) Voir page 64 de l'Etude socio-économique de l'Androy - PNUD - FOFIFA 1980.
- "Les migrations, quelles que soient leurs motivations, ne sont pas sans conséquences sur l'organisation économique et sociale des familles restées au village d'origine ou celle des migrants dans les zones d'accueil.
- Pour les premières, la plus importante se ressent au niveau des tâches de production et d'éducation des enfants qui incombent toutes à l'épouse. Si la femme ne peut pas s'occuper des travaux agricoles (et de la conduite du troupeau) l'absence du chef de ménage peut entraîner la non-exploitation des champs de culture..." Toujours dans ce même ordre d'idées, on rencontre dans certaines parcelles remembrées des parcelles non cultivées que personne n'a le droit de toucher. Ces terres sont propriété de certaines personnes parties en migration qui veulent s'assurer de la possession d'un champ en retour, qu'il ait lieu 5 ans après ou 20 ans. Cette situation reste donc un handicap majeur pour la production agricole, surtout au niveau des zones où le problème foncier commence à apparaître (Ambonibe surtout)
- (21) in DANDOUAU, op. cit. page 43.
- (22) Cf. pour Behara et Belamoty, page 75 des "Riziculteurs des périmètres d'irrigation: Soavina, Behara, Belamoty, Mahavanona, (Ramamonjisoa Janine) Euroconsult
"- lors de répiquage, l'homme nettoie la rizière et la femme repique;
- l'homme comme la femme réalisent le labour, le sarclage, la coupe, le transport;
- le vannage est une activité spécifiquement féminine;
- le semis est une tâche masculine: en l'absence d'un mari ou d'un frère chez elle, la femme doit emprunter les services d'un autre homme;
- piétinage bovin comme piétinage humain sont le travail d'un homme et de son fils; s'il n'a pas de fils, il se fait aider par son épouse.
- (23) MONDEIL (R) Le crédit agricole à Madagascar.
- (24) RAZAFIMAMONJY (E) 1988 Population et Sécurité alimentaire. PNUD. BIT/PLAN, Unité de population.
- (25) ELSON (L.N.) 1988 - Propositions de rapprochement des objectifs de production aux réalités villageoises. Les paysans de Marotaolana dans l'orbite de la Somalac. Mémoire de maîtrise, Filière sociologie, Université de Madagascar, page 37.

"L'OP (Organisation paysanne) s'occupe de la collecte du paddy et des opérations relatives au crédit (octroi, suivi, remboursement). Elle s'intéresse aux attributaires d'une même maille et l'adhésion est volontaire. Les postes pouvant bénéficier de crédit sont:

- Faisance - valoir: labour, repiquage, récolte
- Equipement : charrue, boeufs
- Intrants : engrais, herbicides

Les crédits sont octroyés par la BTM - sous-contrôle de la Somalac. Les opérations de crédit sont régies par un Dina ou règlement institué par les attributaires eux-mêmes.

(26)

NORAD, op. cit.

L'AGRICULTURE À MADAGASCAR

Rene Rabezandrina
4 Novembre 1989

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TERMES DE REFERENCES (24-10-89)

Part. II : AGRICULTURAL PRODUCTION AND MARKETING.

This part shall describe and analyze the major policies, activities and institutions currently affecting agriculture. The following issues will be examined in terms of the roles of public and private sectors.

A. Private Sector :

1. Discuss the role of subsistence agriculture in Madagascar, its relative magnitude, problems and prospects within the sector.

a. Analyze the "typical" small farm respect to size, labor inputs, crops, technology employed, etc.

b. Prepare an indicative outline representative of typical household income.

c. Examine problems of production inputs, credit, land tenure, labor supply, markets, and technological change (including extension and information).

d. Discuss the probable effects of liberalization of markets and prices and identify emergent problems resulting from these changes e.g. food security, market inefficiencies, investment, etc.

2. Prepare an analysis of rice production with respect to :

a. The structure of production, i.e. roles and contributions of large and small producers.

b. The factors likely to impede or enhance growth of rice production.

c. Infrastructure, investment requirements, and the prospects of sustained auto-sufficiency.

3. Prepare an analysis of the livestock sector, focussing on cattle, including :

a. The organization of production, the extent and relative importance to the Malagasy economy.

b. The prospects for livestock production during the coming decade.

c. Investment requirements, other inputs, policy issues, the government role, regulations governing marketing, quality, pricing and exports, environmental issues.

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0 - GENERALITES

01 - Politique générale en agriculture

Madagascar voudrait essentiellement réaliser :

a) son autosuffisance alimentaire aussi bien en production végétale (riz, manioc, maïs...) qu'en production animale (boeufs, porcs, produits laitiers...)

b) l'autosuffisance (ne pas importer) pour ses industries de transformation locale (coton, tabac, sucre, huiles alimentaires, bière, ...)

c) une production suffisante de produits d'exportations pour obtenir des devises. Ces produits peuvent être

- traditionnels : café, girofle, vanille, poivre, viande désossée...

- ou non traditionnels : fruits tropicaux (litchis, mangue...) ou fruits de mer (crevettes, langoustes...).

02 - Les activités

Les activités pour réaliser cette politique, aussi bien pour le secteur public que pour le para-public ou privé, ont été orientées.

A - Principalement vers l'augmentation des rendements par ha, par :

a) une utilisation accrue et générale des engrais minéraux (P.E.M...)

b) une utilisation de semences améliorées (projet semencier avec la F.A.O...)

c) une formation-information intensive du paysan (Programme national de vulgarisation agricole avec la Banque mondiale, centres de formation divers...)

d) une adoption de technologie performante (repiquage en ligne du riz...)

e) un investissement important dans les recherches pour trouver des meilleures variétés, des formules de fertilisation optimale, des méthodes de protection adéquates des plantes et des animaux d'élevage contre les parasites et les maladies... (Projet national de recherche agricole en cours, financé par la Banque mondiale).

Subsidiairement vers l'augmentation de la production en investissant dans des grandes exploitations agricoles qui peuvent être

E1 - Publiques ou parapubliques comme

Diverses fermes d'Etat (zèbus, volailles, café, pommiers,...) qui, ont malheureusement pour la plupart, échoué.

SIRAMA - AMEILOBE : une exploitation de 8.000 ha de canne à sucre, avec une sucrerie équipée de raffinerie, située dans le Nord-Ouest de Madagascar et produisant actuellement autour de 35.000 tonnes de sucre /an.

SOAVOANIO : une exploitation de 4.000 ha de cocotiers, dans le Nord-Est et dont la plantation a commencé en 1970. Elle est en pleine production actuellement et un projet est en cours de réalisation pour y installer une usine d'extraction et de raffinerie d'huile.

SOMAPALM : deux exploitations de palmier à huile, l'une (1.000 ha) à TAMATAVE, l'autre à MANAKARA (600 ha). Celle de TAMATAVE a une usine d'extraction et de raffinerie de l'huile.

MAMISOA : un complexe agro-industriel, dont l'objectif était de développer et traiter 70.000 ha de soja dans la région d'ANTSIRABE mais qui est malheureusement en liquidation actuellement.

C.I.M. (Cultures Industrielles de Madagascar) : exploitations privées, achetées par COTONA (unité textile para-publique) qui produisent du coton sur 2.000 ha environ dans le Nord-Ouest de Madagascar.

...

E2 - Privées comme

Féculerie de MAROVITSIKA située à 80 km à l'Est de TANANARIVE produit sur 1.000 ha, 10.000 t de manioc par an, qu'elle transforme en fécule pour les industries textiles locales et en tapioca pour l'exportation.

Quelques plantations de caféiers de 100 à 500 ha sur la côte Est de MANANJARY à TAMATAVE, telles que :

- Société Agricole de Madagascar (SAMA) avec 450 ha de café et un peu de poivre.

- Exploitations DAMBELL, GALLAND, BOISSON...

...

03 - Les institutions

Les institutions chargées de réaliser ces activités pour atteindre ces objectifs sont nombreuses. Ce sont :

i) des institutions publiques :

- le Ministère de l'Agriculture et de la Réforme Agraire (M.P.A.R.A.)
- le Ministère de la Production Animale, des Eaux et Forêts (M.P.A.E.F.)
- le Ministère de la Recherche Scientifique et technique pour le Développement (M.R.S.T.D) dont une direction, le FO.FI.FA s'occupe spécialement de recherches agronomiques.

Ces institutions disposent de moyens matériels financés et humains considérables et leurs activités couvrent pratiquement tout Madagascar.

ii) des organismes para-publics chargés

a) soit d'une opération de développement général d'un périmètre donné. Ce sont

- 1 - FIFAMANOR, résultat d'un accord Malagasy-Norvégien signé en mars 1972 pour promouvoir dans la région d'ANTSIRABE
 - la culture du blé et de la pomme de terre
 - l'amélioration de la production laitière par la formation des cadres malgaches et la vulgarisation en milieu rural.
- 2 - SOMALAC ou Société d'Aménagement du LAC ALAOTRA, créée en 1961 chargé de
 - accroître la production du riz par des aménagements de périmètres hydro-agricoles, par des remboursements, des prestations de services (labour...), par la vulgarisation des thèmes d'intensification des cultures...
 - la collecte, l'usinage et la commercialisation du riz dont il avait le monopole jusqu'en 1986 sur un périmètre de 100.000 ha environ de rizières.

- 320

3 - FI.FA.BE, Société pour le Développement de la Basse Betsiboka, chargé dans la plaine de MAROVOCAY, près de MAHAJANGA la promotion de la production du riz sur une superficie de 17.000 ha, par

- l'entretien des aménagements hydro-agricoles
- la vulgarisation de techniques améliorées de production
- des prestations de services, notamment le labour des rizières avec des tracteurs à roues-cages
- l'approvisionnement en intrants.

4 - SAMANGOKY, Société d'Aménagement du Fas-Mangoky chargé initialement de promouvoir la production du coton dans ce périmètre de 6.000 ha environ actuellement, par

- l'extension du périmètre aménagé, l'entretien et la gestion du réseau hydro-agricole
- l'encadrement technique des paysans
- des prestations de services (labour, traitements aériens antiparasitaires ...)
- l'approvisionnement en intrants (engrais, semence).

A la suite des résultats peu encourageants obtenus et de la conjoncture économique nationale sur le riz, les activités de la Société ont été orientées principalement depuis cinq ans vers l'extension des rizières.

5 - SO.DE.MO, Société de Développement économique de MORONDAVA, créée en 1972 après l'exécution du grand ouvrage hydro-agricole de DABARA chargé de promouvoir la production principalement du riz et du coton dans la région .

Ses activités sont analogues à celles des autres sociétés citées précédemment : extension, gestion de l'eau, vulgarisation des techniques améliorées, approvisionnements en intrants...

Ses résultats sont analogues : la SO.DE.MO rencontre actuellement des difficultés de fonctionnement.

....

b) Soit de la promotion, sur le plan national d'une production donnée. Ce sont

1 - OPERATION CAFE-POIVRE chargé d'accroître la production nationale en ces denrées par

- la création de nouvelles plantations paysannes ou modernes à partir de clones sélectionnés

- la vulgarisation de techniques améliorées de production et de transformation

- la réhabilitation des voies de dessertes.

Elle couvre le Nord-Est et toute la côte Est de Madagascar.

2 - OFMATA (Office Malgache du Tabac), un organisme chargé d'assurer pour le compte de l'Etat la tutelle et la promotion quantitative et qualitative de la production nationale du tabac.

Ses attributions consistent à

- encadrer les planteurs (conseils et intrants)

- délivrer ou retirer les permis de plantation

- monopoliser l'achat du tabac et l'approvisionnement des manufactures locales

- importer et exporter du tabac

- faire des recherches agronomiques sur le tabac.

Ses activités couvrent le territoire national.

3 - HASY.MA, Société de développement du coton. Elle a repris pour la production du coton et sur le plan national toutes les attributions de l'ancienne Compagnie Française pour le développement des Textiles (C.F.D.T.) qui comprennent

- l'encadrement des techniques des paysans

- l'approvisionnement en intrants (engrais, insecticides, semences...)

- l'exploitation en régie de fermes cotonnières

- les essais agronomiques sur le cotonnier.

...

iii) des institutions privées de développement

Ce sont des organismes non gouvernementaux (ONG) confessionnels qui ont réalisé un peu partout dans Madagascar

- soient des centres de Formation et de développement des paysans comme SA.FA.FI (église luthérienne), LEVALALA (église catholique)

- soient des projets de développement précis comme FIKRIFAMA (Christian rural development and water resources program)

- ...

Disposant de financements extérieurs et gérés de façon à s'autofinancer aux maximums, ces organismes ont davantage de moyens pour fonctionner et pour traiter leur personnel d'une manière relativement satisfaisante. Ils peuvent donc exiger de ce personnel d'être plus motivé et intéressé par l'opération de développement.

Les résultats qu'ils obtiennent sont nettement meilleurs que ceux des institutions publiques ou para-publiques

04 - Esquisse d'analyse

Nous pouvons remarquer dès cette présentation générale de l'agriculture à Madagascar :

a) que les actions pour l'extension des surfaces cultivées dans l'exploitation, contrairement à celles pour l'augmentation des rendements, sont pratiquement inexistantes. Il n'y a par exemple aucune action en faveur du développement de la traction animale.

b) que les institutions mises en places sont très nombreuses. Il arrive même, comme dans le cas de la région d'AMTSIRABE que six institutions interviennent auprès des mêmes paysans de la région (FIFAMANOR, ODR, SMPL, MALTO, ROMANOR, KOEAMA).

Pour être efficace, ces institutions doivent avoir des attributions et des responsabilités bien délimitées et précises pour ne pas se gêner mutuellement. Ce n'est pas toujours le cas.

c) qu'avant la libéralisation de 1985, les propriétaires de grandes exploitations agricoles privées

- ont vendu leurs exploitations à des sociétés para-publiques comme SOTEMA, COTONA (unités textiles)

- où les ont "offert" à des coopératives socialistes (MANANJARY)

- où ont mis en veilleuse leurs activités.

Après cette libéralisation, ces propriétaires reviennent petit à petit pour remettre en valeur leurs propriétés. Tel est le cas des plantations de caféiers que nous avons visité sur la Côte Est, il y a 3 mois (S.A.M.A, FOISSON...)

A - Secteur Privé

1 - L'agriculture de subsistance à Madagascar

Un malgache ne peut pas manger du riz pendant un an. Une exploitation qui fait de l'agriculture de subsistance peut être définie comme une exploitation qui fait du riz, en priorité pour son indispensable consommation, avant de vendre du riz ou d'autres produits pour ses besoins monétaires.

Une exploitation qui ne cultive pas le riz peut être considérée comme une exploitation qui ne fait plus de l'agriculture de subsistance :

Sur les 1.458.828 exploitations traditionnelles que compte Madagascar en 1985, 1.298.973 font de la riziculture (irriguée, tanety ou tavy)⁽¹⁾, c'est-à-dire, plus de 89% de ces exploitations font de l'agriculture de subsistance.

Ces dernières lient la survie de ces membres à l'importance de sa production. Elles sont particulièrement vulnérables

- aux appauvrissements progressifs de leurs sols notamment quand ceux-ci ne reçoivent pas de fertilisants

- aux événements climatiques désastreux (sécheresse, inondation...) qui peuvent amener la famine jusqu'à la campagne suivante.

En plus, leur production agricole peut ou ne peut pas couvrir à la fois l'autoconsommation et les besoins monétaires par les ventes des produits végétaux. Mais ces ventes sont obligatoires pour couvrir d'autres besoins, même, s'il faut acheter après pour satisfaire l'alimentation.

(1) - Source : Recensement National de l'Agriculture - MPARA-FAO, Avril 1988. Tome IV.

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Dans l'avenir, pour faire passer ce type d'agriculture à l'agriculture de marché, il faudrait à notre avis

- a) augmenter sa productivité du travail car faute de moyens techniques, elle n'utilise que partiellement les terres cultivables. Le taux d'utilisation des terres à Madagascar est très faible = 3% du territoire de l'Ile, soit environ 18.000 km² (1).
- b) rompre l'isolement des zones enclavées; l'absence de communications internes entraîne une charge de transport très élevée par unité de poids ou volume de produits.

+ +
+

11 - La petite ferme typique malgache

111 - Essai de typologie des exploitations traditionnelles agricoles

A notre avis, il n'y a pas un, mais plusieurs types de petites fermes ou exploitations traditionnelles à Madagascar.

Le tableau n° 1 ci-dessous, établi à partir des données du rapport MPARA-FAO sur le Recensement National sur l'Agriculture (Avril 1988) nous montre que dans les six provinces malgaches

- la taille moyenne des exploitations varie de 0,857 ha (TULEAR), à 1,481 ha (MAHAJANGA)
- la riziculture qui demande le plus de travail occupe en moyenne : 0,354 ha à TULEAR et 1,268 ha à MAHAJANGA (zone relativement mécanisée).
- les cultures permanentes (cultures riches et demandant moins de travail) sont les plus importantes à ANTSIRANANA (0,409 ha), à TOAMASINA (0,309) et les plus faibles à TANANARIVE (0,005 ha) et à TULEAR (0,008).

Toutefois, d'après les moyennes nationales données par ce tableau, nous pouvons avancer que la ferme agricole traditionnelle malgache exploitera en moyenne 1,14 ha de terres dont

Tableau n°1 : TYPOLOGIE DES EXPLOITATIONS TRADITIONNELLES EN 1985 (1)

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| Provinces | Nombre d'exploitations (NE) | SUPERFICIE DES CULTURES EN 1985 (1) EN HA | | | | Total | Moyenne | Taille moyenne des ménages agricoles |
|--------------|-----------------------------|---|-----------------------------|-----------------------------|----------------------------|-------|-------------------------------|--------------------------------------|
| | | Riziculture | Cultures (2) temporaires | Cultures (3) permanentes | Cultures (4) mixtes | | | |
| ANTANARIVE | A = 330.717 | $\frac{233.705}{A} = 0,676$ | $\frac{117.462}{A} = 0,355$ | $\frac{1.844}{A} = 0,005$ | $\frac{2.413}{A} = 0,007$ | 1,043 | $\frac{345.484}{A} = 1,044$ | 5,6 |
| FIANARANTSOA | B = 351.022 | $\frac{220.365}{B} = 0,627$ | $\frac{92.754}{B} = 0,264$ | $\frac{44.603}{B} = 0,127$ | $\frac{9.042}{B} = 0,025$ | 1,043 | $\frac{366.765}{B} = 1,044$ | 6,1 |
| TOMBIASINA | C = 247.615 | $\frac{216.244}{C} = 0,873$ | $\frac{37.515}{C} = 0,151$ | $\frac{76.628}{C} = 0,309$ | $\frac{11.394}{C} = 0,046$ | 1,379 | $\frac{247.662}{C} = 1,380$ | 5,2 |
| ANTANAJANGA | D = 166.933 | $\frac{211.791}{D} = 1,268$ | $\frac{22.814}{D} = 0,136$ | $\frac{6.794}{D} = 0,040$ | $\frac{6.263}{D} = 0,037$ | 1,481 | $\frac{247.662}{D} = 1,483$ | 5,2 |
| TULEAR | E = 236.565 | $\frac{83.922}{E} = 0,354$ | $\frac{113.512}{E} = 0,479$ | $\frac{2.089}{E} = 0,008$ | $\frac{3.903}{E} = 0,016$ | 0,857 | $\frac{203.426}{E} = 0,859$ | 5,1 |
| ANTSIKARAFIA | F = 125.971 | $\frac{111.608}{F} = 0,885$ | $\frac{4.008}{F} = 0,031$ | $\frac{51.644}{F} = 0,409$ | $\frac{3.786}{F} = 0,030$ | 1,355 | $\frac{171.046}{F} = 1,357$ | 5,0 |
| MADAGASCAR | T = 1.458.823 | $\frac{1.067.696}{T} = 0,731$ | $\frac{388.065}{T} = 0,266$ | $\frac{183.602}{T} = 0,125$ | $\frac{36.801}{T} = 0,025$ | 1,147 | $\frac{1.676.164}{T} = 1,148$ | 5,5 |

(1) Source : Caractéristiques générales du milieu rural M.P.A.R.A - F.A.O. Avril 1985

(2) Cultures temporaires : Manioc, maïs, arachide, coton, tabac...

(3) Cultures permanentes : Café, arbres fruitiers, vanillier, poivrier...

(4) Cultures mixtes : cultures permanentes (caféier, arbres fruitiers... à grande écartement) dont les interlignes sont plantées en cultures temporaires vivrières.

73 ares sont réservés à la riziculture

26 ares aux cultures temporaires vivrières ou de rentes suivant les régions

12,5 aux cultures permanentes de rentes

et 25 aux associations de cultures temporaires vivrières et cultures permanentes de rentes.

112 - Essai de classification et importance des exploitations agricoles malgaches suivant leur degré de pauvreté

La pauvreté est une notion relative et subjective. Pour l'évaluer, il faut disposer des critères quantifiables et concernant l'ensemble de la population agricole, fixer ensuite arbitrairement à un niveau donné la limite séparant deux classes voisines identifiées, avant d'évaluer l'importance relative de chaque classe par rapport à l'ensemble.

Les données existantes (ou calculables à partir de ces dernières) sur des critères de pauvreté comme : revenu annuel, calories alimentaires absorbées journalièrement, niveau de vie, qualité de la vie... ne sont pas suffisamment disponibles.

Aussi avons-nous établi la classification et l'évaluation suivante en fonction du niveau d'équipement de production des exploitations et de la durée de la pénurie alimentaire annuelle auprès de ces exploitations.

| Classe | Nombre des exploitations | Caractéristiques des exploitations | % |
|-----------|--------------------------|--|---------|
| I - Riche | 612 (1) | Exploitations modernes ayant - ou surface cultivée > 10 ha - ou 5 salariés permanents au moins - ou matériel d'équipement motorisé (tracteur, motoculteur...) - ou élevage avec au moins deux des conditions suivantes : . au moins 15 bovins ou 20 porcs . présence d'étable ou porcherie . présence de prairie temporaires . salariés permanents | 0,0004% |
| | | .../... | |

| | | | |
|-------------------|------------------|---|--------|
| II - Moins pauvre | 309.273 (2) | Possédant une charrue et, par conséquent au moins une paire de zébus. (On estime 1 charrue par exploitation). | 21,20% |
| | 5.835 (1) | Elevage pur (économie de marché) | 0,4% |
| III - pauvre | 1.020.562 (3) | Sans équipement de production (charrue) autre que l'angady (hêche) la coupe-coupe... Peut posséder du bétail mais non exploité pour le travail ou la viande : uniquement une thésaurisation | 70% |
| IV - Très pauvre | 122.341 (4) | Cette classe a été retranchée de la précédente car elle souffre d'une pénurie aiguë alimentaire pendant 9 à 12 mois par an. | 8,4% |
| Total | 1.450.829 | Ensemble des exploitations agricoles à Madagascar | 100% |

Source (2) : U.P.A.R.A.-F.A.O - Recensement National de l'Agriculture. Tome V (Cheptel et Équipement) - Avril 1988.

(3) : Effectif total - (Riches + Moins pauvres + très pauvres)

(4) : UNICEF-OSPID - Ciblage de la population la plus démunie à Madagascar. Mars 1988.

Cette classification, qui n'est pas parfaite, permet au moins d'avoir une idée chiffrable et que nous espérons utilisable, sur l'état de pauvreté des paysans malgaches.

a) La classe riche I est très faible numériquement (612) et ne représente qu'une infime partie de la population agricole (0,0004%)

b) La classe moins pauvre II comprend

- les exploitations qui ont une charrue et par conséquent au moins une paire de zébus pour la trainer. Cette classe a amélioré la productivité de son travail et peut espérer un surplus de production commercialisable. Dans le cas où elle manque de terres, elle loue ses services. Elles représentent 21,20% de l'ensemble

- les exploitations qui font de l'élevage pur. Elles sont plus aisées car elles ont dépassé le stade d'exploitation de subsistance et sont entrées dans l'économie de marché. Elles représentent une exploitation sur 250 (1) soit : 0,4%.

On pourrait ajouter à cette classe II

- les exploitations de cultures permanentes (caféier...) qui n'utilisent pas de charrues mais qui dépassent une certaine superficie nécessitant moins de 5 salariés permanents

- les grands élevages extensifs de l'Ouest et du Sud

mais leur nombre, relativement faible par rapport à l'ensemble, n'est pas connu.

c) La classe pauvre III (70%) dont la faiblesse de la productivité du travail ne permet pas d'espérer un surplus de production suffisant pour se développer. En cas d'événements désastreux (aléas climatiques, problèmes de santé ou obligations sociales incontournables...) elle vend son patrimoine (les animaux d'abord, puis les terres...) et rejoint la classe très pauvre.

d) La classe très pauvre (8,4%). Comme la précédente, la productivité de son travail est faible, mais en plus elle a été identifiée par l'UNICEF-OSPID comme souffrant d'une pénurie aiguë d'approvisionnement en nourriture pendant 9 à 12 mois par an.

113 - Analyse et perspective

A - Avant la libéralisation : deux périodes sont à considérer

a) une première, où, pour maintenir le prix aux consommateurs très bas, on subventionnait ce prix. Beaucoup de riziculteurs préféraient effectuer une autre activité plus rémunératrice (café, girofle, briqueterie, arbre fruitier...) et acheter du riz en dessous de son prix de revient. On a assisté une augmentation rapide des importations en cette denrée.

b) une seconde période où on a arrêté la subvention du riz aux consommateurs, mais le prix aux producteurs restait bas. Il en résultait que les riziculteurs ne produisaient que pour leur propre consommation. Seuls : les paysans du lac Alaotra et de MAROVOAY produisaient un surplus qu'ils étaient obligés de vendre à SOMALAC et FIFABE. Ce surplus n'était pas suffisant pour approvisionner les villes et les importations continuaient.

(1) - Source : F.N.A. 1985.

Après la libéralisation

En 1986, la libéralisation totale du commerce du riz a entraîné une nette augmentation du prix aux producteurs et aux consommateurs aussi. Le résultat tangible était que l'importation du riz, 350.000 t en 1986 tombait à moins 100.000 tonnes en 1987.

C - Comportement des 4 classes de paysans identifiés

La classe I (0,0004%) moderne avait la faculté et la possibilité de s'adapter aux situations conjoncturelles (changement de spéculations...) et ne souffrait pas trop de la crise économique.

La classe II (21,6%) moins pauvres, formée de paysans réceptifs aux diverses innovations technologiques... n'utilisant pas de matériels importés, pouvant cultiver une surface plus grande que ceux de la classe III, pouvait s'autosuffire alimentaires et même produire un surplus qui pouvait leur profiter (prix libre aux producteurs) ou pas (monopole de collecte d'un organisme). Leur niveau de vie pouvait alors augmenter ou stagner suivant le cas.

La classe III (70%) pauvres, c'est la classe la plus touchée par le système. Elle est courageuse, travaille beaucoup mais produit peu. Obligée de vendre au moment de la récolte pour satisfaire des besoins incompressibles (vêtements, devoirs sociaux...) elle achète plus cher au moment de la soudure. Elle s'endette alors de plus en plus. Elle vend son patrimoine pour rembourser ou pour faire face à un accident imprévu (météo). Quand elle ne possède plus grand-chose, elle vient grossir le rang de la classe IV en dessous.

La classe IV (8,4%) très pauvres. Elle est caractérisée par le fait qu'elle souffre pratiquement toute l'année (et non seulement en période de soudure) d'une pénurie alimentaire (pendant 9 à 12 mois). Elle provient de la classe précédente qui a été obligée de vendre son patrimoine (bétail, puis terre...) pour rembourser des dettes dues à l'inflation, l'insuffisance de la production, à des événements familiaux imprévus ou météorologiques. Elle commence par se louer comme main-d'oeuvre sur place puis finit par quitter le monde rural pour grossir les "quat'mi" en ville.

"quat'mi" = mendiants de TANANARIVE.

12 - Grandes lignes d'un revenu familial rural typique

L'essentiel des revenus des familles rurales provient de leurs activités agricoles.

La ferme typique nationale décrit au § 111 produit et gagne en moyenne :

Tableau n° 2 : ESTIMATION DES REVENUS AGRICOLES D'UNE FERME MALGACHE TYPIQUE.

| Cultures | Superficie en ha | Rendement ⁽¹⁾ en kg/ha | Production en kg | Prix unitaire en FMG (1) | Prix total en FMG |
|-------------------------------|------------------|-----------------------------------|------------------|--------------------------|-------------------|
| Riz | 0,73 | 1.880 | 1.372,4 | 200 | 274.480 |
| Cultures temporaires (manioc) | 0,26 | 6.090 | 1.583 | 110 | 174.174 |
| Cultures permanentes (café) | 0,125 | 333 | 41,6 | 884 | 36.871 |
| Cultures mixtes (café, maïs) | 0,125 } 0,250 | 333 | 41,6 | 884 | |
| | 0,125 { | 1.030 | 128,75 | 182 | 60.103 |
| Revenu moyen total | | | | | 545.428 |

(1) - Source : PRICE WATER HOUSE. Situation sur l'utilisation des engrais à Madagascar (Juin 1989).

Remarques

1 - La taille moyenne d'une ferme familiale est de 5,5 individus.

2 - Le café et le manioc ont été choisis comme représentatifs des cultures permanentes et temporaires : ils ont les superficies les plus grandes par rapport aux autres.

3 - Le maïs est la plante qui entre le plus dans les cultures mixtes.

4 - Les revenus tirés de l'élevage familial (volailles principalement...) n'ont pas été pris en compte dans ce calcul.

13 - Les problèmes de la production agricole

Les obstacles à la production qu'on cite habituellement concerne

131 - Les intrants

D'une façon générale tous les paysans protestent contre les prix élevés des engrais, des pesticides, et des matériels agricoles. Mais pratiquement, aucun d'eux n'établit la relation entre le fait que ces prix d'intrants leur paraissent chers parce que leurs revenus c'est-à-dire les prix des produits agricoles, sont faibles. Ils ne réclament que très rarement l'augmentation de ces derniers.

Il existe un problème spécifique des engrais : leur non disponibilité au moment voulu et partout.

132 - Le crédit agricole

Les paysans d'une façon générale aussi, trouvent qu'il est très difficile d'obtenir des crédits auprès de la Banque de Développement Rural (B.T.R.). Cette dernière est pourtant chargée de financer :

- tous les facteurs saisonniers de la production,
- tous les investissements qui contribuent à augmenter la production agricole,
- la commercialisation, la transformation, le conditionnement et l'exportation des produits agricoles.

Elle fonctionne de la façon suivante :

1 - Ressources :

- locales : dépôts à vue ou à termes, fonds affectés de l'Etat
- extérieurs :- bailleurs de fonds (BIRD, EAD, FAD...)
 - crédit revolving (non remboursable car destiné à des opérations de développement agricole).

2 - Nature des prêts

- crédit à court terme \leq 24 mois
- crédit à moyen terme \leq 60 mois
- crédit à long terme $>$ 60 mois

3 - Objets des prêts

a) Dépenses de fonctionnement

- achat d'intrants
- frais de personnel
- prestation de service (labour, traitement à façon...)

b) Dépenses d'investissements

- aménagement foncier
- irrigation
- achat de matériels
- installation de bâtiment
- achat de cheptel
- ...

4 - Les opérations

- . La E.T.M classe ses opérations en
 - petites exploitations $<$ 5 ha
 - grandes exploitations $>$ 5 ha

. Il existe un protocole sur les conditions d'octroi, de mise en place, de contrôle de recouvrement des crédits,

- au niveau national élaboré à partir de la planification nationale
- au niveau des fivondronana et firaisana pour les encadrements techniques.

5 - Les formules de prêts : Il y en a 2

1°) Le FMP (Financement du monde rural) = formule individuelle qui associe le fokontany à toutes les phases de la procédure (1977).

2°) Le FMP-ODRI (Opération de développement rural intégré) (1980) concerne un exploitant appartenant à un fokontany préalablement enquêté. Il reçoit et rembourse le prêt par l'intermédiaire d'un organisme d'encadrement, sous distributaire.

6 - Les problèmes

Avec FMR, taux élevés d'impayés car au niveau des fokontany,

Il y a -

- des illettrés
- des détournements
- des certificats de complaisance aux familles et amis des responsables des collectivités (fokontany).

Avec FMR, il n'y a plus ces inconvénients mais il y a eu diminution des nombres de bénéficiaires et la procédure s'effectue très lentement.

En plus, la T.U.T (taxe unique de transaction de 15%) et la rémunération de gestion de l'organisme distributeur (1,5%) alourdissent les taux d'intérêts en vigueur qui deviennent prohibitifs et découragent les paysans.

7 - Perspectives

Il faudrait chercher à simplifier les procédures qui semblent être établies actuellement pour décourager les solliciteurs de prêts éventuels.

L'allocation de crédits aux moyens de productions : intrants et matériels, doit être plus élargie, pour permettre une bonne reprise de la production.

La suppression de la T.U.T. sur les emprunts peut constituer un catalyseur pour une disponibilité financière plus large.

133 - Les terres

Les terres, en particulier les rizières par le biais de l'héritage se trouvent très morcellées (10 à 15 ares par parcelle). Une famille peut disposer 4 à 5 parcelles de rizières et exploite 60 - 70 ares.

Les rizières revêtent un caractère sentimental particulier pour les malgaches qui tiennent à ce qu'elles ne soient pas vendues à une autre famille. Aussi, elles se trouvent très morcellées.

Tous les terrains peuvent être classés en :

- . terrains immatriculés ou bornés
- . terrains cadastrés ou
- . terrains non immatriculés ni cadastrés appartenant

à l'Etat.

Pour acquiescer et être propriétaire d'un terrain de l'Etat, il faut satisfaire certaines règles notamment :

- examen du dossier par un comité ad hoc formé de sept membres
- paiement d'une fraction de la valeur du terrain
- mise en valeur effective, dûment constatée dans les 4 ans qui suivent.

Toutefois un terrain de l'Etat mis en valeur pendant 10 ans peut être délivré gratuitement à celui qui a assuré cette mise en valeur.

Dans la pratique cependant, cette procédure est difficile. Il arrive que 15 ans après introduction du dossier, et le paiement d'une partie de la valeur du terrain, aucune suite n'a été encore donnée à la demande.

Régime d'exploitation

"Tout propriétaire est tenu de mettre en exploitation, d'entretenir et d'utiliser les terres qu'il possède". (Art. 1 de l'ordonnance 74.021).

Tout terrain non exploité supérieur à 10 ares en milieu urbain et 5ha en milieu rural est susceptible d'être repris par l'Etat (toujours d'après cet article).

Le métayage est en principe interdit sur le territoire de la R.D.M., mais les statistiques indiquent :

Tableau n° 3 : DISTRIBUTION DES SUPERFICIES SUIVANT LE MODE DE FAIRE VALOIR A MADAGASCAR.

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!   Direct   !   Métayage   !   Autres   !   Total   !
!-----!-----!-----!-----!
!   87 %   !     5 %     !     8 %     !   100 %   !
!-----!-----!-----!-----!
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Sources : MPARA-FAO. Recensement National Agricole. Tome II - Avril 1988.

735

Le métayage existe donc encore (5%) spécialement dans le Paritany de TANANARIVE et d'ANTSIFANANA. Les métayers sont, soit des migrants, soit des petits paysans pauvres, soit ceux qui ont vendu leurs rizières.

Les paysans se plaignent souvent d'une insuffisance de terres. En réalité, dans leur esprit, ils confondent terres et rizières. Il manque en effet de rizières irriguées mais non pas de tanety. Ces dernières, quand ils appartiennent à l'Etat, peuvent être cultivés sans trop de difficultés.

184 - Le travail

Le principal problème de la majorité des exploitations traditionnelles agricoles à Madagascar est la faiblesse de la productivité de leur travail. Le paysan travaille beaucoup mais produit très peu avec son instrument "l'angady". Aucun programme d'action sérieuse n'a été faite jusqu'à maintenant pour résoudre ce problème.

Sur ce sujet, les vols des boeufs ont produit un effet heureux et inattendu : le doublement du cheptel de trait en dix ans. Les paysans refusent de vendre leurs boeufs au prix très bas pratiqué par les voleurs, et les gardent le plus longtemps possible comme animaux de trait.

185 - Les marchés et la commercialisation

- Les paysans transportent leurs produits agricoles à vendre au marché sur la tête ou les épaules, sur 3 km (moyenne). Cela en limite la quantité à 10 - 50 kg.

- L'utilisation des charrettes 300 kg - 500 kg est efficace, sur de longue distance : il n'y a pas de problème de carburant.

Les produits frais périssables sont à commercialiser le plus rapidement possible. Les paysans essaient d'attendre la période de soudure pour vendre ceux qui ne sont pas périssables : maïs, arachide coque...

De toute façon, la commercialisation est fortement handicapée par

- le manque de moyens de transport et le mauvais état de l'infrastructure routière

- la baisse ou au mieux la non augmentation des prix des produits agricoles aux producteurs, alors que l'inflation est galopante pour les autres biens de consommations.

136 - Vulgarisation et transfert de technologie

L'exploitation familiale traditionnelle malgache est la cible de nombreuses institutions (Cf. § 03) pour la vulgarisation de "nouvelles technologies améliorées".

Ces actions comportent en général les phases suivantes

- conscientisation des paysans des causes de leur situation
- recrutement de paysans volontaires
- formation avec des thèmes techniques de production dits améliorés
- suivi et évaluation des réalisations.

Les résultats sont décevants car les thèmes vulgarisés n'intéressent pas les paysans : ces thèmes sont en général trop pénibles à réaliser, ou peu rémunérateurs.

14 - Effets de la libéralisation de la commercialisation et du prix

141 - Effets actuels

Les principaux méfaits de la période des monopoles commencent à s'estomper à savoir

- a) Le paysan peut vendre sa production où il veut sans être obligé de se soumettre aux contrôles (payants) des nombreuses "barrières économiques" qui ont été installées le long des axes routiers de Madagascar pendant la période des monopoles.
- b) Les collecteurs, par le jeu de la concurrence, vont chercher les produits, même auprès des paysans éloignés des voies de communication. Tout au moins, ils attendent (nuit et jour) aux endroits où leurs camions peuvent au maximum parvenir.
- c) Les paysans n'ont pas de problèmes pour toucher au comptant le prix de leurs récoltes. La S.I.N.P.A. l'entreprise qui détenait le monopole, avait souvent des problèmes de trésorerie et ses camions étaient parfois en panne.
- d) Les paysans qui ont su garder leur riz jusqu'à la période de soudure actuelle le vendent à un prix fort intéressant.

e) Sur le plan quotidien, ils n'ont plus de problèmes d'approvisionnement en huile, en riz, savon, médicaments, ciment, ..., produits qu'ils achetaient au prix fort auparavant sur le marché parallèle car il y avait pénuries.

f) la sécurité alimentaire est meilleure car il n'y a pas pénurie de ces denrées alimentaires ci-dessus sur le marché. Seuls les salariés et les paysans producteurs de riz souffrent de la libéralisation car leurs salaires et le prix du riz (stock tampon) sont bloqués. Les autres producteurs et tous les commerçants profitent de la libéralisation : l'inflation affecte tous les produits et la proportion des marges bénéficiaires des commerçants est constante.

142 - Effets éventuels futurs

Il n'y a pas de raisons de croire que ces bienfaits de la libéralisation constatés actuellement ne vont pas se poursuivre et même s'accentuer malgré les sursauts des nostalgiques de la période monopolistique (campagne de presse contre la libéralisation, incitation à une libéralisation et privatisation à outrance..)

Toutefois, notons que :

1°) La persistance du système de stock-tampon fausse le jeu de la libre concurrence et favorise les consommateurs non producteurs de riz alors que tous les moyens de production (sauf les engrais) et services sont payés par les producteurs aux prix réels.

2°) Actuellement, par une utilisation subtile des dons en engrais, le M.P.A.R.A. arrive à maintenir le prix des engrais aux paysans autour de 350 FMC/kg au lieu de 500 FMC, prix réel. Le jour où ce système, qui n'est pas soutenable, s'écroulera, aucun paysans ne pourra plus utiliser l'engrais, à moins que le stock-tampon ne soit aussi supprimé.

3°) Il y aura deux groupes antagonistes : les collecteurs et les producteurs.

Le problème est le suivant : les collecteurs sont des professionnels instruits qui peuvent s'organiser pour fixer le prix, ou pire, pour se partager les zones d'action, d'influence. A ce moment, il y aura un rétablissement des monopoles aux dépens des producteurs. Il faut trouver des solutions pour éviter cela.

2 - ANALYSE DE LA PRODUCTION DU RIZ

20 - GENERALITES

Le riz constitue la principale source de calories pour la majeure partie de la population.

D'après F.A.O (MILADI.9) "Rapport d'expertise - Conseil en nutrition" Madagascar 1981,

les origines des calories de la ration alimentaire malgache, pour un adulte de 60 kg à activité modérée serait de

| ! Sources ! | ! Riz ! | ! Tuberoule ! | ! Viande ! | ! Sucre ! | ! Maïs ! | ! Autres ! |
|-------------|----------|---------------|------------|-----------|----------|------------|
| ! % ! | ! 57,9 ! | ! 14,2 ! | ! 5,2 ! | ! 4,8 ! | ! 4,5 ! | ! 13,4 ! |

Il n'est pas étonnant que la majorité des familles paysannes malgaches essaient de produire du riz pour leur ration journalière et que la structure de production de cette céréale repose principalement sur ces exploitations traditionnelles.

Malheureusement, depuis 1972, l'interférence d'un certain nombre de facteurs négatifs que nous étudierons ci-dessous ont abouti à la situation critique actuelle concernant la production en riz.

21 - STRUCTURE DE LA PRODUCTION RIZICOLE A MADAGASCAR

Le riz est cultivé à Madagascar

- en rizières de submersion
 - . en première saison (récolte en décembre-janvier)
 - . en deuxième saison (récolte en avril-mai)
- sur "tanety" : en culture sèche, alimentée en eau par la pluie
- sous forme de "tavy" c'est-à-dire culture sur brûlis.

Les rizières de submersion peuvent être semées directement ou repiquées. Ce dernier mode de culture, qui nécessite des pépinières permet généralement d'obtenir un rendement plus élevé.

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TABEAU n°4 : SUPERFICIES RIZICOLES DEVELOPPEES SELON LES TYPES
DE RIZICULTURE.

| | Nombre d' exploita- tion | Rizières en ha | | Tanety ha | Favy ha | Pépinières ha | Total ha |
|-------------------------|--------------------------------|----------------|-----------|--------------|------------|------------------|-------------|
| | | 1ère saison | 2è saison | | | | |
| Secteur traditionnel | 1.298.973 | 156.157 | 683.125 | 81.509 | 106.853 | 40.053 | 1.067.696 |
| % | 99,97 | 98,40 | 98,75 | 98,40 | 99,95 | 100 | 98,81 |
| Tous secteurs | 1.299.411 | 158.841 | 691.809 | 82.834 | 106.915 | 40.053 | 1.080.452 |
| Secteur moderne | 438 | 2.684 | 8.684 | 1.325 | 62 | 0 | 12.756 |
| % | 0,03 | 1,6 | 1,25 | 1,60 | 0,05 | 0 | 1,19 |

Sources : Recensement National de l'Agriculture. F.A.O.-M.P.A.R.A.
Avril 1988 - Tome IV.

D'après ce tableau, nous pouvons conclure que

1°) Le secteur moderne, formé d'exploitations de superficie supérieure à 10 ha, ou ayant plus de 5 ouvriers permanents ou possédant un équipement moderne de pointe (motorisation), ne représente que 1,19% seulement de la totalité des superficies cultivée en riz.

Ces exploitations, qui n'utilisent pas de pépinières (facteur d'augmentation du rendement) ne doivent pas obtenir un rendement particulièrement différent de la moyenne nationale. Aussi leur participation à la production nationale sera aussi de cet ordre de 1,19%.

2°) Le secteur traditionnel formé de petits producteurs, participe pour plus de 98% à la production nationale en riz en cultivant 98,81% des surfaces rizicultivées.

Toute action qui cherche à augmenter la production en riz de ces 1.298.973 petites exploitations traditionnelles, même d'une façon modeste, se repercutera certainement sur la production nationale

22 - LES FACTEURS DE PRODUCTION DU RIZ A MADAGASCAR

On peut les classer en facteurs défavorables, et en facteurs favorables.

221 - Les obstacles à l'accroissement de la production (défavorable)

Nous pouvons distinguer :

2211 - Des facteurs socio-culturels

a) La Démographie

Elle serait galopante à Madagascar. A notre avis, le taux d'accroissement de la population est resté sensiblement constant, toujours entre 2,8 et 3%. C'est le taux d'accroissement de la production, notamment en riz, qui a regressé.

Il faut noter en outre que les jeunes ont une aversion du monde rural : le travail y est trop pénible et les rémunérations faibles. Seuls les vieux se résignent à y rester, d'où une médiocrité de la qualité des travaux et une diminution de la production.

b) Les traditions

Pendant l'intercampagne, (saison sèche sur les Hauts-plateaux et l'Ouest), beaucoup de familles se livrent à des dépenses culturelles obligatoires (retournement des morts, mariages...)

et se trouvent dans l'impossibilité d'assurer le financement des travaux agricoles au début de la saison des pluies.

Les coutumes d'héritage, où chacun des descendants voudrait, sentimentalement, garder un morceau de la "terre des ancêtres" (tanindrazana) entraînent un morcellement excessif des parcelles, peu favorable à la mécanisation, même animale, des travaux.

c) *L'atmosphère politique*

A la suite de l'ordonnance 74-021, qui est toujours en vigueur et qui stipule que "tout propriétaire est tenu de mettre en exploitation les terres qu'il possède..." et de l'extension de la pensée selon laquelle "les terres appartiennent à ceux qui les travaillent"... beaucoup de propriétaires se sont mis à transformer leurs rizières en briqueteries ou en étangs pour pisciculture, ou bien à exploiter eux-mêmes leurs rizières. Ils se sont contentés "d'avoir exploité" leurs biens sans trop se soucier du rendement,

Cette situation a eu des repercussions défavorables sur la production du riz.

2242 - Des facteurs techniques

A) *Technicité rudimentaire et pénible.*

L'angady (une sorte de bêche) est à notre avis le premier facteur limitant, non seulement la riziculture, mais l'agriculture malgache.

Quel que soit sa volonté de produire, le paysan ne peut pas travailler plus d'un ha avec cet instrument. Il faut 50 jours pour labourer un ha et la période favorable au semis ou à la plantation (début de saison des pluies) est inférieure à ces 50 jours.

Malgré le nombre appréciable de zébus, l'énergie animale est très peu utilisée. La grande majorité des paysans malgaches emploie l'angady pour tous leurs travaux :

B) *Approvisionnement difficile en intrants.*

a) Les engrais

En milieu paysannal traditionnel, presque la totalité des engrais distribués est utilisée par la riziculture.

Or ces engrais ne sont pas toujours distribués

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ni à temps
ni dans les zones difficiles d'accès.

b) Les semences

Il y existe bien quelques centres semenciers rizicoles à Madagascar mais leur production en semences sélectionnées ne couvrent pas le 1/100 des besoins totaux. En effet, le prix non incitatif pour les producteurs, l'infrastructure et les équipements vétustes de ces centres ont bloqué la production de semences.

Les paysans se sont contentés de semer des variétés locales rustiques, qui continuent à produire sans apport d'engrais, mais qui ne permettent pas d'espérer des rendements exceptionnels.

c) Les pesticides

Les difficultés en balance de paiement du pays ont fait décroître l'utilisation de ces intrants. Avec la libéralisation en cours, les problèmes de leur disponibilité semblent s'améliorer depuis deux ou trois ans environ, mais leurs prix (toujours par rapport aux produits agricoles) seraient toujours trop élevés pour les paysans producteurs.

C) Inefficacité des structures institutionnelles.

La recherche agronomique, la vulgarisation agricole et les autres services techniques (entretien des réseaux hydrauliques, approvisionnements...) sont sous la responsabilité de fonctionnaires dont les salaires n'ont augmenté que de 50% environ après une dévaluation du FMG de 500% depuis 5 ans. Ils ne sont pas motivés pour leur travail, et doivent se livrer à d'autres activités (corruptions, détournements, commerces divers...) pour survivre.

Cette remarque est valable d'une façon générale dans tous les domaines.

En plus d'un manque de motivation des responsables, il y a aussi

- l'insuffisance chronique de tous les budgets pour l'entretien et l'équipement

- la lourdeur de la gestion administrative qui impose un contrôle à priori, de toutes les opérations de dépenses.

A - Utilisation d'engrais peu rentable.

Le prix des engrais, par rapport au prix du riz est trop élevé pour le paysan.

Les Value-Cost Ratio des engrais préconisés pour le riz sont les suivants depuis ces 5 dernières années.

Tableau n° 5 : Value Cost Ratio du Riz/Engrais.

| 1984 | 1985 | 1986 | 1987 | 1988 |
|------|------|------|------|------|
| 2,14 | 2,03 | 3,48 | 2,78 | 2,17 |

Source : Etude sur la "Situation sur l'utilisation des engrais à Madagascar". Rapport de PRICE WATER HOUSE, Nairobi. Juin 1988 pour l'USAID.

Le V.C.R. dépasse à peine la valeur 2 admise comme minimum acceptable, et ne peut être obtenu qu'en respectant diverses conditions techniques et sans qu'il y ait des aléas climatiques.

B - Faible importance des surfaces cultivées

La faiblesse des surfaces cultivées au niveau de chaque exploitation (1,14 ha en moyenne pour Madagascar⁽¹⁾) provient de l'utilisation de l'angady pour 78% des ménages⁽¹⁾.

Or, les aménagements de grandes unités de productions rizicoles privées ne sont pas envisagés, probablement à cause de la faible rentabilité de la spéculation : production de riz

C - l'inefficacité de l'infrastructure de transport et du système de commercialisation.

L'absence ou la mauvaise état des routes, (la carence en pièces détachées des véhicules) fait que les collecteurs étatiques ou privés ne se déplaçaient pas pour collecter. Aussi dans les régions enclavées les producteurs sont obligés de "brader" leurs surplus de production éventuels.

(1) - Source : Recensement National Agricole M.P.A.R.A.-F.A.O. Juin 1988.

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Cela les décourage et les amène à ne produire que pour leur auto-consommation.

D - Moyens financiers insuffisants

Les crédits pour produire sont nécessaires mais nous avons vu § 132 qu'ils sont difficiles à obtenir.

Les banques sont méfiantes et les exploitations ne dégagent pas suffisamment de surplus monétaire pour les comptes d'exploitation et d'aménagement fonciers, seules sources d'augmentation de leur production.

E - Culture rizicole peu rentable par rapport aux autres cultures

La rémunération journalière du travail en exploitation traditionnelle est de :

. Pour le riz : 1.400 FMS (Rapport PRICE WATER HOUSE précité)

. Pour le café : $\frac{831 \text{ FMS} \times 366 \text{ kg/ha}}{30 \text{ jours/ha}} \approx 9.800 \text{ FMS}$
d'après nos calculs.

D'autres spéculations : girofle, cacao, canne à sucre, arbres fruitiers, pomme de terre, vignes... sont plus rentables que le riz et offre une rémunération journalière du travail (return on labour) plusieurs fois supérieure à celle du riz.

222 - Les facteurs favorables à la production du riz

Tous les facteurs susceptibles d'éliminer ou d'atténuer les effets des facteurs socio-culturels, techniques, économiques défavorables identifiés au § 21 ci-dessus accroîtront certainement la production rizicole malgache. Soulignons principalement :

1°) le facteur technique concernant l'"angady" : l'utilisation de l'énergie animale soulagera physiquement le paysan, accroîtra ses possibilités pour cultiver en riz les collines (si les bas-fonds manquent), ou pour faire une double riziculture par an sur ses rizières.

2°) le relèvement de la rémunération journalière du travail rizicole (Return on labour) par rapport aux autres activités agricoles ou non agricoles.

Tant que cette rémunération pour le riz est trop faible, les paysans cultiveront du riz pour leur autoconsommation, et feront d'autres spéculations pour avoir des revenus monétaires.

3°) *la libéralisation de la commercialisation du riz.*

Avant 1973, le commerçant-collecteur de brousse a été le "banquier" du paysan. Il consent à ce dernier des prêts en nature ou en argent remboursables à la récolte. Avec ses taux d'intérêt usuraires, il exploitait le paysan, mais il rendait service à ce dernier qui recevait de l'argent liquide au moment où il en avait réellement besoin, et il était sûr de pouvoir vendre ses produits à la récolte.

Après 1972, la Société d'Interêt Nationale des Produits Agricoles (S.I.N.P.A.), se réservait, ou le déléguait à un organisme de développement (SOMALAC, FIFABE) le monopole d'achat et de collecte du riz. Les agents de ces organismes, mal payés, ne continuaient pas moins à spolier les paysans sur les prix et sur les poids des denrées collectées, mais en plus, la SINPA avait des problèmes pour le paiement immédiat des produits et pour aller collecter dans les zones difficiles d'accès. Ce système a énormément découragé les producteurs.

Depuis la libéralisation complète du prix et de la commercialisation du riz en 1985 on revient au système d'avant 1973. Nous pensons que les paysans qui étaient producteurs de surplus en riz pour l'exportation vont de nouveau en produire ; les inconvénients de la SINPA ont disparu. Toutefois, les paysans trouveront en face d'eux des collecteurs plus instruits, capables de s'organiser à leurs dépens. Il faut réfléchir et trouver des solutions pour rétablir l'équilibre et faire jouer la libre concurrence chez des partenaires ayant des moyens analogues.

4°) *la libéralisation de l'importation et du commerce des engrais et des pesticides.*

Nous assistons actuellement à une multiplication des entreprises privées qui travaillent dans ce domaine : COFOI, HOECHST, ECOPLANT, PROCHIMAD... qui se livrent une concurrence sans merci

pour distribuer leurs produits aux paysans, aux grands avantages de ces derniers... Si le pouvoir d'achat de ceux-ci augmente par le biais d'un ajustement automatique du prix du riz aux producteurs, nous sommes persuadés que le zèle déployé actuellement par les agents vendeurs-vulgarisateurs de ces distributeurs d'intrants se repercutera sur la production nationale en riz.

5°) *L'inefficacité des institutions.*

Le désengagement de l'Etat (sauf dans la recherche agronomique) observé actuellement dans bien de secteurs fait que l'inefficacité des fonctionnaires peu motivés et mal payés se fera sentir de moins en moins dans la production rizicole. Leurs efforts (astucés, combinés...,) pour survivre se porteront moins sur les paysans producteurs.

6°) *Les atouts naturels de Madagascar.*

Madagascar possède des atouts naturels en faveur de la production, qu'il faudrait utiliser davantage.

a) Facteurs géographiques :

Sur la Côte Ouest, il faut souvent un système irrigué pour produire du riz et dans ce cas la double riziculture est possible.

Sur les Hauts-Plateaux où le froid et la sécheresse sont les facteurs limitant, on fait partout du riz.

Sur la partie Est où les facteurs eau et température sont favorables toute l'année, la production du riz est faible. Cette partie de Madagascar a des potentialités énormes de production de riz, avec une double riziculture par an sans de lourds investissements d'irrigation comme sur la partie Ouest. Il faudrait exploiter au maximum ces potentialités.

b) Facteurs sols

Si les vallées et bas-fonds autour des grandes et moyennes agglomérations sur les Hauts-Plateaux, sont entièrement exploités en riziculture, il y en a encore suffisamment ailleurs, notamment sur la Côte Est.

En outre, le riz peut être cultivé sur les "tanety" (collines) dans beaucoup de régions à Madagascar.

c) Facteurs sociologiques

Le mythe du riz (d'après lequel il faut s'occuper du riz avant tout) existe dans tout Madagascar, particulièrement sur les Hauts-Plateaux. Il suffit pour s'en rendre compte de constater ces flancs de collines transformés manuellement en rizières.

Il ne faut pas exploiter ce "mythe du riz" et en profiter pour payer moins cher le travail des riziculteurs. Il faut au contraire récompenser ceux-ci par une rémunération juste : on assistera à un surplus de production en riz exportable comme avant 1970.

228 - Perspectives pour une autosuffisance en riz stable soutenue

Actuellement, les possibilités financières de la masse paysannale sont trop faibles pour dégager un surplus destiné à financer directement des aménagements fonciers importants ou des formations et encadrements des paysans eux-mêmes. Il en sera peut être ainsi plus tard, mais pour le moment, l'Etat devrait se charger avec ses propres fonds ou des fonds extérieurs, de l'extension des surfaces rizicultivées et de l'augmentation des rendements.

231 - Extension des surfaces des rizières

Elle doit être en augmentation continue ou tout au moins ne pas stagner ou regresser.

Les investissements nécessaires porteront sur :

a) l'aménagement de nouveaux périmètres rizicoles irrigués : les terres qui conviennent à cet objectif existent

b) la réhabilitation de ceux qui ont été délaissés mais qui peuvent de nouveau devenir viables avec l'ajustement structurel en cours.

c) l'équipement minimum des paysans (traction animale) pour leur donner la possibilité physique

soit de cultiver (labourer) deux fois leurs rizières pendant l'année (double riziculture),

soit d'étendre leur culture du riz (ou autres) sur les "tanety" en respectant les exigences du calendrier cultural (riz pluvial).

Les 300.000 ha de rizières des Hauts-Plateaux peuvent être cultivées deux fois dans l'année avec du riz ou des cultures de contre saison, mais il faut obligatoirement

- alléger les travaux du sol et de sarclage en utilisant l'énergie animale.

- restituer les éléments minéraux exportés, avec des engrais.

2282 - Formation-Vulgarisation

La majorité des paysans malgaches ont encore un niveau d'instruction faible. La solution à moyen terme serait d'introduire les bases des techniques agricoles dans toutes les écoles primaires. En attendant, il faut continuer les actions de formation-vulgarisation qui n'ont pourtant donné jusqu'à maintenant que des résultats décevants. Les deux causes principales en sont à notre avis:

1°) Les thèmes vulgarisés n'intéressent pas les paysans. Les actions préconisées sont trop pénibles, trop dégoûtantes à réaliser ou ne rapportent pas suffisamment de revenus.

Les Rapports $\frac{\text{Plus-value}}{\text{Peine dépensée} + \text{Investissement}}$ de pratiquement tous les thèmes vulgarisés jusqu'à maintenant ont été dérisoires.

2°) Les vulgarisateurs ne sont pas motivés par leur travail qui ne leur permet même pas de survivre. Il faut trouver un système qui permet de les intéresser financièrement aux résultats obtenus.

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30 - GENERALITES.

Les chiffres du recensement administratif du cheptel ci-dessous, qui n'enregistrent que le cheptel déclaré par les éleveurs en 1987, même s'ils doivent être corrigés pour correspondre à la réalité, nous donnent une vue générale de l'importance relative des diverses ressources animales malgaches.

Tableau n°6 : EFFECTIF DU CHEPTEL

Année 1987

| Paritany | Bovins | Porcins | Ovins | Caprins | Volailles |
|--------------|-----------|---------|---------|---------|------------|
| ANTSIRANANA | 535.990 | 17.034 | 9.970 | 39.590 | 2.357.132 |
| MAHAJANGA | 2.124.964 | 34.020 | 2.710 | 19.648 | 2.114.897 |
| TOAMASINA | 402.102 | 69.869 | 740 | - | 3.848.520 |
| ANTANANARIVO | 906.028 | 309.684 | 11.003 | 260 | 3.301.518 |
| FIANARANTSOA | 699.199 | 199.397 | 6.609 | 361 | 2.970.699 |
| TOLIARY | 2.080.503 | 69.269 | 432.058 | 828.371 | 1.798.888 |
| Total | 6.802.726 | 653.213 | 463.058 | 888.230 | 14.592.750 |

Source : Direction de l'élevage. Statistique 1987.

Il ressort de ce tableau que l'élevage bovin, auquel nous allons nous intéresser principalement occupe une place prépondérante par rapport aux autres ressources animales. Il représente au moins (SEDES 87) 72% du potentiel de production nationale en viande.

Seul le Paritany de TOLIARY présente un élevage d'ovins et de caprins significatif (avec production de lait et de fromage de chèvres) car les conditions écologiques y sont plus adaptées à ces petits ruminants.

Vers les années 80, une opération "chèvre angora" y a été entreprise avec succès, mais elle a été arrêtée faute d'encadrement technique adéquat. Cette opération serait prochainement reprise avec l'aide du F.E.D. (Fonds Européens de Développement).

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Quant à l'élevage du porc, son effectif n'est vraiment notable que dans les Paritany d'ANTANANARIVO et de FIANARANTSOA où son importance se situe cependant loin derrière celle des bovins.

31 - LA PRODUCTION BOVINE

311 - Système de production

Le système de production bovine pour l'ensemble de Madagascar est un système extensif qui fait que, de la reproduction (naissance et allaitement) jusqu'à l'engraissement, l'animal ne se nourrit que de l'herbe du pâturage naturel.

Il souffre donc de la saison sèche. Seuls les boeufs de travail sur les Hauts-Plateaux et au Lac Alaotra, reçoivent un complément énergétique d'herbe coupée et de manioc quelque temps avant la période des travaux agricoles et pendant la durée de ceux-ci.

En période pluvieuse, les boeufs sont surveillés pour les éloigner des cultures et pâturent sur les jachères. Dès la fin des récoltes, ils sont libérés pour pâturer les repousses des rizières, les résidus de récolte (paille) puis les repousses des graminées qui apparaissent après la mise à feu des pâturages naturels.

Cette période post-récolte est une période de disette car ces aliments sont insuffisants et les animaux perdent jusqu'à 10-15% de leur poids du début de saison sèche.

Le système de boeufs de fosse, adopté par certains paysans des Hauts-Plateaux, qui consiste à garder tout le temps l'animal à l'étable (fosse) et le gaver pendant 2 mois, est en régression en raison de son prix de revient élevé. Le manioc nécessaire au gavage est détourné pour l'alimentation humaine.

312 - Organisation de la production

On peut diviser Madagascar en deux catégories de régions de production : excédentaire et déficitaire.

a) Les régions excédentaires comprennent les régions du Nord et Nord-Ouest et celles du Sud et Sud-Ouest.

Ce sont des régions qui constituent des zones d'élevage naisseur exportatrices notamment de femelles excédentaires et de jeunes boeufs de 3 à 5 ans vers les zones déficitaires.

b) Les régions occidentales comprennent les régions d'élevage laitiers et d'animaux de travail des Hauts-Plateaux qui s'étendent d'ANTANANARIVO à FIANARANTSOA et ainsi qu'au Lac Alaotra.

Les modes d'élevage y sont plus intensifs avec une tendance à une certaine spécialisation des activités.

Les conditions climatiques entre 800 et 1.500 mètres y sont plus favorables à la production laitière. Les animaux de travail sont destinés au piétinage des rizières, technique très nuisible aux animaux, à la traction des charrettes et à celle des charrues.

Les élevages de ces régions se maintiennent grâce à l'apport d'éléments provenant des régions excédentaires.

Le tableau n° 7 ci-dessous résume les caractéristiques de ces différentes régions de production de bovins.

Tableau n° 7 : REPARTITION DES TYPES D'ELEVAGE BOVIN A MALAGASCAR⁽¹⁾

| Régions excédentaires : 73% du cheptel national | |
|---|--|
| Sous-régions | Caractéristiques |
| Nord et Nord-Ouest | Elevage naisseur relativement précoce Grands troupeaux : 32 à 52 têtes Ratios élevés : 2,5 à 6 (bovins/habitant rural) Vols importants : 12 à 40% (sur le total exploité) Peu de mâles adultes : 15-25% Peu d'embouche : 1% (% sur mâles adultes) Cheptel traction moyen : 23,4 à 51% Pas de races améliorées |
| 41% du cheptel | |
| Sud et Sud-Ouest | Elevage naisseur peu précoce à cycle complet Grands troupeaux : 30 à 50 têtes Ratios élevés : 1,4 à 5,6 Vols importants : 12 à 40% Peu de mâles adultes : 15 à 25% Peu d'embouche : 1% Cheptel traction faible : 8 à 18% Pas de races améliorées |
| 32% du cheptel | |

(1) - Source : SFDES - Recensement et caractéristiques du cheptel national en 1987.

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Régions déficitaires : 27% du cheptel national
 =====

| | |
|--|---|
| <p>! Plateaux ! 12,9% du ! cheptel</p> | <p>! Cheptel d'agriculteurs diversifiés ! Petits troupeaux de 4 à 18 têtes ! Ratios faibles : 0,26 à 2 ! Vols moyens : 2 à 12% ! Maximum de mâles adultes : 28 à 51,1% ! Embouche importante : 11,6% ! Cheptel de traction maximum : 71,2% ! Cheptel laitier important : 107.000 Rana et ! 97.000 Metis.</p> |
| <p>! Moyen Ouest ! 6,2% ! du cheptel</p> | <p>! Cheptel d'agriculteurs-éleveurs ! Troupeaux moyens : 8 à 35 têtes ! Ratios moyens : 1 à 2,7 ! Vols importants : 29,3% ! Beaucoup de mâles adultes : 31,2% ! Embouche notable : 6,4% ! Cheptel traction important : 55% ! Cheptel laitier et metis notable : 58.000 têtes</p> |
| <p>! Côte Est ! 7,9% ! du cheptel</p> | <p>! Cheptel d'agriculteurs-planteurs ! Petits troupeaux : 5 à 6 têtes ! Ratios très faibles : 0,27 ! Vols très rares : 0% ! Peu de mâles adultes : 23% ! Embouche faible : 1% ! Cheptel de traction faible : 0 à 35% ! Cheptel laitier faible : 5% ! Effectif en phase de diminution (-19% depuis 1979).</p> |

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32 - IMPORTANCE DU SECTEUR ELEVAGE

Le recensement administratif de 1987 nous donne un nombre de bovins de 6.902.726. Ce chiffre ne tient pas compte des animaux non déclarés. Nous pensons que les chiffres obtenus par SEDES 1987 au tableau n° 8 ci-dessous sont plus exacts.

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Tableau n° 3 : EFFECTIF DES BOVINS EN 1987

| Faritany | Domestiques | Malia (+) | Total | % | Evolution 1987/1978 |
|---------------|-------------|-----------|------------|------|------------------------|
| TANANARIVE | 1.256.700 | 41.500 | 1.298.000 | 12,7 | + 3% |
| MAHAJANGA | 3.033.900 | 281.800 | 3.315.700 | 32,4 | + 11% |
| ANTSIRANANA | 756.500 | 13.800 | 770.300 | 7,5 | + 4,4% |
| FIANARANTSOA | 1.087.500 | 32.600 | 1.120.100 | 11,0 | -11,5% |
| TOAMASINA | 586.100 | 19.100 | 605.700 | 6,0 | -15,7% |
| TULEAR | 2.907.400 | 203.100 | 3.110.500 | 30,4 | - 1,6% |
| Madagascar | 9.626.100 | 592.400 | 10.220.500 | | |
| Répartition | 94,2% | 5,8% | 100% | 100 | |
| Croît 1987/78 | +5,5% | -41,3% | +1% | | |

(+) Malia : non forestière.

Sources : Société d'Etudes pour le Développement Economique et Social (SEDES). PARIS - Recensement et caractéristique du cheptel national. Août 1988.

L'effectif total du bovin qui était de 10.021.000 têtes (d'après SEDES) en 1978 est pratiquement stationnaire depuis ces dix dernières années.

Le tableau ci-dessous nous montre la part de l'élevage bovin dans le Produit intérieur brut.

Tableau n° 9 : P.I.B. ELEVAGE EN MILLIONS LL FMG EN 1988

| Type de produits | Valeur aux produits | % de consommation intermédiaire (intrants, aliments fabriqués) | P.I.B |
|------------------------|---------------------|--|----------------|
| Viande de bœuf | 102.000 | négligeable | 102.000 |
| Porc de race locale | 34.000 | -" | 34.000 |
| Porc de race exotique | 25.000 | 75% | 6.000 |
| Petits ruminants | 26.000 | négligeable | 26.000 |
| Volailles locales | 20.000 | négligeable | 20.000 |
| Volailles améliorées | 2.000 | 75% | 500 |
| Oeufs locaux | 8.000 | négligeable | 8.000 |
| Oeufs poules importées | 2.000 | 75% | 500 |
| Lait extensif | 17.000 | 5% | 16.000 |
| Lait semi-intensif | 17.000 | 30% | 12.000 |
| Fumier/travail | 15.000 | 0% | 15.000 |
| Total | 268.000 | | 240.000 |

Source : IEMVT-MPAEF : Recueil Statistique des productions animales. Avril 1989.

La valeur du P.I.B en francs courant pour 1988 est de 240 milliards de francs malgaches représentant

- 8,55% du P.I.B national et
- 19% du P.I.B. du secteur primaire.

Les valeurs ajoutées aux niveaux secondaire et tertiaire (commercialisation, transformation des viandes, du lait, cuirs...) n'y sont pas comprises.

En francs constants, d'après IEMVT précité, ce P.I.B

- a augmenté de 4% par an entre 1960 - 1978
- a diminué au total de 10,6% de 1978 à 1988.

Si on tient compte de l'augmentation de 24% de la population rurale entre 1978 et 1988, il y a eu une baisse de revenu individuel des éleveurs d'environ 35%.

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33 - PERSPECTIVES DE LA PRODUCTION BOVINE POUR LES 10 ANNEES
A VENIR

Pour avoir une vue plus claire de cet avenir de l'élevage, il nous faut analyser la situation de ce secteur depuis 10 ans jusqu'à maintenant, en identifiant les facteurs qui peuvent influencer sur son évolution.

331 - Analyse du passé récent

Quatre études ont été réalisées récemment sur le cheptel bovin de Madagascar, avec des résultats et des chiffres, qui diffèrent les uns des autres. Ce sont celles

- du Recensement agricole National 1985 (RNA) du MFAPA-IAC
- de Louis Fenger International (L.F.I) - 1987 (N.J. USA)
- de la Société d'études pour le Développement économique et social (SEDES) 1987 (PARIS).
- de l'Institut d'élevage et de Médecine Vétérinaire des Pays Tropicaux - IFAT - Avril 1989.

Nous estimons que les résultats de SEDES 1987 sont plus fiables, vu la méthodologie utilisée, le temps et les moyens nettement plus importants que cette Société a consacré pour l'étude.

Nous ferons donc la plupart du temps notre analyse à partir des données de SEDES.

Noter que la précision statistique de l'enquête SEDES 87 est évaluée par ses auteurs à 5% environ.

3311 - Effectif du cheptel bovin (SEDES 87)

Cet effectif est stable depuis 1978

10.021.000 en 1978

10.220.500 en 1987

Le croît potentiel du troupeau serait de 0,6% actuellement ; ce qui est très insuffisant par rapport aux besoins à venir (consommation et exportation).

3312 - Taux d'exploitation moyen en 1987 (SEDES 87)

9,7 % des 10.220.500 têtes dont

5,7% de mâles correspondant à 582.600

4 % de femelles -" - à 408.800

9,7%

991.400 bovins/an.

En 1978, ce chiffre était de 1.042.500. Il est donc en baisse de 5% environ en 1987.

3315 - Répartition de l'exploitation (SEDES 87)

Tableau n° 10 : REPARTITION DE L'EXPLOITATION

| | Mâles | Femelles | Total |
|------------------------------|----------------|----------------|----------------|
| Abattages (autoconsommation) | 75.800 | 143.900 | 219.700 |
| Ventes | 385.300 | 159.000 | 544.300 |
| Pertes-vols | 56.600 | 59.200 | 115.800 |
| Autres | 64.600 | 46.700 | 111.300 |
| Total | 582.600 | 408.800 | 991.400 |

3314 - Production annuelle en viande carcasse (SEDES 87)

Poids moyen/carcasse

127,5 kg par tête (contre 133 kg pour L.P.I)

Production totale annuelle

127,5 t x 991.400 = 126.400 tonnes carcasse.

Cette production était de 132.700 tonnes carcasse en 1978. Il y a eu diminution.

3315 - Productivité par tête de bétail entretenu (SEDES 87)

126.400.000 : 10.220.500 = 12,36 kg carcasse.

Cette productivité était de 13,1 kg en 1978. Il y a eu aussi diminution.

3316 - Situation du troupeau domestique National (SEDES 87)

Tableau n° 11 : % DE L'EFFECTIF MOYEN EN 1987

| Catégories | Mâles | Femelles | Total |
|--------------|-------------|-------------|------------|
| 10 ans et + | 3,3 | 4,5 | 7,8 |
| 4 - 9 ans | 20,9 | 27,8 | 48,7 |
| 1 - 3 ans | 14,1 | 13,2 | 27,3 |
| 0 - 1 an | 7,9 | 8,4 | 16,2 |
| Total | 46,2 | 53,8 | 100 |
| dont castrés | 18,8 | | |

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Pratiquement, cette composition moyenne ci-dessus du troupeau bovin malgache est restée à peu près la même en 1987 qu'en 1978 ou 1980.

Cette stabilité signifie que les modes d'élevage et la productivité n'ont pas évolué positivement.

Les causes ont été identifiées précédemment. La principale en est le sur-stockage des vieux mâles et des vieilles femelles, dû aux vols, à l'insécurité, aux difficultés de commercialisation, à l'interdiction d'abattre les femelles, à l'intérêt des paysans pour le cheptel de trait...

Il y aurait actuellement

219.000 vieux mâles âgés d'environ 11 à 14 ans

210.000 vieilles vaches âgées d'environ 12 à 15 ans.

3317 - Consommation de viande de bovin par habitant (SEDES 27)

Les exportations étaient nulles depuis 1985. Toute la production explicitée était consommée. Malgré cela, cette consommation moyenne par habitant a baissé de 23% de 1978 (avec 14,6 kg) à 1987 (avec 11,3 kg).

3318 - Importance des pertes-vols/autres destinations

Les chiffres du § 3318 ci-dessus nous montrent que les pertes-vols ont atteint un pourcentage presque aussi important que l'autoconsommation et portent sur 116.100 têtes composées de 50% de femelles de tous âges qui doivent aussi être abattues. Les pertes-vols ont augmenté de 9,6% à 14,3% entre 1978 et 1987 que les ventes ont baissé de 59,1% à 57,0%.

332 - Perspectives pour l'avenir

D'une part,

- La population malgache augmente à un taux de 2,8 à 3% par an. Cette population estimée à 11,2 millions en 1987 sera de l'ordre de 16,2 millions au moins vers l'an 2000 (SEDES).

- On est en train de réhabiliter les abattoirs industriels de MORONDAVA et de MAHAJANGA : les exportations de viande bovine vont reprendre (quota = 7.500 t/an).

D'autre part,

La production bovine nationale a stagné depuis ces dix dernières années, et ne présente qu'un croît potentiel de 0,6% l'an, 1% au maximum (SEDES) avec un effectif, un taux d'exploitation et une productivité par tête qui sont en baisse.

La production de 126.400 tonnes en 1987 qui ne s'accroît que 1% ne serait que 143.800 tonnes en 2000 et le disponible par habitant serait réduit de 11,3 kg à 8,9 kg, soit une baisse de 21% par rapport à 1987.

Les exportations prévues par les abattoirs industriels réduiraient d'autant la consommation par habitant. Cela n'est possible qu'avec une forte hausse ^{du prix} de la viande et du bétail, ce qui pourrait ne pas être un mal si on maîtrisait les vols de boeufs, car une augmentation des prix aux éleveurs les encouragerait en leur donnant les moyens financiers pour intensifier leur élevage.

Socialement, cependant c'est une issue non soutenable. Il faut envisager d'autres solutions.

Les "substitutions volontaristes" préconisées par L.E.I qui remplaceraient la consommation des zébus par les petits ruminants ne sont pas réalistes notamment parce que les éleveurs d'ovins sont localisés à 90% dans le Sud.

Il faut surtout espérer qu'il y aurait une évolution positive pour augmenter la production dans les 10 prochaines années, avec

- une augmentation de la productivité par tête
- une augmentation du taux d'exploitation
- une augmentation suffisante de l'effectif.

Ceci n'est possible qu'avec des modifications notables des modes d'élevage et une amélioration des problèmes d'insécurité.

Il y a certes des facteurs favorables à cette augmentation de la production tels que :

- une bonne couverture sanitaire de toute l'île (sans fièvre aphteuse ni peste bovine)

- milieu physique relativement favorable au développement du bétail, notamment au point de vue climat.

Mais les facteurs défavorables semblent actuellement l'emporter. Nous relevons parmi ces facteurs :

- les vols de bovins et l'insécurité
- la dégradation de la commercialisation
- la baisse du pouvoir d'achat des planteurs de la Côte Est et des citadins,
- le vieillissement du troupeau et baisse de la productivité
- l'absence d'opérations d'envergure de développement de l'élevage
- diminution progressive des pâturages naturels aux profits de l'agriculture.

333 - Conclusion sur l'avenir de l'élevage bovin.

Si l'évolution de la situation de l'élevage bovin à Madagascar depuis 10 ans jusqu'à maintenant se poursuivait, il paraît difficile sinon impossible dans les dix années à venir de satisfaire à la fois :

- une exportation de viande envisagée actuellement avec les deux abattoirs industriels de MAHAJANGA et de MORONDAVA, en cours de réhabilitation
- les besoins sur le plan nutritionnel de base, de la population avec son taux de croissance de 2,8% actuel.

La production de viande bovine estimée à 126.400 tonnes par SEDES 87 et à 133.000 tonnes par Louis Berger International, pourrait même diminuer ou au mieux stagner à son niveau actuel dans les dix années à venir avec la réduction des surfaces pâturables sur les Hauts-Plateaux au profit de l'agriculture et d'autres destinations.

Avec les projections officielles de la population, la consommation per capita devrait alors diminuer de 30% en l'an 2.000. Pour maintenir celle-ci à son niveau actuel il faudrait que la production augmente de 40% (2,9% par an).

Cette augmentation de la production n'est possible que s'il y a une modification sensible des systèmes de production et de la politique en vigueur actuellement. Il faudrait en particulier:

- inciter le destockage des bovins mâles et femelles, et supprimer le vieillissement du troupeau, cause de baisse de la productivité

- diminuer notablement les vols de boeufs dont les incidences sur le troupeau national sont très graves

- arrêter la dégradation de la commercialisation.

- prendre des mesures pour l'intensification de l'élevage bovin.

34 - LES FACTEURS DE PRODUCTION

341 - Les investissements nécessaires

Il y aura une pénurie de viande aux détriments de la population et à notre avis, des investissements en faveur de la production bovine ne ferait qu'augmenter simplement le quota d'exportation qui est actuellement de 7.500 t/an. Les recettes en devises vont certes augmenter mais les problèmes alimentaires locales vont s'aggraver.

Aussi, nous pensons que les investissements à faire en priorité devraient porter sur,

a) la production de petits animaux (poulets, canards, lapins,...). Ces investissements peuvent concerner aussi bien les ménages ruraux que des grandes unités de production. Un développement de ces dernières ferait baisser le prix de cette catégorie de viande très appréciée par la population et sa consommation augmenterait au profit de la quantité de viande bovine à exporter tout en réduisant le déficit en protéines de l'alimentation de la population.

b) la production laitière qui s'accompagne d'une intensification de l'élevage avec tous les bienfaits que celle-ci entraîne pour l'économie et l'environnement en général.

342 - Les intrants

Il faut noter que, le secteur privé avec la politique de libéralisation actuelle, investit dans l'encadrement des éleveurs pour la promotion des ventes de ses produits pharmaceutiques vétérinaires. C'est un facteur positif.

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Un autre domaine où des investissements sont nécessaires, est celui de la production et de la vente de semences fourragères. Malheureusement ce secteur n'intéresse par le secteur privé pour le moment, car la vulgarisation de la production fourragère est autrement plus difficile que celle des produits vétérinaires.

343 - Les choix politiques

Les choix qui s'offrent actuellement sont les suivants :

- intervenir sur le système d'élevage extensif actuel pour l'améliorer

- ou consacrer tous les efforts vers l'intensification des élevages par la production de fourrage, de lait et l'utilisation d'aliments autre que l'herbe pâturée.

Le premier choix a des possibilités de développement restreintes : un zébu en élevage extensif tropical demande 3 ha de terrains de parcours (d'après J.J. BIEOT, expert vétérinaire C.E.F., communication personnelle). Les 30 millions d'hectares de terrains de parcours à Madagascar semblent être saturés avec les 10.000.000 de zébus actuels.

Le second choix semble donc être impératif. Toutefois, c'est un objectif à long terme. En attendant il faut continuer à entretenir sinon améliorer le système extensif actuel tout en favorisant le développement du système extensif.

344 - Rôles du gouvernement

Le gouvernement peut intervenir pour réaliser des actions directes et prendre des mesures en faveur du développement de l'élevage.

3441 - Actions directes

Le gouvernement doit continuer son action actuelle concernant :

- la couverture sanitaire satisfaisante constatée actuellement de l'élevage dans toute l'île

- le développement de la production par l'amélioration des races et de l'alimentation des animaux.

Notons que pour 1988, la Direction de l'élevage du MPAEF a consacré, à partir de ses propres fonds, (1)

(1) - Rapport annuel d'activités de la Direction de l'Elevage du MPAEF - 1988.

- 44.000.000 FMG pour l'opération Plantation et production fourragère
- 70.000.000 FMG pour la sériciculture
- 15.000.000 FMG pour l'apiculture
- 200.000.000 FMG pour l'Opération Androy (santé animale, amélioration de la race, contrôle des marchés)
- 90.000.000 FMG pour le Bureau Central Laitier chargé de l'insémination artificielle et de la production de lait dans le Saritany d'ANTANANARIVO.
- 29.000.000 FMG pour le Centre de formation technique de l'élevage d'ANTSIRANANA (C.F.T.E.L)
- 90.000.000 FMG pour la station vétérinaire de MORONDAVA
- 65.928.500 FMG pour les Centres pépinières de reproduction ou C.P.I. dont le fonctionnement est supporté par le crédit PL 400
- 604.000.000 FMG pour la protection sanitaire (achats de vaccins, de fournitures et d'équipements de postes vétérinaires...)

Tandis que les projets financés par des bailleurs de Fonds extérieurs ont été en 1988 : de (1)

| Bailleurs de Fonds | Projets | Montants alloués |
|--------------------|---|--|
| IDA et FIDA | Projet d'Elevage villageois et de développement rural | 2.254.000 FMG |
| F.A.C. | Insémination artificielle | 3.400.000 FF |
| F.E.D. | Réhabilitation des abattoirs | 7.880.000 ECU |
| NORVEGE | Projet de développement ROMANOR | 20.500.000 CN (Couronnes Norvégiennes) |
| U.R.S.S. | Station Vétérinaire de MORONDAVA | 743.401 Roubles |

(1) - Source : Rapport annuel d'activités de la Direction de l'élevage MPAEF.

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3442 - Mesures à prendre

a) Le gouvernement devrait modifier les deux arrêtés de 1939 et 1945 qui interdisent l'abattage des femelles sans autorisation écrite et motivée des services vétérinaires. Cette mesure favorisera le destockage des vieilles femelles constaté actuellement et augmentera aussi leur productivité.

Les abattages des vaches ne peuvent être que clandestins : étant donné le risque, le prix ne peut être que bas (30 à 50% inférieur à celui des mâles).

En 1957, on a délivré 1.000 autorisations d'abattages sur 260.000 têtes de vaches à reformer (SEDES 87).

Cette non commercialisation des vaches représente pour l'économie un manque à gagner difficilement chiffrable.

Il faut limiter l'interdiction à l'abattage des vaches d'âge inférieur à 5 ans.

b) Le gouvernement est la seule institution en mesure de récuire l'importance des vols de boeufs dont les incidences sur la production et la commercialisation de ces bestiaux sont incalculables.

345 - Règles régissant le marché, la qualité et l'exportation des produits de l'élevage

Contrairement aux produits végétaux, les produits animaux, même en l'absence des exportations ont toujours suivi les lois de l'offre et de la demande.

A - *Concernant les bovins*

Compte tenu de l'interdiction d'abattage des femelles à Madagascar, le seul marché vraiment rémunérateur pour les producteurs est celui des mâles de boucherie pour le marché urbain, et l'exportation qui va reprendre très bientôt avec un quota de 7.500 t/an.

Les difficultés de vente des éleveurs sont dues à la concurrence des voleurs de boeufs qui peuvent mettre sur le marché plus de 56.000 mâles, soit 14% des ventes des éleveurs, à des prix sans doute inférieurs de 50%.

Cela entraîne un effet dépressif sur le prix aux éleveurs qui préfèrent garder leurs boeufs âgés pour la traction animale plutôt que de les vendre à leur prix dès 5 - 7 ans. C'est une conséquence bénéfique inattendue des vols de boeufs : la traction

animale a doublé d'importance en 10 ans.

E - Concernant les autres produits animaux

Les éleveurs choisissent les spéculations qui sont les plus rentables et se font concurrence entre eux. C'est ainsi que :

- à une certaine époque, les oeufs se vendaient très chers car il n'y en avait pas assez pour la consommation. Beaucoup d'exploitations se sont lancés dans cette activité si bien qu'il y a surproduction actuellement : le prix des oeufs sont restés à 150 FMG (moins de 10 cents US) depuis quelques mois.

- En ce moment, les volailles sur le marché sont chers et bien d'exploitations moyennes ont été créées dans ce domaine. C'est un secteur intéressant car la viande de volailles est très appréciée par les consommateurs malgaches qui n'en consomment normalement que les dimanches et les jours de fête.

- La production de foie gras pour l'exportation est très rémunératrice et une activité intense se fait dans ce domaine car le foie gras de canards malgache serait de très bonne qualité.

346 - Choix environnemental

Le système d'élevage extensif actuel est le principal responsable de la dégradation de l'environnement à Madagascar par les feux de brousse systématiques qu'il nécessite et les conséquences néfastes de ces derniers.

La solution ne peut être que la substitution de ce système par un système intensif qui permet l'utilisation

- de plantes fourragères qui dispenseraient les éleveurs de brûler les pâturages naturels

- d'étables qui produiraient du fumier de ferme pour la conservation de la fertilité des sols.

Une aide internationale dans cette direction (production de semences fourragères, mise au point de faucheuses attelées, subventions à la construction d'étables...), serait particulièrement bénéfique.

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