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Country Development Strategy Statement

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MADAGASCAR

ANNEXES

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Drafted by Ned Greeley
12/15/83

SOCIAL ANALYSIS MATERIALS

FOR THE MADAGASCAR 1986 CDSS, AND PROJECT IDENTIFICATION

I. INTRODUCTION

The material assembled below is based on interviews, field trips and desk analysis of primary and secondary documents during a two week visit to Madagascar. Much of the material is taken from the 125 page "Madagascar" Chapter of the Indian Ocean Five Island Countries Area Handbook prepared under the editorship of Frederica M. Bunge and based on research completed May, 1982. For the purposes of simplicity, it is excerpted directly, without citation. Other important data sources included several recent World Bank reports and Memoranda on Madagascar, a recently completed study entitled. Riz, Rapport Socio-Economic by Sociologist Jeanine Razafindratovo-Ramamonjisoa, University of Madagascar and a recent paper on the Madagascar population situation by the Director of Population in the Ministry of Population and Social Condition, Harison Senn. Such references are cited where appropriate.

The materials are organized in three parts: a general overview of the country from the social perspective, annexes, and bibliography.

II. BENEFICIARY PROFILE

A. Overview

Madagascar is the fourth largest island in the world. Its population is over nine million and its annual population growth rate is at least 2.7%. Rice is the staple; per capita consumption, about 500 grams daily, is the highest of any country in the world. The 1975 census estimated that there were seven million persons living in agricultural areas, or about 1.5 million households. Over 90% of these formed traditional single-family farms, producting primarily for home consumption or barter. The average household cultivated about one hectare of land, but the majority of farms were less than a hectare in size. Arable land on the island accounts for only 13% of the total. Rice cultivation, mainly rain fed but with a significant portion being irrigated and terraced by small farmers, makes up almost half of this productive land.

The major rice growing area is found on a central plateau running North to South along the island length. Livestock (zebu cattle) is the principle farm enterprise on most of the Islands savannah country to the South and West, and capita beef consumption is high for an African country. Cash crops - particularly coffee (the major foreign exchange earner) vanilla, cloves and sugar are grown along a relatively narrow belt of productive land running north and south along the escarpment between the High Plateau and the Eastern Coast.

The dominant settlement pattern for the 86% of the total population in rural areas is the hamlet. Most rural farm families live on the arable land-resulting in a population density which approaches 100 persons per square km. Houses in these densely-populated areas are solid two story dwellings; cattle ownership is widespread and farm technology often includes an ox cart. Plough and harrow services are available privately in most irrigated rice growing areas. In the traditionally livestock producting region on the savannah, settlement patterns reflect a more dispersed and mobile population. Here particularly in the South and West, pastoralism and to a much lesser degree seafaring have long been a way of life.

The urban population is about 18% of the overall population and growing annually at about 5%. Antananarivo, located in the heart of the land populated by the numerically and economically dominant Merina, is the major metropolitan area with a population approaching 700,000. None of the other (secondary) towns approach "Tana" in size. However, several along the coast of the island play an important economic role. The potential of these as regional growth centers for agriculture and livestock processing and export is of special interest given the relatively heavy historical concentration of productive resources in the Central Highlands and given the exceptionally deteriorated condition of the country's transport

infrastrucure. Employment in the modern sector is only 5% of the total employment. With adult literacy, an exceptionally high rate of 50%, and schooling close to universal among the primary aged population, significant numbers of unemployed have migrated to urban areas in search of work in the modern sector.

B. Socio-Cultural Background

The people of Madagascar form an unusual and distinctive society which is a synthesis of Malay-Indonesian, African, and European (primarily French) heritage. A brief discussion is included here to draw attention to the unique character of the society, especially in relation to its nearest neighbours in East and Southern Africa. Although Madagascar comprises a number of ethnic groups (typically identified as 20), it is broadly speaking a single culture with groups sharing a common heritage and recent history.

Madagascar first inhabitants are generally thought to be Malay-Indonesian speaking mariners who migrated from Borneo to Madagascar via the Coast of East Africa from the 10th century AD. Possible settlement en route would explain the importance - even the predominance - of Africa traits in the genetic and phisical makeup of the people. Much of the basic culture and the national language of the island, however, suggests Malay origin.

Aspects of the common culture of the various ethnic groups on the island include a belief system which emphasizes the centrality of respect for the dead (razana) to the social, moral and religious life of the people, a system of kinship in which descent can be traced through either the paternal or maternal line (this often being left to individual choice), and the division of Malagasy societies into three relatively rigid strata: nobles, commoners, and slaves (or the descendents of slaves).

Madagascar society is hierachical in a number of respects, rigid stratification being but one manifestation. Regional differences are important, especially the division between groups on the high Central Plateau, and those along the Coast. In the Central Plateau, several ethnic groups, including the numerically dominant Merina, and the Betsileo, take pride in their generally marked Malay-Indonesian appearance and legacy, especially in contrast to the coastal population ("cotiers") - where Africa strains predominate. Slavery was abolished as an institution as recently as 1097, and the social effects are still acknowledged today both between and within ethnic groups. Thus among the High Plateau Merina, for example, marriage practices which discourage marriage between descendants of slaves and those of "freeborn" descendants sustain intra-group social strata. Traditional systems of share cropping (metayage), especially in the terraced irrigated rice growing areas also signal the presence of inequality.

The monarchial political organization of various ethnic groups (which emerged as distinctive entities through their isolation from others) supported the emergence of a royal class of ruling elite common throughout the island. These monarchies extended their power in many areas prior to colonization by creating little fiefdoms, initiating major public works (such as construction of irrigated rice systems) and conscripting men for warfare against competing kingdoms and/or in pursuit of slaves and guns. A key institution for extending power to the local level particularly in the Highlands - was the fokonolona (village council). This institution typically gave authority to councils of village elders to enact regulations and placed responsibility in matters of public works and security at the local level. In addition, it was often used by a local king to levy taxes and increase control over local clans.

C. Legacy of Historical Experience

Modern Malagasy Society is characterized by a leadership based on a long tradition of education stemming from the 19th century when a written form of the national language was developed by English missionaries in 1925. Visitors to Madagascar are often struck by the sosphisticated, confident yet insular perspective of the educated portion of the population with which one usually comes into contact.

(cultural beliefs and traditions are important in contemporary life as are aspects of French culture. For example, the continuing importance of the ancestral homelands where the ancestors "the living dead" of the families of noble and freeman descendants are interred (in frequently elaborate tombs) illustrator the current influence of traditional beliefs. So, too does the observance of various taboos (such as restrictions on diet) even by the better educated strata of the population. Attempts to analyse and merging synthesis of traditional beliefs and practices and modernizing European influences has been a popular topic for obeservers of Madagascar society, particularly, during the period of French influence, when there was an extensive literature written on Madagascar. Annexes A-D contain a set of sections excerpted from the Area Handbook. These describes significant modernizing trends in Madagascar and their effect on various institutions. The Annexes include:

A. Traditional Beliefs and Institutions

B. The Fokonolona

C. Tradition and Social Change

D. New Classes and Social Elites

III. HISTORICAL TRENDS

A. Colonialization and Independence

External trade, European missionary interventions and after 1896, French colonial rule served to reinforce many of the divisions of traditional Malagasy society, even as it

served to unite the island more effectively than had the petty kingdoms (such as those dominated by the Sakalava people of the West Coast) which had earlier reigned over portions of the country. A succession of Merina kings and queens sparred with and/or played off British and French interests during Merina rule from 1810 to 1895, and also succeeded in unifying many parts of the island. Much of the resulting impact, however had an inequitable effect. The introduction of written language, Malagasy language publications, new ideas and education, for example, primary benefited the Merina and Betsileo. By 1828, several thousand persons, mostly Merina, had become literate. At the coming of French rule in 1896, 164,000 children, mostly from the Highland, were attending English Protestant mission schools.

French colonialism marked a period of extensive socio-economic change, with much of the dominant agriculture sector being commercialized and oriented towards export to France. The French Government imposed a labor requirement on the male population during the period, abolished slavery, and also outlawed the practice of polygamy. A system of public schools was established that was divided into two parts: elite schools modeled on those of the metropole, reserved for the children of French citizens (a status few Malagasy enjoyed); and indigenous schools for the Malagasy which offered practical and vocational education but were not designed to train them

for positions of leadership or responsibility. Upon independence in 1960, France still dominated the middle class in Madagascar, with much of the Malagasy population either poor farmers, or among a small governing elite. A small class of Indians living in the Central Plateau and in the West, and Chinese, living along the Eastern side of the island, made a living providing retail, marketing and credit services to the rural population.

In the first decade following independence the new Government maintained strong ties to the French and the West in the economic and cultural spheres. Moderate economic policies, however, failed to achieve stability and growth for broad elements of the population, and a resulting gap in living standards between a small European and Malagasy elite and others became increasingly pronounced. In 1972, when the National Army took over the Malagasy Government in the wake of riots begun by students in Tananarive and leading to a national emergency, the economy was almost totally dependent on foreign trade and foreign capital. Similarly, education and intellectual life was still under the strong influence of the French.

B. Recent Developments

The country wide student protests (following peasant uprisings in 1971) leading to the national emergency in 1972

were based on three principal objectives: voiding the extensive cultural cooperation agreements with France, rejecting of teaching programs with French orientation in favor of a Malagasy orientation, and increasing access to secondary-level institutions for economically under privileged youth. Mounting economic stagnation as revealed in scarcities of investment capital, a general decline in living standards and the failure to meet even modest development goals contributed to widespread discontent among the population.

For the next three years, a series of political changes followed the emergency. These included involvement of the National Army in forming a new Government, an attempted coup, and an assassination of an acting head of State. A redefinition and reduction in the extent of Madagascar relationship to France was accomplished during this mid 1970'speriod. At the same time national leadership was seeking new approaches to governing, and greater ties with Africa. For example, the fokonolona (traditional village council) was restored during this period in part stimulated by the study of methods of rural development in neighbouring Tanzania.

Political direction under a socialist orientation was finally established in 1975 when the current President, Didier Ratsiraka assumed leadership and was elected to office for a seven year period. A naval Officer of East Coast origin,

Ratsiraka had successfully taken the lead in negotiating Madagascar's changed relationship with Franch during the interim period following the strikes; his achievements as Minister of Foreign Affairs won him wide acclaim in Madagascar. Among his first acts as President was establishment of a new Socialist Program based on the Charter of the Malagasy Socialist Revolution, whose major goals were a just social order and national autonomy.

The major program initiated under this Chater focussed on increasing the provision and expanding the distribution of basic human services on a more equitable basis (in particular, education). In addition the State attempted to play an increasingly dominant role in the direction and management of the economy, although the great majority of producers, buyers and sellers remained in the private sector. The State expanded its role by nationalizing much of the industrial and financial sectors, regulating the prices of most commodities, and allocating capital from the Government banks in order to fulfill the aims of national economic development plans. FOr example, the Government tried to replace the traditional small traders (many of whom were Chinese or Indian) with state-run marketing cooperatives or enterprises. Four large scale parastatal agencies dominated import-export trade (taking over from the French), and others controlled the domestic trade of rice.

Eight years later, the Government of the Second Republic could take credit for significant efforts in the meeting of the basic needs of the people in the social services sector, however was widely recognized that its attempts to directly control many elements of the economy had resulted in enormous problems, given the unfavorable worldwide and incountry economic trend of the late 1970's and early 80's.

C. Current Situation

One of the consequences of the political turbulence and economic decline of the past decade has been a parallel decline in what, prior to 1972, was an unusually extensive data base for development planning. Apart from a National Census undertaken in 1975, very, little reliable information is available for the period. A national socio-economic survey was initiated in 1978, but the results are not yet fully tabulated. Most other studies have been carried out in relation to specific development activities, and are typically constrained by lack of recent data. The inevitable result of the lack of data is highly variable and often unreliable analysis and interpretation of development trends.

A brief overview of the population was presented in the first section. Variations among the farming systems and ethnic groups in country, however and the poor data base, make

generalizations of limited value. Brief discussion of farming activities by crop are found in the agriculture section, and brief profiles of various groupings and their livelihood are included in Annex E Traditional Agriculture excerpted from the Handbook.

IV. INSTITUTIONAL FRAMEWORK

A. Government

Over the past decade, the Government has pursued the policy of extending its involvement in most sectors of the economy, often to the detriment of the effective functioning of the indigenous institutions appropriate to the task. Identification and analysis of the development institutions which have played critical roles in the past and those slated to do so in the future, will be a key task for development planning in the months ahead. Included below is a brief review of several sectors, and of progress and trends within them.

1. Fokonola: One of the main goals of the present Government, the development of a just social order throughout the country, has spurred institutional efforts to broaden the delivery of basic social services. Increased emphasis placed on the fokonola (village council), resulted in it becoming the foundation of administration, economy, education, enterprise, information and justice and thereby fulfill in Governments jargon, "at long last the suppressed aspirations of the

masses". From March to May 1977 elections were held locally for the 11,400 village and urban ward councils at the fokontany level, for the 2,500 councils at the county level (formerly canton level, called firaisampokontany), for the 110 councils at the reconstituted level (fivondronampokontany) of what was previously prefecture and subprefecture, and for the six provincial (faritany) councils. In 1982 the country was still divided into six provinces including Antananarivo, which contained the national capital of the same name, Antsiranana, Mahajanga, Toamasina, Fianarantsoa, and Toliary.

The operation of the fokonolona at all territorial levels was to conform to the "principle of democratic centralism," meaning that the decisions of higher bodies were binding on the lower levels and those of the majority binding on the minority. Discussions on all local issues, such as education, health, commerce, law and order, political surveillance, local taxation, roads, civil registration, and so on, were to be open to all members. Factional activity was expressly forbidden. The governing bodies of the fokonolona at all levels were called general assemblies or general councils, which in turn elected the members of their executive committees at the corresponding levels.

Despite the best intention of the Ratsiraka leadership, the fokonolona is still far from the idealized

self-governing institution. For one thing its governing bodies have been dominated, as in the past, by the conservative elders; participation by youth was either minimal or not encouraged by the elders. Also troublesome was the prevalence of local wrangling over allocation of resources. Official effort to animate local initiatives or innovations was stymied by the lack of trained personnel and the paucity of resources available for local use. A crucial aspect of the fokonolo as an institution is that it is an institution indigenous to only certain parts of the country (primarily on the High Plateau), and it is also the type of institution whose effective functioning will vary enormously depending on such factors as local leadership, historical experience with the system (the French used it to mobilize local labor for public works) and orientation of the local population towards the Government.

2. Education

Madagascar is exceptional to the extent that education has served to accelerate modernization in selected areas. Particularly in relation to neighboring countries in sub-saharan Africa, Madagascar benefitted very early in its development history from the introduction of written language and education. Yet the school system has suffered from serious limitations, including a focus in the colonial period on vocational and practical subjects which did not train Malagasy for positions of leadership or responsibility, and a great

inequality in the distribution of educational resources with the Central Highlands receiving the lion's share. Access to education has long been a highly explosive issue, as is evidenced by the student riots in 1972 which sparked the national emergency and subsequent political changes. For many education credentials have provided the only road to secure employment in a country with a limited private sector. The recent (1978) student riots in the capital over restrictive educational policies continue to underscore its importance.

Commitment of the present Government to the provision of education for all is evidenced in efforts which emphasize equitable distribution and which are costly (totaling 25% of the national budget). The primary school system offers five years of schooling; by 1978 the Government called for 100% compulsory participation. The two-staged seven year secondary school program is similarly exceptional. In 1975 14% of the boys and 10% of the girls in the relevant age group were enrolled. By 1978, 13 years later, enrollments had jumped significantly from 131,000 to over 181,500. At the post secondary level in 1972 there were 5,500 college and university students. This number increased from 9,874 to 29,000 in 1979 (with obvious implications for a commensurate declining quality of instruction). Provision is also made under the Government's program of Malagasization, for a two year period of national service for all graduates of secondary schools. Following 3

months of military training and indoctrination, and teaching instruction, graduates are sent to the countryside to teach adults in the villages (fokotany). A further manifestation of the importance of education is the priority Government officials place on the need for training for short term needs expressed during meetings conducted in relation to CDSS preparation.

An obvious implication of the exceptionally high rate of schooling across the country is the requirement for adequate employment upon completion. In 1978, for example, approximately 54,500 students left primary school, and only 20,000 were believed to have found employment requiring primary school education. Among men in urban areas aged 15-19 with some education, almost 2/3's were without work. Among the cohort aged 20-24, the unemployment rate was probably 30% (Senn no date: 3).

3. Health, Nutrition and Family Planning

Despite an expanding health service, the general level of well being in Madagascar is not as exceptional as the educational status of the population. Live expectancy of birth, based on the 1975 Census, was estimated to be 44.7 years for men and 47.6 years for women (up from 34.5 years for men and 37.5 years for women in 1955-60). The infant mortality

rate was generally estimated to be 147 per 1000, although that figure is likely to be lower and thus the population growth higher, than offical figures indicate (Senn, personal communication 1983). Malaria is prevalent in the coastal regions, especially on the East Coast. Respiratory illness and gastroenteritis account for a large proportion of infant morbidity and mortality. Schistosomiasis is also present, due to the lack of sewage facilities and extensive systems of water-based cultivation. It is estimated that during the 1976-79 period, only 16% of the rural population had access to safe water.

Considerable efforts are being made by the Government, with donor assistance, to increase the effectiveness and distribution of health services. There are an estimated 1500 primary health care trainees involved in a program supported by UNICEF for example hospitals. Distribution of services are still uneven, however. Population per hospital bed in 1978, for example, is reported to be 443 in Antanarivo Province, but 755 in Franarantsoa Province and 993 in Toamasina Province.

The following are estimates of coverage of primary health care:

Primary Health Care Coverage Nationwide

	1978	1981
Infant Care	14%	17%
Prenatal Care	28%	36%
Postnatal Care	7%	17%

Source: (UNICEF: Programme de cooperation UNICEF - Republique Democratique Malagasy 1982-84 Annex A.12. Note 1981 - figures are based on estimates.

Estimates of nutritional status countrywide are conflicting, illustrating the paucity of date available. UNICEF estimates suggest that moderate malnutrition is prevalent among at least 1/2 the child population. Other reports concerning nutritional status suggest limited protein vitamin and calcium deficiencies, but adequate caloric intake. Socio-cultural factors (particularly food taboos) influence the number of dietary practices among the various ethnic groups; which in turn affect the nutritional status of especially the younger cohorts of these groups.

The Government has not announced a formal position in favor of promoting fertility control (including family planning) despite a rapidly growing population on a fairly limited productive land base (1/8 of total land country wide). Mention is frequently made to the existence of a 1920 French anticontraception law adopted in Madagascar in 1933, however although this law is still "on the books," no anticontraception compaigns have been carried out. A major reason for caution in the domain of fertility and fertility control is the extent to which beliefs and attitudes on this topic are interrelated with widespread beliefs and taboos regarding respect for the dead (razana). (see Annex A)

The Government recognises rapid population growth to be a possible threat to achievement of equitable socio-economic development, and identifies acceleration of development effects and improvement of the health status of women and children as major means to meet that challenge. There is, under this strategy, the assumption that accelerated activity and a reduction in the rate of maternal and infant mortality will lead to changing attitudes particularly among women which will include a preference for smaller family size. A recognition of increased incidence of infant morbidity and mortality, shortened periods between pregnancies, and increased numbers of abortions in certain areas, has reinforced Government's inclination to allow family planning information and services

in health programs for couples who want them particularly those provided by private agencies. The Government additionally recognises the need for an improved statistical data base regarding demographic conditions, and has identified with concern significant bottlenecks in the current system of demographic research. Plans for a program of population education for use in the school system is underway with UNESCO and UNFPA assistance.

4. Economic Services

The Government has made a comprehensive series of interventions to carry out its socialistic policies since 1977. These attempts, and their largely well-recognized failures, have been discussed in other portions of the CDSS analysis. Perhaps most significant to note at this point is the Government's willingness to review performance of its various Government and parastatal institutions in promoting productivity, and to accept the largely negative findings that such recent reviews bring.

B. Private Enterprise

No assessment was made of this sector from the social perspective. See materials on Industry in Area Handbook, and CDSS. Cooperatives (and precooperatives) are addressed in the latter. Mention has been made in other sections of this report of the role of minorities (e.g. those of Indian subcontinent and Chinese origin) in private sector commerce with smallholders.

C. Non Government Organizations

1. Religious Organizations

It is estimated that in 1982 some 57% of the total population adhered to traditional beliefs; 40% were Christians, about evenly divided between Roman Catholics and Protestants. The dominant Protestant group is an amalgamation of the Church of Christ, the Friends Church, and the Evangelical Churches of Madagascar; and the Malagasy Lutheran Church. Protestant churches have long had Malagasy pastors. As of the early 1978s five Missionary Societies with an estimated 167 missionaries were also active. Approximately 1/3 of all Catholic priests were Malagacy in the early 1970's. Approximately a dozen Catholic Missionary groups were also active. Protestantism has been historically the denomination of the upper classes; Catholicism, that of slaves and the Cotiers (peoples of the Coast). These divisions, however, were no longer clear - cut in 1982. Followers of Islam constitute something less than 3% of the population; the majority are located in Mahajanga Province, in the West. Religious organizations were especially active in the colonial period in the education sector, and a significant portion of secondary schools are still private and under denominational sponsorship.

2. Non Religious Organizations (PVO's)

(Graham)

D. Indigeneous Local Organizations

The major traditional territorially-based organization at the local level is the fokonola - This institution is discussed above, and in Annex B. Women's self-help work groups have been significant in rice growing areas of Madagascar, mainly these are formed to assist group members in planting, weeding and harvesting rice. Credit associations of either gender, or mixed, are not traditionally found in Madagascar society. Large family groups, and still larger clan groupings comprise the main non-territorial forms of social organization.

V. IMPLICATIONS OF PRELIMINARY SOCIAL ASSESSMENT

A. Small Farmer Orientation

Madagascar's economy is built largely on small farm families who farm rice and keep cattle as a single system, or one or the other. The average per capita consumption of rice is the highest in the world; beef consumption one of the highest in Africa. There is a major lack of recent data of farming systems in Madagascar resulting in significant variations in available analyses. The distribution of livestock among families in rice growing areas is one example of variation. One study estimates family cattle ownership to

be over 50% (Razafindratovo - Ramamongisoa, 1982); other studies suggest the figure to be closer to 20% (Service de la Statistique Agricole, 1982) Production of both these major food and income sources has not kept pace with population growth and economic potential, yet there is scope for significant improvements in both the near and mid-term. A focus on one or the other or both of these productive resources would have high potential for improving the status of the rural poor. An essential part of initial efforts should be collection and analysis of data (eg. the 78 Socio-economic Survey) relevant to this segment of the population.

B. Emphasis on Changes in the Government Approaches

One source of the major problems affecting the smallholder has been the assumption of imbalanced and ineffective Government roles and policies vis-a-vis the smallholder, and towards the traditional "middlemen" who provided essential services (eg. credit, marketing, consumer goods) to the smallholder. Another related problem has been the over-ambitious efforts of the Government to make social services, (e.g. education at all levels) available to as many as possible. AID's first efforts in Madagascar should take into account past excesses, and thus avoid over concentration on Government involvement in directly - economically productive activities, and costly expansion or improvement of basic social services.

A critical exception to this approach is assistance in provision of family planning in formation and services, and possibly promotion of breast feeding to encourage existing practices which serve to space births. If requested, assistance to improve incountry capability in demographic research and dissemination should also be considered on a priority basis. See C. below.

C. Consideration of Population-related Activities

USAID has considerable experience and capability in assisting Governments in Sub-Saharan Africa mobilize their own and other resources to address the problem of rapid population growth. Despite initial appearances, Madagascar has considerable immediate need and potential for relatively quick realization of bith spacing and limitation efforts. Only 1/8 of the country is arable, widespread education is creating a rapidly growing class of unemployed youth which cannot be readily absorbed in the industrial sector or on rice perimeters. Assistance should be considered for the development of an country system of population data collection and analysis to improve the basis for decision-making, and assistance to family planning information and service delivery activities particularly in relation to the obvious targets of an initial program (e.g. urban dwellers, educated women, possibly industrial workers). It is likely, given the present

population trends and growing interest and commitment of leadership in the Ministry of Population and Social Condition (among others), that the Government will become increasingly liely to seek assistance in this area in the near term.

D. A Coastal Focus

The Central Plateau is favored with the best agricultural land, the highest density and concentration of people (including the only metropolis) and the greatest endowment of development-related infrastructure. In the very short term, assistance to localities lying on the Plateau will probably present the least logistical and related difficulties, and offer the highest returns. There are cogent reasons, however, for considering other regions of the country for assistance in the near and mid term, in addition to the most obvious - that of concern for an equitable distribution of development resources. Several of the secondary towns on the Coast, for example, Mahajanga (the town visited by members of the CDSS team) are well situated as regional growth centers, serving a wide agriculture and livestock production area. In addition these seaport towns offer potentially cost-effective facilities for the marketing processing and exporting of agricultural produce in this island economy. Currently the High Plateau cities particularly Atananarivo, serve as major focal points for the country's economy, despite lack of access to many areas due

to exceptionally poort transport infrastructure. The seaport towns are closer to each other and other countries by sea access (e.g. rather than through Antananarivo); they are also closer to the major livestock regions and the population within them than the urban centers on the Plateau. In planning an area-based activity, therefore AID should take into account Madagascar's distinctive pattern of urbanization which results (including rapid population growth in secondary cities) in a number of regional growth centers having excellent access to export markets by sea.

E. Employment Generation

Given the rapid population growth rate, the relatively widely dispersed access to education at all levels, and the relatively limited scope for absorption of well-education youth in small-scale rice farming, it is recommended that a focus on development of labor-intensive enterprise opportunities be included in the CDSS.

F. Local Level Institutions for Implementation

At first look, Madagascar appears less well-endowed with the range of diverse private and voluntary, and indigenous institutions which migh be included as part of an area-based development efforts. There are private and voluntary

organizations both religious and non-religious functioning in rural areas, but there appear to be relatively few with longterm involvement in local level development. The fokolona promises to be a major institutional resource mobilizing participation of the local level. Its past performance and present role situated as it is between state and local community however will require careful assessment within the specific development context under consideration prior to its inclusion in the design of a project.

Traditional Beliefs and Institutions

The most basic of all traditional beliefs and the foundation for Malagasy religious and social values is the idea of the intimate relatedness and interdependence of individual human beings and, most significantly, the close ties between the living and the dead. This expressed in a Merina proverb quoted by the psychologist Octave Mannoni: "the living are like the branches of a pumpkin stem; at the base there is but one stalk." Although all the Malagasy peoples have traditionally accepted the existence of a supreme God, known commonly as ZANAHARY (the Creator) or Andriamanitra (the Sweet, or Fragrant, Lord), the dead have been conceived as playing the role of intermediary between the supreme God and man and have the power to affect the fortunes of the living for good or evil. Although razana is often translated as "ancestor," this does not convey the full meaning of the term, since razana is used to refer to all dead persons - including children - who are related to the speaker.

The dead are sometimes described as "gods on earth," who are considered the most important and authoritative members of the family, intimately involved in the daily life of the living members. At the same time, the razana, as ancestors, are the source from which the life force flows and the creators of Malagasy customs and ways of life. The living are merely temporary extensions of the dead. Great hardship or trouble can result if the dead are offended or neglected. The link between the living and the dead among the Malagasy is the tomb, which is a prominent part of the island landscape in all regions. It is built with great care and expense, reflecting the privileged position of the dead, and is often more costly and substantial than the houses of the living. The land upon which the tomb is situated is inalienable, and social and economic practices are designed to guarantee that tomb lands are kept within the family. Tanindrazana (the land of the ancestors) is a term that refers broadly, in contemporary political pronoucements especially, to the "fatherland" but means essentially the land upon which the family tomb is built. The anthropologist Maurice Block describes the Merina as living, in effect, in two localities: the place where one happens to work and keep one's household, and the tanindrazana, a locality of much deeper sentimental significance, the spiritual center where the tomb is located. The two are usually located in places separated by a considerable distance. Among some peoples, the choice of which tomb to be buried in - that of the father's or mother's family - determines individual descent-group allegiance.

Note: The Annexes have been taken from Area Handbook of Madagascar.
(Annex A, Pg 51-53; Annex B, Pg 58-60; Annex C, Pg 60-61
Annex D, Pg 61-62; Annex E, Pg 82-85)

The tombs of the various peoples around the island differ somewhat in form. Merina tombs tend to be solid, stone structures, built partially underground, with a chamber in which the bodies of ancestors are kept on shelves, wrapped in silk shrouds. The traditional tombs of the Mahafaly in the Southwest were built of stone but surmounted by intricately carved wooden posts depicting human and animal figures. More modern Mahafaly tombs particularly those built by rich families, are often made of concrete, with glass windows, brightly painted designs, and often remarkable depictions of airplaces, taxicabs, or other modern paraphernalia mounted on the roof. At one time it was the custom of the Sakalava people living around the Morondava River on the West Coast to decorate their tombs with carvings showing explicit sexual activity. These were meant to illustrate the life-giving force, or fertility, of the ancestors.

Among the Merina and Betsileo peoples of the Central Highlands, the custom of famadihana (the "placing" or the "turning" of the dead) reaffirms the link between the living and the dead. This takes place when a person is taken from a temporary to a permanent tomb to be wrapped in new shrouds, or when a body is moved from one tomb to another. These ceremonies are costly, the main expense being food for a large number of relatives and guests. They represent for the peoples of the Central Highlands, however, a time of communion with the razana and a means of avoiding or reducing guilt or blame. It is considered a serious transgression not to hold a famadihana when one is financially able to do so. The ceremony is presided over by an astrologer, but the chief participants are the close relatives of those persons whose remains are being moved or rewrapped. They approach the tomb with some dread because of the great power of the dead and taboos against contact with them. Often they have to be pushed closer to the tomb by the guests. Fear, however, gives way to a kind of ecstasy and happiness as the body is brought out, rewrapped, and bundled up in straw mats. It is carried about as people give speeches recounting the life of the deceased, play music, and dance. Zebu - often in large numbers - are sacrificed. The consumption of beef in most parts of Madagascar is regulated by the occurrence of ceremonies honoring the razana because that is the only time, traditionally when zebu can be slaughtered. This ceremony, what Block calls "ritual sacriledge," though it may seem macabre to Westerners affirms a basic belief about death quite differenct from that of the West. In this view, death is perceived not as a hard-and-fast limit a kind of oblivion (even if there is an afterlife) for the deceased, but as a part of life within the limits set by ritual, in which the razana are participants and authorities in the community of the living. The famadihana resembles in

spirit a family reunion or the more austere ancestral ceremonies of China and Korea, where the spirits of the ancestors are invited to a feast given by members of a family or lineage, rather than the funerals of the West, which are "final endings." The Malagasy, according to Mannoni, believe in the dead rather than in death.

Although the famadihana does not occur outside the Central Highlands and the attitudes of the Merina and Betsileo toward the dead differ in certain significant respects, the idea of the dead as beings to be respected is universal in Madagascar.

The Fokonolona

The fokonolona, or village council, is considered by many observers to be one of the most characteristic Malagasy social institutions. It is, in fact, not a "pan-Malagasy" cultural element but an institution that evolved among the Merina and was implanted in other parts of the country by both the Merina and the French. Even among the neighboring Betsileo it is considered something of a foreign implantation. Ideally an autonomous unit of village self-government, the fokonolona has, in reality, very often been a creation and an instrument of centralized authority. Yet it has been described by the Ratsiraka government as the fulcrum upon which the country will be lifted to development, and it is perhaps unique among traditional (or quasi-traditional) institutions in being based not on kin affiliation but on locality (see The Structure of the State, this ch.). Through its operation it is possible to see Malagasy social values as they are applied to the situations of daily life.

The fokonolona offers aid to members in need (when a child is born or a circumcision or funeral is held), undertakes village projects (such as the repair of rice fields or village buildings after a cyclone), coordinates mutual aid at planting and harvest time, and occasionally chastises - or ostracizes - those considered wrongdoers. The fokonolona ties individuals together in a network of mutual obligations. Its meetings bring together people of different kinship groups within a village in a copperative setting, and the common use of fictive kinship terms promotes the creation of an atmosphere of finavanana, necessary for sincere cooperation.

The fokonolona, however, traditionally has not been a democratic institution despite its town meeting character, for its meetings tend to be dominated by influential local notables. One observer suggests that the fokonolona in certain villages has seemed to exist primarily to place a stamp of approval or consensus on the decisions of local notables and that opposition to their point of view is rarely - if ever - encountered. Local political power remains apparently a function of age and membership in a high-status kinship group; in some cases andevo attend fokonolona meetings, but their influence is marginal.

In the opening pages of the Charter of the Malagasy Socialist Revolution, Ratsiraka defined his government's goals in terms of the universal principles of democracy, justice, and

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equality. He also stressed, however, that a "new revolutionary ethic .. must permeate society as a whole, in its individual, familial, civic, and professional aspects, as well as in its national aspect." This demands what he called "a revolution of our mentalities ... the goal of making a new Malagasy." This seemed to imply a concern with overcoming not only the vestiges of European colonialism but the traditional, hierarchical order defined by the supremacy of the local notables in the village and the values associated with that order. Through the old fokonolona, exploitation on the village and national levels was linked because local and national elites supported each other. Reform of the fokonolona has been seen as essential to the success of the socialist revolution. The extent to which the old-style fokonolona has been changed, however, giving status to inferiors and giving younger persons a greater voice in deliberation, remained unclear in 1982.

At meetings of the fokonolona it is possible to see one of Madagascar's most striking cultural expressions, the kabary (discourse), a lengthy speech in which the speaker used flowery and poetic language to make his point in a most indirect fashion. A speaker will usually begin his address with a lengthy introduction ("removal of faults") in which he apologizes at length for his unworthiness. "Excuse me for speaking," he will say, "I am not a father, but a son, not an elder, but a young man." This is not dictated by excessive humility but by the conviction that every statement is bound to hurt someone's expectations. Then the speaker will launch into a general moral statement expressing love of kin, family, and nation and respect for elders; all of it will be embellished with copious proverbs and perhaps a quote or two from the Bible. Only after a very long time will he discuss the matter at hand and state his opinion.

The people will listen silently from beginning to end. Those who disagree will not express their opinion but will counter with a speech that at first seems to support the first speaker but that actually contains a hidden counterproposal. They might express their views by telling jokes. If people laugh or if they simply act according to the second speaker's proposal, the first has lost. There will never be an open confrontation, however.

Tradition and Social Change

Madagascar has been exposed to European influences for several centuries and, particularly in the Central Highlands around Antananarivo and on certain portions of the coast, the transition from traditional to modern has been gradual rather than abrupt. The invention of an alphabet for the Malagasy language, the promotion of literacy and the establishment of a school system by missionaries in the early nineteenth century were probably as revolutionary as any changes brought about by colonialization in the twentieth century, although the latter has been the diffusion of European influences to more remote parts of the island. Observers have pointed out, however, that despite superficial westernization, the Malagasy people maintain a psychological orientation basically different from that of Westerners. Mannoni draws the contrast between the "dependence" of the Malagasy, expressing close ties not only with other living persons but more basically with the dead, and the independence and psychic isolotion of the Westerner. Block describes the Merina as deeply conservative, living not only in a modern world defined by Western concepts and technology but also in a traditional world defined by a specifically Malagasy system of values centered on the tomb and the dead. Although the Merina acknowledge the power and efficacy of the former, they also dread it. Thus Westerners and westernized Malagasy were widely considered, "heart stealers" or "blood stealers," draining the life forece away from innocent Malagasy in the manner of vampires. There is disdain and contempt for the individual who pursues modern goals and aims but who "forgets the tanindrazana." The dichotomy between Western and Malagasy things is described as a persistent element in the structure of the daily life of the people, defining their behavior and expectations.

In 1982 tradition remained entwined in modernity. It has been reported that government officials, while directing development projects in the countryside, have had to pay for sacrifices and ceremonies when, inadvertantly, fady related to gravesites have been violated. Old beliefs in 1982 were most firmly rooted in the rural areas, as might be expected, and the lack of efficient transportation and communications facilities made it difficult to dislodge them; yet even in the urban areas and among the most educated, old beliefs persisted - cultural elements that added a unique dimention to the unfolding of social and political conflict.

New Classes and Social Elites

In the villages the social structure has apparently continued to be defined in terms of unequal and hierarchically arranged kinship groups, although migration has attenuated the links between individuals and their tanindraza in many cases. Peasant youth have become increasingly alienated from traditional institutions, including the fokonolona. In the cities a class structure based on the division of labor in a technically more developed society with links to the outside world has grown up. This reportedly included in the 1970s an upper middle-class elite (haute bourgeoisie) of high government officials; the directors of large economic and financial enterprises; professionals such as lawyers doctors, and university professors; and the ministers of the largest Protestant churches (these latter having been an elite, particularly in the Central Highlands, since the nineteenth century). A lower middle class (petite bourgeoisie), including lower level government officials, schoolteachers, shopkeepers, and white-collar workers, lacked the economic resources, social status, and political power of the elite. It distinguished itself nonetheless from the urban lower class in terms of education, knowledge of European manners and customs, ability to converse in French, and a puritanical devotion, according to some observers, to hard work in contract to the more worldly upper middle class. The lack of an industrial base, even in the urban areas, has apparently retarded the growth of a genuine working class. A marginal population of the unemployed or underemployed, however, many of them young emigrants from the rural areas lacking adequate education or skills, has been a prominent feature in urban life. In 1972 unemployed youth calling themselves the Young Cowboys of Madagascar (Zale/Zatova Western Anivonny Madagasikara - ZWAM), distinguished for the wearing of cowboy hats, burst upon the scene. Supported by Power for the Little People (Mpitolona ho amin'ny Fanjakan'ny Midinika - MFM), the ZWAM became politically active as the Party of the Unemployed Youth of Madagascar (Zatovo Orinasa Anivonny Madagasikara - ZOAM). Its members served as "shock troops" for the radical left wing during the 1972-75 period (see Political Development, this ch.).

Although the Central Highlands has traditionally been the most developed region of the country, a modern economic and professional elite has appeared among the coastal peoples. It dominated the political process during the presidency of Tsiranana, himself a Tsimihety, and in 1982 continued to play an important role in national affairs.

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Although women in traditional Malagasy society were seen as inferior to men in terms of social role, some principally those from urban upper middle-class families, have obtained professional positions after receiving a university education. It is reported, however, that even in the cities, social expectations are such that women are obliged to defer to men in the expression of opinions or other aspects of daily life, even if the latter are less well educated.

Traditional Agriculture

Traditional farming methods varied from one ethnic group or location to the other, according to population density, climate, water supply, and soil. The most intensive form of cultivation was practiced among the Betsileo and Merina groups of the Central Highlands, where population densities were the highest. At the other extreme were the extensive slash-and-burn methods of bush clearing and shifting cultivation in the south and east.

The Betsileo were probably the most efficient traditional rice farmers. Their rice paddies were constructed on narrow terraces ascending the sides of steep valleys in the southern portion of the Central Highlands, creating an intricate man-made landscape reminiscent of Indonesia or the Philippines. The irrigation systems utilized all available water, which flowed through narrow canals for considerable distances. Some of the rice paddies covered no more than a few square meters. Only those surfaces that could not be irrigated were planted to dryland crops.

In parts of the Central Highlands two rice crops a year could be grown, but not on the same plot. The Betsileo used a variety of local species that could be sown at different times employing irrigation to grow some varieties in the dry season and waiting for the rainy season to plant others. The fields surrounding the typical Betsileo village often represented a checkerboard of tiny plots in different stages of the crop cycle.

The cultivation cycle began with the repair of irrigation and drainage channels and plowing, which was performed with the long-handled spade or hoe. Manure or fertilizer was then spread over the field. If the supply of manure or artificial fertilizer was limited, only the seedbeds would be fertilized. After fertilizing, groups of neighbors and kin would join in a festive trampling of the fields, utilizing cattle if available. Occasionally trampling would take the place of plowing altogether. If the rice was to be sown broadcast, it might be done on the same day as trampling. In the more advanced areas, the seedlings were raised in protected seedbeds and transplanted a day later. Planting was the task of the women.

Trampling and sowing required the largest number of people. The minimal labor force during the crop cycle was

about five people - two adult men, a boy to tend the cattle, one adult woman, and a girl for household tasks and light farm work. A larger household unit might find it necessary to subdivide land; a smaller unit would have to attract kin to the household. After the transplanting, little was done until harvest, which require ten to fifteen able-bodied men using straight sickles or serrated knives. Threshing was done against a stone or with a flail by a group of six to ten men and women; elsewhere cattle were driven around the threshing floor to separate rice from the straw.

Rice-farming techniques among the Merina resembled those of the Betsileo but were usually less advanced and intensive. The Merina territory included some areas where land was more plentiful, and there were broader valleys permitting less laborious means of irrigation and terracing. Although rice was still the dominant crop, more dryland species were grown than in the Betsileo country, and greater use was made of the hillsides and grasslands.

In the forested areas of the eastern coast, the Betsimisaraka and Tanala peoples also practiced irrigated rice culture where possible, as did groups of Betsileo imigrants. The dominant from of land use, however, was shifting cultivation by the slash-and-burn method, known as tavy. The smaller trees and bush were cut down and left to dry, then burned just before the rainy season. The cleared area was usually planted with mountain rice and maize. After two or three years of cultivation, the fields were left fallow and were gradually covered by a secondary vegetation known as savoka. After ten or twenty years, the area might be cultivated again.

Because the slash-and-burn method destroyed the forests, other vegetation cover, and promoted erosion, it has been made illegal. Government assistance was given to those cultivators who prepared rice paddies instead, and those practicing tavy were fined or imprisoned. Despite the panalties, and much to the chagrin of forestry agents, tavy continued to be practiced in the 1980s. Even those who cultivated wet paddies often practiced tavy on the side. The crop cycle for tavy was shorter than for irrigated rice, and generations of experience taught that it was the only insurance against the draughts that occurred about every three years. Moreover, the precipitous slopes and heavy, irregular rains made it difficult to maintain affordable and controllable irrigation systems.

A similar system of shifting cultivation was practiced in the arid, sparsely populated regions of the extreme south and southwest. The dry bush or grassland was burned off, and drought-resistant sorghum or maize was sown in the ashes. In the Antandroy and some Mahafaly areas, however, the main staples of subsistence - cassava, maize, beans, and sorghum - were also grown around the villages in permanent fields enclosed by hedges.

Dry-season cultivation in empty streambeds was practiced largely on the western coast and in the southwest and was called baiboho. The crops were sown after the last rising of the waters during the rainy seasons, and after the harvest fresh alluvial deposits naturally replenished the soil. Lima beans (known as Cape peas) were raised by this system on the Mangoky River system delta, along with tobacco and a number of newer crops.

The traditional livestock-raising peoples were the Bara, Sakalava, and other groups of the south and west, where almost every family owned some zebu cattle. The common practice was to allow the animals to graze almost at will, and the farmers took few precautions against the popular custom of cattle stealing. These farmers were also accustomed to burning off the dry grass in order to promote the growth of new vegetation fo. animal feed. The cattle were slaughtered only upon ceremonial occasions, but these were so frequent that the per capita meat consumption among the cattle herders was very high.

Selected Bibiography

Donque, G & M. Petit
1970 - Geographie 3 Madagascar
Paris: Hatier, Collection A Journaux

Ministry of Agriculture Production and Agrarian Reform
1982 - Le Secteur Rizicok a Madagascar
Antanariva: Service de la Statistiques Agricoles

Ministry of Population & Social Conditions
1982 - Cinquieme Enquete
Demographique Aupres
Des Governments (UN)

Razafindratovo - RAMAMONJISOA, Janine
1982 - Riz Rapport Socio-Economique

Senn, Harison
ND (prob. 83) "Education en Matiere de Population
A Madagascar

Service de la Statistique Agricole
1982 - Le Secteur Rizicole
A Madagascar, Service de la Stattistique
Agricole

UNICEF
1982 - 1982-84 Programme de Cooperation UNICEF
Republique Demographique Malagasy
Annex A Plan d'operation

United States Government
1982 - Indian Ocean Five Island Countries
ed. Frederica M. Bunge Washington, D.C.
Foreign Area Studies, The American University

World Bank
1979 - Madagascar - Recent Economic Development
and Future Prospects (2 vols)

1981 - Madagascar Economic Memorandum

1982 - Madagascar Second Village Livestock Appraisal
Report
1983 - Madagascar Agriculture and Rural
Development Sector Memorandum

TRANSPORT SECTOR
FOR
CDSS INCLUSION

I. INTRODUCTION

On two separate occasions, during 1982 and 1983, the United States Department of Transportation, Federal Highway Administration, was represented in Madagascar by Mr. Robert D. Nehler (FHA Washington, D.C., 1982) and Mr. Gus Michaels (FHA Denver, Colorado 1983). Mr. Nehler's task was primarily that of assessing current road conditions, maintenance capability of the GDRM, and defining specific problem areas. Mr. Michael's was on a training mission in the field of construction materials and the application of nuclear density devices.

REDSO/ENG worked closely with both Messrs. Nehler and Michaels and drew heavily upon their experience as a supplement to REDSO's continuing efforts. Although dissimilarities arose in the form of needed, specific, future activities, there was a consensus regarding major problem areas, causes, and general remedial requirements.

Throughout REDSO/ENG evaluations, the FHA findings and conclusions were found to be closely aligned with those of REDSO's. Areas of divergence regarding specific projects to be recommended for future action were only those distinguished by REDSO's greater awareness of budgetary constraints. Such differences, therefore, became almost exclusively those of priorities and not of operational substance.

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The close relationship between FHA and REDSO efforts, therefore, adds credence to subsequent, in-depth, evaluations by the latter.

Excerpts from the Nehler report comprise the following Section II.

II. NEHLER REPORT EXCERPTS:

In evaluating the roads of Madagascar, and making recommendations regarding their maintenance, rehabilitation, reconstruction and construction, emphasis appears to be as described in a recent Transportation Research Board Publication titled "Transportation Technology Support for Developing Countries" which states:

> "The development of agriculture, the distribution of food, the provision of health services, and the access to information through educational services and other forms of communication in rural regions of developing countries all heavily depend on transport facilities. Although rail and water facilities may play important roles in certain areas, a dominant and universal need is for road systems that provide an assured and yet relatively inexpensive means for the movement of people and goods. The bulk of this need is for low-volume roads that generally carry only 5 to 10 vehicles per day and that seldom carry as many as 400 vehicles per day."

Many roads in Madagascar are in fact nonmaintainable by those operations normally considered as maintenance. This situation was brought about by one or two conditions: (1) there has been a lack of maintenance on many

sections for so long that the condition has deteriorated to the point where normal maintenance cannot provide an acceptable level of service; or (2) the road section was never really constructed in the first place; it just grew from a trail with no planned alignment, grade elevation, drainage, or surfacing. Some of these road sections can be reasonably maintained during the dry season, but become impassable during wet periods. In many provinces of Madagascar this wet condition extends over a considerable period of time which creates severe problems in the transport of locally produced materials to markets.

Regardless of the cause, the time and resources spent on maintaining these roads have little effect. Madagascar has the immediate need to identify these sections and undertake programs of minor construction and rehabilitation to make these roads maintainable. Only then can a normal maintenance program be carried out with satisfactory results.

Most of the Madagascar road system is unpaved. One of the characteristics of unpaved roads is that surface materials are lost over a period of years through the combined actions of traffic, surface water runoff, and windblown dust. Under average conditions, this can amount to between 2 cm - 4 cm of depth per year depending on the soils.

If lost material is not replaced on natural soil roads, the surface elevation gradually becomes lower and lower until it may be below the adjacent ground level. When this happens, deterioration accelerates because the

roadway itself often becomes a drainage channel. When imported aggregate surfaces decrease in thickness, there is a loss in the strength and stability of the riding surface. Therefore, resurfing operations for long continuous sections of unpaved roads need to be scheduled every few years. The frequency depends on the rate of loss of materials, which in turn depends on traffic volumes, characteristics of roadway surfacing materials, and weather conditions. The period between resurfacings may be as short as every year. Possibly as long as 6 to 8 years or more.

Motor vehicle transport has expanded in recent years in Madagascar. An ambitious road construction program has been undertaken, with foreign funding assistance. However, in Madagascar, road maintenance has been so inadequate that even newly constructed roads are deteriorating far more rapidly than would normally be expected.

The experience of officials in Madagascar in planning and managing extensive road maintenance programs is quite limited. There is an acute shortage of even the basic equipment and materials needed to even marginally maintain the over 8000 kilometers of National Road System.

There seems to be a lack of committing the necessary budget needed to accomplish a maintenance program. It appears that whenever there is a question of allocating available funds for maintenance work or construction of new roads, construction of new roads usually wins. New construction

has much more appeal and offers greater satisfaction to highway engineers than does routine maintenance, and political pressures outside and within the Ministry of Public Works may often influence decisions for new construction projects.

Several administrative actions or combinations of actions might help alleviate this problem:

1. A firm commitment by the Government and the Ministry of Public Works that road and bridge maintenance will have first priority and that funds earmarked for that purpose will not be diverted to other uses is necessary.
2. Expenditures for construction and rehabilitation work will be limited to those available funds in excess of maintenance requirements.
3. Almost all construction work will be performed by private, non-Government contractors. Ministry work forces will perform only maintenance operations.
4. If Ministry work forces are to perform both maintenance and construction work separate organizational units in the Ministry, Provincial and District levels should be established with separate direction and supervision so that maintenance efforts are not diverted to construction or other work.

The World Bank Report requested establishing a unit within the Ministry for maintenance operations, Item 41c)i). This has been done by the Ministry. I strongly suspect that this division may also be necessary at the Provincial and perhaps District levels before an effective maintenance program is realized. At present the Provincial Engineer has too

many Chiefs, Road Construction, Road Maintenance, Buildings, Ports and Harbor Facilities, local politician's desires, etc. A realistic maintenance program will require much of his time which might not be available to him under the current organizational arrangements.

In our July 30, 1982, meeting with Andre Marcellin of the British Embassy and Lindsay Thomas, British Engineer, I was asked to summarize my thoughts on the Ministry of Public Works needs, especially those that might involve the USA. In addition to those previously mentioned in this report and reports Nos. 1 and 2 the following areas, I believe, need either development or review by the Ministry of Public Works, with possible assistance:

1. Specifications for Roads and Bridges. Currently Madagascar is using a 1961 French specification. Suggest they update those specifications.
2. Standard Operating Procedures (SOP's). I could find few (if any) documented operating procedures and few guides, within the Ministry of Public Works except for a 1973 surface thickness design manual. I recommend the Ministry begin developing Design, Construction, Materials and Maintenance Manuals for use by Engineers throughout the Ministry.
3. Obtain current literature on Design, Construction, and Maintenance. It would be money well spent if the USA would purchase 12 sets of all Transportation Compendiums and Synthesis prepared under Contract AID/OTR-C-1591, Project 931-1116. These should be in French. These publications were originally published in English but were to be published in French and Spanish, probably done by now.

Another publication which is referred to on page 28 of Synthesis No. 3 above is a forthcoming (possibly done by now), Publication of the International Labour Office (World Employment Programme) and International Bank for Reconstruction and Development (Transportation Department), "Guide to Tools and Equipment for Labour-Based Construction." This publication discusses the proper design, manufacture, maintenance, and use of a range of tools and simple equipment potentially suitable for use with labor; handtools, animal-drawn equipment, tractor-powered implements, and small motorized devices are to be included. This promises to be a most valuable resource and may have applications even beyond a roadway maintenance program.

4. Materials Application and Testing.

5. Assistance with Bridge Design and Location.

6. Assistance in establishing a Maintenance Program.

7. Availability of Technical Data and Training. The Ministry's library is a study of empty shelves as are most of the Director's individual libraries. The advances in road design, construction, materials, and maintenance in the past 5-10 years are little known by most Ministry personnel. It is as if much of the educational process has stagnated since the revolution (1976). There is a tremendous need and expressed desire for current, "state of the art," technical data and perhaps training.

III. CURRENT ASSISSMENT:

The current status of Madagascar's transport sector is akin to a one-legged person at a posterior-kicking contest; i.e., having a functional requirement but being totally incapable.

Through maintenance neglect, and often inadequate original standards, roads, with a few exceptions, range from marginal to impassable in terms of traffic-carrying capability. The myriad of causes which lead to the present situation may be summarized:

1— Lack of administrative understanding for the need to maintain a viable transportation system.

2— Lack of awareness that maintenance is a logical and on-going investment to protect the original capital investment.

3— Lack of funds for maintenance and, when budgeted, a lack of firm committment to use these funds for the intended purpose.

4— Lack of an operating, maintenance organization as more than a paper exercise.

5— Lack of, or unchecked deterioration of, maintenance equipment, repair shops, shop tools/equipment, vehicles (both operational and support).

6— Lack of POL.

7— Lack of trained personnel at all skill levels.

8— Lack of training programs, standards and manuals.

Despite the above, there is room for guarded optimism since:

— The GDRM, in general, and the MPW, in particular express both understanding of maintenance benefits and the dire need for such efforts.

— The World Bank's sixth highway program, plus major contributions of other donors, have placed extensive stretches of major roads under reconstruction programs with provisions for subsequent maintenance.

There remains, however, a proliferation of gaps between major programs in the form of support services, a need for emphasis on secondary, tertiary and penetration roads, training in all areas, plus equipment rehabilitation, spare parts procurement, hand-tool acquisition, manual/standard preparation, ortanizational rebuilding, bridge rehabilitation, and more. It is in these less-expensive, but no less important areas that USG participation might be directed with a significant contribution resulting from carefully directed, but smaller infusions of funds.

It is emphasized though, that the greatest "bang for the buck" will result from a transport sector program which is in support of a collateral, and primary, program related to the agricultural sector. Fragmenting the relatively small amount of available funds into unconnected activities will provide negligible impact, will not project even moderate USG visibility, and will certainly be lost "through the crack" between more significant programs.

In short, because of funding constraints, careful efforts should be made to conform with as many as possible of the following

— Maximum benefit to GDRM.

— Maximum possibility of success.

— Maximum USG visibility.

— Maximum use of American "know how".

— Maximum support of programs in the agricultural sector.

— Maximum compatibility with other donor programs.

The GDRM has confirmed the existence, from other donors, of sufficient funds for major transport rehabilitation needs for the period 1 January 1984 through 31 December 1988. Indeed, their confirmation also carried the message that all such money might not be usable due to the lack of counterpart funds. This implies two things:

— Opportunities for USG assistance in the transport sector are probably in smaller, non-major route activities.

— Opportunities also exist for assistance through activities which allow the generation of counterpart funds.

IV. NEEDS:

Repeated meetings with the Minister and Secretary General of MPW, in addition to REDSO/ENG's assessment, resulted in a formidable list of needs.

It must be recognized that the deplorable state of Madagascar's transport sector makes each task on the list a vital entity but, equally, funding constraints preclude overall USG assistance. Subsequent establishment of objective prioritizing is, therefore, paramount. No effort is made at this time, however, to establish such a pecking order since, realistically, that must follow, in the best supporting manner, future selection of appropriate agricultural program(s) by location, type, intention, and size.

It is further emphasized that, in selecting both the agricultural and the related transport sector projects, care must be exercised, through

a "feel" for costs, to ensure that a disproportionate balance is not selected which would deplete available funds without adequate on-site completion; i.e., do not maximize project size in either sector to such an extent that there are insufficient funds to complete the necessary counterpart project.

Accordingly, a non-prioritized shopping list might include, but not necessarily be limited to, the following:

1. Immediate, short, intense training effort to effect emergency highway maintenance /equipment operation-maintenance training with currently available personnel and equipment. (NOTE: this AMDP-funded project, originally scheduled for fall 1983 is now understood to be re-scheduled for spring 1984.)
2. Provide American, French-speaking, engineer to accompany MPW staff in 1984, on annual "campaign" to assist in immediate-goal, road assessment. (NOTE: this project, believed to be ESF funded, is tentatively scheduled for 1984.)
3. Coordinate a report, through the use of an American consultant, on all current transport-sector activities by other donors and GDRM, to determine how far each goes, level of involvement, status, and product, ~~project~~, on-going needs, training component, equipment/spare parts drop, etc.
4. Training in the USA, both in English and technical areas, for selected middle/high management MPW engineers.
5. Supply small tools for road/bridge maintenance such as wheelbarrows, hand shovels, axes, hand compactors, shelters (tents), etc. (NOTE:

After the initial donation, raw materials might be considered for local production of tools.)

6. Bridge assessment project to determine (especially on farm-to-market, feeder and penetration roads) existing capacity, conditions, needed rehabilitation, etc.
7. Provide Bailey bridges and replacement components for road rehabilitation efforts in support of agricultural programs.
8. Training in <u>all</u> areas including, but not necessarily limited to:
   - — Highway maintenance (labor/eqpt mix).
   - — Equipment use and maintenance.
   - — Shop operations.
   - — Assessment practices to determine maintenance and construction needs.
   - — Effective upper-management policies and practices.
   - — Field operations for middle-/low level management.
   - — Most effective use of materials, equipment, personnel, and administrative procedures.
   - — English language.
9. Equip and train a full maintenance "brigade" for future, in-house, operational use and training.
10. Fund reconstruction of road rehabilitation or penetration road construction in support of agro-sector development.
11. Review existing railroad facilities for possible assistance; ex: fund the construction of loading docks and small storage shelters in strategic locations for transport to market of agro-production where road rehabilitation is expensive and in the future.

12. Assess, nation-wide, the location and condition of American construction/maintenance equipment, farm tractors and equipment; determine which can be salvaged and rehabilitated, which has cannibalization possibilities, extent and estimated cost of repair.

13. Furnish spare parts, tools, shop equipment, and assistance for 12 above.

14. Carefully select areas for new equipment drop; i.e., construction/ maintenance, farm, shop, transport, etc.

15. Assist in developing technical manuals and standards in the form of design, construction specifications, materials testing/standards, maintenance, equipment use/repair, etc.

16. Furnish training aids (~~visual~~ Visual aids, et al).

17. Assist MPW in policy revisions and the adoption of efficient operational procedures with appropriate manual development where possible.

18. Finance long-term training in USA at Caterpillar, et al.

19. Assist in warehousing/storage/stock-recording, for spare parts and similar operations.

20. Assist in improving institutional capability/efficiency; MPW's laboratory, legal, financial, analytical, ~~legal~~, design branches.

21. Assist in developing up-to-date technical library.

22. Assist in developing private-~~sector~~ sector contracting for both rehabilitation and new works.

23. Emphasize assistance in feeder and penetration road rehabilitation/ construction in support of agro-areas.

24. Improve capability of military construction units (Army engineers/ Navy Sea Bees) for highway/bridge works since GDRM has no support facilities/funds for force account activities in out-lying areas.

25. Furnish, in addition to small tools, non-available materials such as POL, nails, plywood, gabions, and culvert pipe.

26. Supply special maintenance equipment, such as trucks with low bodies for hand-loading, farm-type tractors for moving materials and pulling smoothing/compacting equipment.

27. In addition to Bailey Bridge material, consider furnishing small, four-wheel-drive vehicles, from military surplus, for personnel transport in outlying areas. (NOTE: MPW specifically requested "Jeeps". These would have to, however, be in good, rehabilitated condition with an adequate supply of spare parts.)

28. Others - ad infinitum.

V. EPILOGUE AND RECOMMENDATIONS:

Since ~~only~~ any pragmatic appraisal of Madagascar's needs in the transport sector would reconfirm (and probably add to) the shopping list of Section IV above, and since an equally pragmatic review of available funding would clearly establish the impossibility of executing all requirements plus efforts in the ag-sector, it becomes a fundamental tenet, that care must be exercised in project/assistance selection.

For practical purposes, therefore, REDSO/ENG has divided the possibilities into two catagories as follows:

- Category I: Projects/Assistance of a small, immediate-need nature which are considered short-term (albeit, possibly on-going) in the period 1984 through 1985.

- Category II: Projects/Assistance for the DA/CDSS period 1986-1990.

Certainly, some cited projects or areas of assistance may, more appropriately, be switched from one category to another; ~~other~~ others, for various reasons, may be totally inappropriate in terms of AID goals or strategic/political policies; still others may umbrella both categories. Regardless, the current situation suggests an impressive and highly variable shopping list of activities.

It is again stressed, however, that selection from such an imposing list, or the development of new possibilities, should address the Agro-transport, bi-sector approach with the latter in support of ~~it~~ and financially compatible with, ~~it~~ the former.

Equally, it is re-emphasized that projects/assistance in the transport sector carry a cost factor which should not be underestimated. Overestimating (reasonably so) is preferable. Along these lines of thought, the axiom of "there are no free lunches - you get what you pay for" is applicable; i.e., by deliberately "going cheap" or inadvertently underestimating, impact may be lessened at best, and project "Mickey-Mousing" (which translates to incomplete or unsatisfactory results) will certainly occur.

The MPW concedes that rehabilition of the agro-sector is of primary importance with transport sector improvement close behind. This is in accord with the July 1984 economic studies and ~~cost~~ CDSS team findings. It

may be considered an indication of GDRM's serious intent to pursue policy and physical changes by the openness of officials in admitting past mistakes and acceptance of supporting role by one Ministry to another. Despite the enormity of the problem, and collateral complications, such attitudes and cooperation should assist greatly in executing whatever program is ultimately selected.

Throughout REDSO's discussions with Government officials over the past year, two common denominators have surfaced:

- GDRM's flexibility toward programs with USA participation.
- The repeated request for "American expertise" and the often-voiced comment that "Americans who speak French" were wanted, not technicians from French-speaking sources.

It is believed that, in view of such MPW flexibility, any transport sector considerations be thoroughly discussed with, and understood by, the Minister. In this manner, full cooperation will be assured, thus minimizing the risk of marginal success or even failure. Although such an approach may be viewed as anecdotic, there has been at least one recent incident where a prominent project was executed with a "this is what I say, so do it!" approach with highly unacceptable results.

Language capability cannot be stressed strongly enough. It is recommended that only qualified, competent, American-speaking personnel participate in future planning and implementation.

Projects noted in Section IV cannot be completely prioritized at this time, nor can they be firmly separated into the previously-described Categories I and II. Such prioritization and categorization for transport sector activities, considering their supporting role, can occur with solid rationale and clarity only after the general thrust, of the CDSS, in the Ag sector is established.

Equally, the price tag for only one, or a combination of transport sector endeavors, must wait for more explicit program development. Locale, type /nature/extent, time frame, and complexity will effect costs at that time.

As an initial cut, however, at slotting Section IV assistnace areas into Section V categories, the following is suggested:

Category (Section IV)	(Section V) Area of Assistance No.
I	1, 2, 5, 8, 9, 12, 13, 16, 21, 25, 26, 27, 28
II	3, 4, 6, 7, 8, 10, 11, 14, 15, 17, 18, 19, 20, 22, 23, 24, 28

There are considerations to be made, during both 1984-1985 and the 1986-1990 CDSS period, regarding application of all three funding sources: DA, ESF, and counterpart. Careful selection is urged, along the "biggest bang for the buck" lines to ensure that any given assistance effort is earmarked for funding by the most appropriate source; i.e. through the

use of funds which satisfies a particular requirement. Illustrations might be:

— For a "quick fix", such as immediate spare parts relief or a short-term, quick return project the use of ESF is recommended rather than slower reacting DF sources.

— For long-term highway maintenance/rehabilitation projects, or an extended bridge program, DA funds would be more appropriate, since rapid reaction is not required, rather than deplete ESF.

— Enlargement of local maintenance forces and expenses for their support should be the domain of counterpart funds, rather than FX, ESF or DF sources, since all expenditures would be in local currency.

Adherence to such basic funding guidelines, when developing any program, should serve to maximize efficient use of scarce FX funds.

Although there is a natural tendency to relate assistance efforts to Antananarivo, it is to be noted that, in doing so, other lesser-but-major centers of activity are being ignored. With imposed funding constraints, and in overall interests, such a condition may be necessary. On a long-term basis, however, secondary poles of national activity such as provincial capitals and major port areas might be the target for development assistance. For transport sector purposes, this is entirely feasible and appropriate support programs are identifiable in support of a general agro-industrial thrust.

The use of highways has been assumed for the lion's share of transport sector assistance. Although the potential for increased commodity movement by river and air is acknowledged, they are not considered viable candidates for program inclusion, at this time, due to the application of a "biggest bang for the buck" theory.

- Railroads, however, do offer a potential for development on a selective basis. Again, funding constraints preclude massive railroad rehabilitation efforts, just as extensive highway construction is prohibitively expensive. There are, however, locations which offer a choice of minimal railroad development or major highway restoration in support of agricultural development and collateral movement of commodities. In such locations, the use of railroads is recommended in conjenction with high impact, low investment, improvements such as loading docks, small/temporary storage sheds, and short stretches of road linking farmers in the area to their particular loading zone.

In concluding this epilogue to the transport section, one further recommendation is in order. Although not included in Section IV's shopping list, the need is acute for the establishment and enforcement of vehicle weight controls on highways and bridges. Even if properly designed, constructed and maintained, no road is immune to the distress and ultimate loss of structural integrity when excessive loads are repeatedly applied. A properly coordinated weight control program contains in part the following elements:

— Designs for specific loadings.

— Posting of weight limits on highways and bridges.

— Weigh Stations at strategic locations in conjunction with portable scales for enforcement.

— Punitive measures in the form of fines or license suspension on an escalating basis.

Long-range (CDSS) assistance is recommended as a relatively inexpensive means to prolong the life of any transport facility into which we have invested.

RECOMMENDATIONS ON POTENTIAL USAID ASSISTANCE TO MADAGASCAR'S INDUSTRIAL SECTOR

A Report Prepared for REDSO/ESA

by

Steve Haggblade

December 14, 1983

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LIST OF ACRONYMS

MIEM - Ministry of Industry, Energy and Mines

DIA - Direction of Industry and Artisanat

GDRM - Government of the Democratic Republic of Madagascar

FMG - Malagasy francs ($ 1 = 480 FMG)

ILO - International Labor Office

UNDP - United National Development Program

UNIDO- United Nations Industrial Development Organization

IBRD - International Bank for Reconstruction and Development

CENAM - National Center for Malagasy Artisanat

CETA - Economic and TEchnical Center for Artisans

SERDI- Society for the Study and Implementation for Industrial Development

INPF - National Institute of Promotion Training

BNI - Industrial Investment Bank

FAC - Fonds d'Aide et de Cooperation (French aid)

FED - Fonds Europeen de Developpement

I. OVERVIEW OF SECTOR

A. Definitions

Analysts of Madagascar's industrial sector commonly divide firms into two categories, artisanal and factory production units. Although no rigorous definition currently exists as a basis for classification, one can use the following rule of thumb: enterprises employing 19 or fewer workers are artisanal, and those employing 20 or more are factory producers (CETA 1950-1960, p.1).

Government analysts and donors often further subdivide the factory producers into two groups: a) small and medium enterprises, and b) large enterprises. Although a UNIDO team is currently assisting the Ministry of Industry Energy and Mines (MIEM) in carefully demarcating the boundary between these two groups, no commonly-accepted definition currently exists. For this reason, it has not been possible, in most cases, to obtain data breakdowns for the small and medium versus large categories. The following analysis will, therefore, normally treat the factory producers as a single entity. It should also be noted that the following analysis will exclude mining activity in its definition of industrial activity.

The use of these analytical categories in the absence of clear definitions is a potential source of confusion. To avoid any possible misunderstandings, it would be wise in any CDSS or subsequent project development work to make it clear that USAID interest in "small and medium enterprises" encompasses both artisanal as well as small and medium factory enterprises.

B. Macro Profile

In the aggregate, manufacturing occupies a modest role in Madagascar's economy. Industrial activity, exclusive of mining, accounts for 17% of GNP (IBRD 11/3/81, p.9). It makes up 7% of total exports, although a further 10% can be added if one includes exports of processed beef and fish. In addition, manufacturing provides about 175,000 jobs or about 4.5% of total employment. For comparative purposes, it is helpful to recall that agriculture accounts for 36% of GNP (IBRD 11/3/81, p.2), for 84% of total export earnings and employs 84% of the active population (IBRD, Vol.2 1979).

Within the industrial sector, a wide range of firm sizes is found. The size breakdown is provided in Table 1. This table, in particular, makes clear the importance of artisanal production in Madgascar, accounting as it does for two-thirds of industrial employment.

The composition of types of activity within the industrial sector shows some clear areas of concentration. These are displayed in Table 2. The most striking conclusion to be derived from this table is the importance of agriculture as a purveyor of inputs to local manufacturing establishments. Agricultural processing accounts for two-thirds of value added in factory manufacturing and for approximately a third of urban artisanal activity. Artisanal data are, unfortunately, only available for Antananarivo; and by excluding rural areas, the figures probably underestimate the importance of activities such as agricultural processing and the manufacture of construction materials.

TABLE 1

SIZE COMPOSITION OF MADAGASCAR'S INDUSTRIAL SECTOR

Type of Enterprise	1983, Number of Enterprises	1976 Employment
1. Artisan	100,000	120,000
2. Factory Production*		
a. Small & Medium	284	54,500
b. Large	20	
3. Total	100,304	174,500

Note: These figures exclude 23 mining firms with employment of about 5,500. Note also that some sources indicate the existence of 418 factory production units rather than the 304 reflected above. SERDI, based on their recent survey work, indicates this is due in part to the shut-down of a number of plants over the past few years. It is probably also due to the inclusion of mining in some estimates and due to the lack of a clear dividing line between artisanal and factory production.

Source: a) number of enterprises: artisan figures from CENAM; factory production from SERDI survey;

b) employment: IBRD, Recent Economic Developments & Future Prospects, Vol. II, 1979; UNDP Working Document MAG/81/018, "L'industrie Malagache", May 1982, Table 1.

TABLE 2

COMPOSITION OF ACTIVITY IN MADAGASCAR'S INDUSTRIAL SECTOR

Activity	Artisans (Percent of Total Employment, Antananarivo 1980)	Factories (Percent of Value Added, 1976)
1. Agricultural Processing		
a. food	11%	28%
b. tobacco	0	2
c. textiles	14	32
d. leather	10	3
e. total	35%	65%
2. Processing of Other Local Raw Materials		
a. clothing	14	3
b. wood	0	1
c. paper	2	4
d. woodworking	11	0
e. basketry	13	0
f. total	40%	8%
3. Processing Based Principally on Imported Raw Materials		
a. printing	0	3
b. rubber	0	1
c. chemicals	0	6
d. construction matls.	0	2
e. mechanical	10	9
f. metal working	7	3
g. other repair services	8	2
	25%	27%

Source: a) artisans: "Enquete sur le secteur informel dans le grand Antananarivo, PNUD/BIT, Direction General du Plan, Mars 1980.

b) factories: "L'industrie Malagache", UNDP Working Document, MAG/81/018, May 1982, Table 1.

C. Recent History

Output in factory manfuacturing rose slowly over the decade beginning in 1970, but since 1980 it has declined sharply. As can be seen from Table 3, factory production has fallen by 28% since 1980. The gradual rise and then abrupt fall is a reflection of the economic policies implemented during the very important period in Madagascar's economic history from about 1975 through 1980. During the mid-1970's, the Government of Madagascar embarked on an ambitious program to nationalize existing industrial enterprises and to create new state-owned production units. There was a clear preference during this period for large, capital-intensive factories, a preference which contributed to a dramatic increase in national import requirements. The nationalizations also considerably boosted government recurrent and capital costs thereby exacerbating problems of budgetary deficits. These actions, combined with similar efforts in the agricultural and transport sectors, contributed to Madagascar's current economic difficulties which led ultimately to the recent IMF intervention. In line with the IMF and World Bank wishes, Madagascar is making some clear efforts to liberalize pricing and marketing and to remove a number of subsidies. As part of this liberalizing trend, the government has halted its program of nationalization and has also stopped investment in new factory production facilities.

The net result is that today Madagascar is left with an industrial sector that is largely overbuilt and underutilized. Excess capacity abounds as can be seen from Table 4.

TABLE 3

INDEX OF FACTORY-BASED INDUSTRIAL PRODUCTION IN MADAGASCAR

1970	1976	1980	1982
100	111	115	87

Source: "Development Prospects & Program 1983-85", Democratic Republic of Madagascar, March 1983, p.21.

TABLE 4

CAPACITY UTILIZATION IN MADAGASCAR'S FACTORY MANUFACTURING

Activity	Percent of Capacity Utilization (August 1983)
1. Agricultural Processing	
a. cotton ginning**	70%
b. spinning & weaving**	90
c. sugar	85
d. tobacco	65
e. vegetable oil overall	15
f. cotton & peanut oil*	50
g. milk	50
h. leather	60
i. fruit juices*	33
j. beef processing***	70
2. Processing of Local Non-agricultural Raw Materials	
a. clothing	60%
b. lumber	50
c. paper	40
d. cement	75
e. salt	85
3. Processing Based Primarily on Imported Inputs	
a. beverages	50
b. batteries	50
c. candles	50
d. bottles	25
e. corrugated roofing	10
f. biscuits/chocolate*	50
g. pens	40
h. matches	40
i. paint	50

Source: *'d items: "Rapport Sur La Situation Actuelle des Agro-industries a Madagascar", Dieudonne, G. December 1979 Ministere de l'Ensiegnment Superieur et de la Recherche Scientifique avec FAO/UNDP, pp.14-17;

all other items from information provided by the Ministry of Industry, Energy and Mines, August 1983.

** Calculations based on the World Bank "Agriculture and Rural Development Sector Memorandum", March 29, 1983, p.32, indicate that capacity utilization in these activities is on the order of only about 40%.

*** information provided by Ministry of Livestock, Fishy Foostry, Dec. 1983,

While factory manufacturers are currently in extremely difficult straits, this is much less true of artisan producers. Although no reliable figures are available, personnel at CENAM indicate that artisanal activity has increased substantially during the past two years. They note that the present situation is reminiscent of the blossoming of artisan activity that occurred during World War II when imports and factory production were similarly constrained. Now, as then, the decline of both imports and factory production has left large market niches unfilled, and a large number of artisans have stepped forward to fill the breach by producing products from lamps made of beer cans to furniture covers to plows. This assymetry between artisanal and factory production provides an important reminder of why it is essential, when formulating industrial policy, to explicitly consider the implications for each of these two groups.

D. Potential for Expansion

There is substantial potential for expansion of industrial activity in Madagascar. First is the obvious possibility of recouping the 28% decline in factory production that has occurred over the past two years.

In addition, Madagascar houses a large amount of underutilized natural resources on which manufacturing could be based. Recent studies by both UNIDO and the World Bank have pointed out the substantial potential for boosting agricultural production of cotton, oilseeds, livestock and sugar, all resources on which manufacturing activity can be based (World Bank 3/29/83, p.32ff; UNIDO 1982, p.34ff). Both also agree about the large unexploited potential in fishing and wood industries. In the longer term, UNIDO points out that minerals such as iron, coal and chalk could provide the basis for important and viable industrial exploitation.

In addition to large resource-based potential, Madagascar houses substantial potential for market-based expansion of industrial activity. In artisan activities, it is very probable, for example, that the demand for construction materials, textiles and milling services will increase considerably over time as incomes rise. There also appear to be immediate opportunities for import substitution by both artisans and factory producers, particularly in the areas of textile, edible oils and paper and pulp production (See World Bank 3/11/81, Appendix Table 3.3). Overall, therefore, Madagascar appears to have a number of important elements necessary for supporting industrial expansion in the years to come.

E. Key Bottlenecks to Realizing Potential

The two most important barriers to industrial expansion are: a) the shortage of foreign exchange, and b) the insufficiency of agricultural production on which most manufacturing is based. Foreign exchange, difficult to obtain and allocated on a quota system, is universally cited by analysts and industrialists as a crucial barrier to the smooth functioning of manufacturing enterprises. Quotas for imported parts cover only about 25% of requirements and an estimated 20 to 30% of underutilized industrial capacity has been attributed to the unavailability of spare parts (UNIDO 3/29/83, pp.35,47).

Shortage of agricultural inputs is a second and very important cause of the current malaise in the industrial sector. Production of cotton, peanuts, sugar and fruits have actually declined in recent years (World Bank 3/29/83 pp.6,32). Growth in the output of other products, such as rice, has been very slow and has been far outstripped by growth in processing capacity. Given that the bulk of industrial activity in Madagascar revolves around agro-processing, the shortage of these important raw materials is a critical barrier to the growth of industrial production.

Several other factors have also been important in mitigating against industrial growth. Deteriorating transport networks are a commonly-cited problem which makes it difficult to assure material input and output flows required by manfuacturers. This problem is particularly acute in agro-processing. Another problem has been the general business environment. A network of price, import, registration and other controls have combined with the 1975-1980 wave of nationalizations to make industrialists both weary and

wary. Although there have been clear signs of liberalization, some potential investors appear to have adopted a wait and see attitude. A final difficulty facing industrial producers is the common one of insufficient technical and management skills. Although Madagascar is better endowed than most African countries, numerous institutions involved in assisting the manufacturing sector indicate a clear need both for technical assistance and technology transfer mechanisms and also for upgrading of management skills.

Perhaps the key conclusion to be derived from this overview is that most of the key problems facing manufacturers in Madagascar lie either outside the industrial sphere (as with foreign exchange, agricultural production and transport difficulties) or at the policy level (as with regulatory environment).

II. FACTORS AFFECTING A POTENTIAL INTERVENTION

A. Industrial Policy Environment

Policy makers have injected a distinct shift in the tone and content of industrial policy over the last six months to one year. These shifts are significant, especially when viewed ~~on the background of~~ against the background of the previous policy positions. For the last decade, Madagascar's industrial policy has been founded on the principles outlined in the Charter of the Socialist REvolution. Central to that policy was a belief in the necessity of collective ownership of the means of production. Government policy was to promote state ownership of factory manufacturing and cooperative ownership of artisanal production units. State ownership in the factory enterprises was actively promoted, especially from 1975 onwards, through a program of nationalization and an ambitious program of public investment in manufacturing. In setting up new factories, the government displayed a clear preference for large-scale, capital-intensive production units.

In line with their desire for careful state control of the economy, the government operated a system of direct industrial price control. Under this system, all industrial prices were set by "homologation", a process which involves individual companies submitting details of their production costs for each manfuactured item, then government review and specification of the price the firm could charge for that item. According to law, every item manufactured in Madagascar must have its price set by homologation. The procedure was very clumsy; it produced widely variable allowable profit margins based on no clear criteria and took anywhere from one month to two years, ~~to be promulgated~~ (IBRD 11/3/81, p.34; UNIDO 1982, p.79).

The investment code ~~in effect~~ involved administrative procedures that were "clumsy, protracted and uncertain" (IBRD 11/3/81, p.33) and was ineffective in stimulating local investment. Despite a worsening trade balance, no position was taken on the possibility of providing incentives to exporters of manufactured goods (IBRD 11/3/81, p.34). In general, the management of industrial policy was ackward, and policy makers lacked clear coordination and priorities (see especially UNIDO, 1982).

Since about March of 1983, clear signs have emanated form Antananarivo indicating a redirection of policy. A number of liberalizing measures have been taken, many in response to strong pressure from the IMF and World Bank.

The policy changes have been several. First of all, the ambitious program of public investment in manufacturing has stopped. The present position is that no new factories should be built; instead, efforts should be aimed at rehabilitating those that exist.

In addition, nationalizations have stopped. Beginning in March 1983, official government publications specifically highlight the role to be played by private entrepreneurs in Madagascar (Development Prospects, Policies and Programs, 3/83). That role is seen to be very broad and particularly focused in small and medium enterprises and in non-strategic industries. Backing up this new policy with action, the Ministry of Industry, Energy and Mines (MIEM) has been actively moving to devolve a number of state-owned enterprises into mixed private/public ventures. In fact, since the ministerial shuffle and the creation of the MIEM in July 1983, studies have led to the public offering of participation in four manufacturing parastatals. A number of bids have been made on each of the companies, and the MIEM is currently evaluating the offers.

The former focus on large-scale, capital-intensive enterprises has been shifted to aiming at the promotion of small and medium-scale factories as well as artisanal production. Policy makers emphasize that these smaller-scale production units are to be privately owned and managed. The turn to smaller production units has been made in response to the extremely high investment and import costs of the large-scale factories and is part of an effort to promote more labor absorbing manufacturing establishments.

The many criticisms levied at the price control system (see expecially UNIDO, 1982) have been digested, and the government is now committed to an accelerated homologation procedure; they guarantee that homologation requests will be acted on within less than one month. The government has not reconsidered its basic right to directly manage industrial price formation, but they have relaxed price control enforcement and indicate that effectively the only prices now set by homologation are those of basic necessities and of goods produced by monopolized businesses. (The World Bank has pressed for a precise definition of "basic necessities" but one has not yet been formulated.)

Another move aimed at improving the business climate is that of streamlining and rendering more generous the Investment Code. A team from the FED (Fond Europeen de Developpement) will arrive in January 1984 to help make recommendations on a liberalization of the code and on ways of dcreasing the heavily bureaucratic procedures currently required. Even before their arrival, MIEM has taken steps to provide clear incentives for export promotion. They have initiated an EPI (Exportation Pieces, Intrants) program which promotes manufactured exports by guaranteeing a certain percentage of exports will return to the manfacturers in the form

foreign exchange quotas for spare parts and material inputs.

In the course of the recent rapid-fire policy modifications, one policy deficiency has not yet been addressed: the MIEM has no clear position on the role to be played by artisan as opposed to factory production units. Promotional organizations for the two groups are separate, and policies for each group appear to be made without regard for potential impacts on the other set of producers. One can cite numerous examples of conflicts: government investment and heavy subsidization of large-scale manufacture of farm implements while at the same time using CENAM to promote artisanal production of the same items; and government investment in large-scale rice milling whch competes directly with small artisanal dehulling operations. Experience from elsewhere indicates a strong likelihood that that investment code provisions in favor of factory enterprises will be made without considering the tariff, tax and other disadvantages at which artisans will subsequently operate. The new administration at MIEM has been in office only since July 1983, and they have been moving at a furious pace. As things settle down, it will be important for them to weigh their stated and implicit policies affecting artisans and factory producers to avoid the inconsistencies between stated intentions and practice, inconsistencies that plague many African countries.

In conclusion, the new administration at MIEM has taken some clear steps to change the industrial policy environment in Madagascar. All the moves that have been made are aimed at liberalizing the system and opening up the way for a greater private participation in the economy. Many of the changes have come under strong pressure from the IMF and the World Bank, and many businesspersons are still

uncertain whether or not the new overtures represent a genuine change of heart on the part of the GDRM. Only time will tell how durable the reformist intentions are. What can be said is that, should the current liberalizing trends continue, the industrial policy environment could ~~be quite conducive to~~ provide a business climate in which efforts in industrial promotion by USAID could be quite effective.

B. Macro-Economic and Non-Industrial Policies

Two policy arenas outside the industrial sector have a strong influence on manfuacturing potential. Because of this, they have major implications for prospective USAID assistance to that sector.

At a macro level are balance of payments difficulties and a consequent shortage of foreign exchange which critically hampers industrial performance. The bulk of spare parts required in manufacturing are imported; and because of the strict quota allocations of foreign exchange, only about 25% of such requests are granted. A recent UNIDO study estimated that 20-30% of the current excess capacity in factory manufacturing is caused by the lack of foreign exchange for necessary spare parts (UNIDO 3/29/83, pp.35,47).

To directly address the balance of payments problem will largely require efforts outside the industrial sector. The major industrial contribution to current BOP difficulties was the huge increase in imported capital goods which occurred during the large-scale public investment in manufacturing during 1975-1980. This government investment has been stopped, thus reducing import bills. Further BOP assistance from the industrial sector is limited due to a modest potential, at least in the short run, for manufacturing exports. The remainder of the balance of payments battle will, therefore, be fought and won by attacking the problem ov an over-valued exchange rate and by focusing on agricultural production, a focus that will directly address the BOP difficulties stemming from massive and continual increases in food imports. ~~Thus, shortage of foreign exchange is a critical handicap to factory manufactoring in Madagascar, and resolution of this problem will largely take~~ place by action ~~outside the industrial sector.~~

Agricultural pricing policy is the second non-industrial policy area that critically affects industrial performance. Declining real producer prices have largely been responsible for the short supply of agricultural commodities, and this in turn is a major cause of the large amounts of excess capacity in manufacturing enterprises. In numerous cases, declining agricultural prices have led to lower production and hence to excess capacity in agro-processing. This has been true in the cases of cotton, peanuts, sugar, meat, milk and rice (World Bank 3/22/83, p.49; Dieudonne, pp.13,17; CENAM 2/81, pp.183,221). The same is true in the case of the collection of raffia, palm leaves which are exported raw and also used by local basket makers. The producer prices received for collecting raffia have declined dramatically in real terms over the past 8 years. In the face of declining real prices, collectors have decreased their supply of raffia by approximately two thirds since 1975 (interview with CETA staff, Mahajunga). In all these cases, a major boost could be given to industrial production by policy action outside the industrial sector - by raising real producer prices for key agricultural and related commodities.

The conclusion here should be obveious. Much of the excess capacity in manfuacturing is caused by shortages of foreign exchange for spare parts and by an insufficient supply of agricultural commodities on which the bulk of industrial processing is based. A substantial boost in industrial production could be effected by taking policy action in correcting balance of payments deficits and by increasing producer prices of agricultural commodities. 4/ Until these actions are taken, direct industrial promotion efforts will be of only limited effectiveness.

C. Existing Institutional Framework

In industrial promotion efforts, six institutions are key: the Ministry of Industry, Energy and Mines (MIEM), the Industrial Investment Bank (BNI), the National Center for Malagasy Artisanat (CENAM), the Economic and Technical Center for Artisans (CETA), the Society for the Study and Implementation for Industrial Development (SERDI), and the National Institute of Promotion Training (INPF). The functions of these institutions as well as their relationships to one another are described in Figure 1. More detailed organizational charts and descriptions are provided in Appendix I.

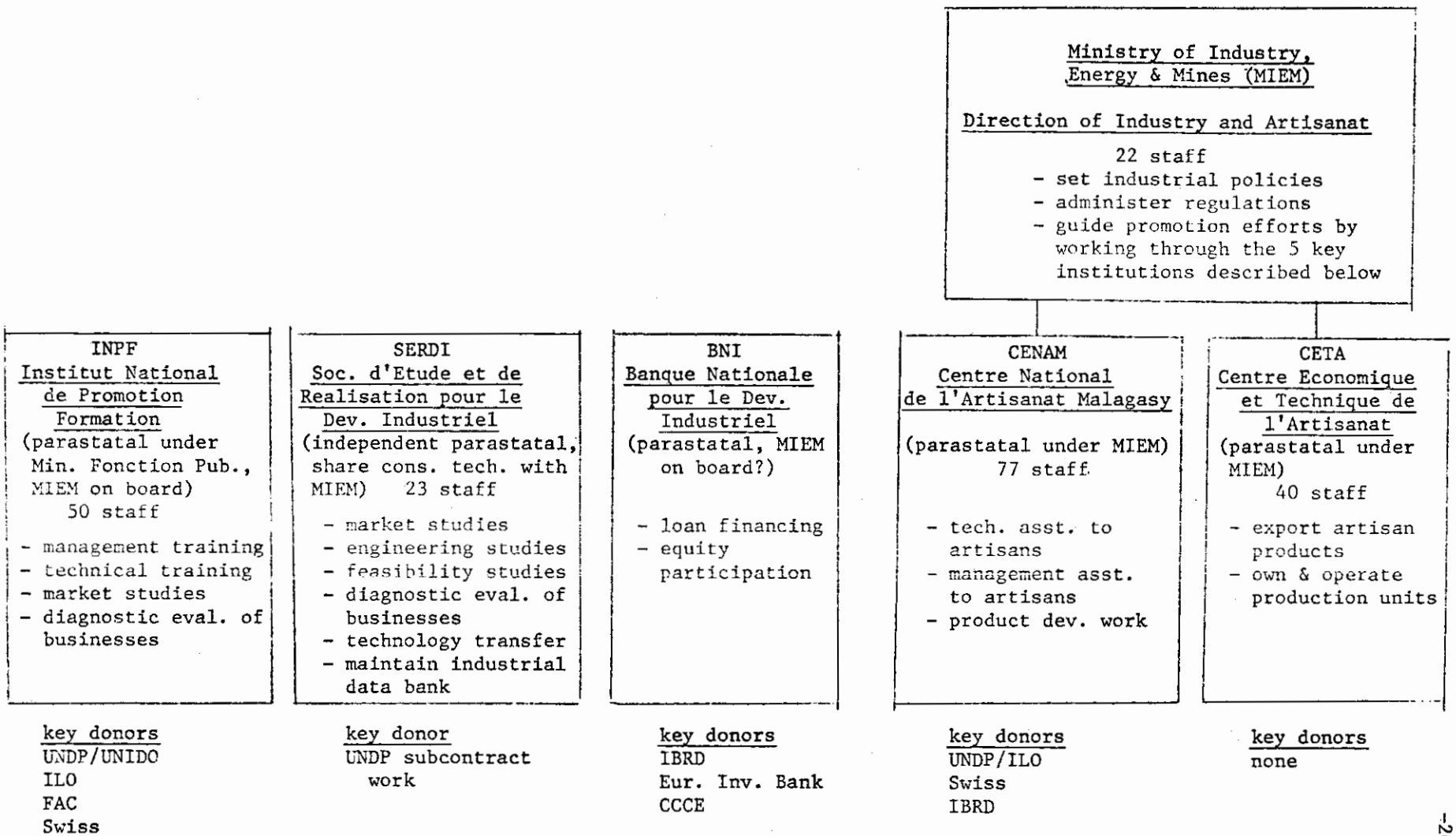
This institutional structure requires several comments. First, it must be recognized that the MIEM was only founded in July of 1983. It came into existence as the result of an extensive government reorganization, and not all the dust from that reshuffling has settled. Industrial price control, for example, is still the legal perogative of the Ministry of Economy and Commerce, although MIEM does much of the analytical work for them and is actively working to bring that function within its own purview. If not all institutional responsibilities are currently spelled out with crystal clarity, it is ~~at least~~ to some extent due to the recent shuffling, and government institutions will take some time to settle into their new roles.

Institutionally, it is clear that MIEM is the focal point for industrial promotion. The ministry is responsible for policy formulation and for coordinating the work of implementing organizations. The Direction of Industry and Artisanat (DIA), in particular, is the arm of the ministry responsible for those functions.

It is very important to understand the management philosophy under which the DIA operates: they have opted to maintain a very compact ministeral structure and to contract out much of the industrial promotion implementation to parastatal and private organizations. Thus, we have a situation in which

FIGURE 1

KEY INSTITUTIONS IN INDUSTRIAL PROMOTION



the 22 person staff of the DIA sets broad guidelines and coordinates the activities of nearly 200 staff members of the remaining five institutions. This is a very sensible approach (and very different from that followed by the Direction of Mines and Energy as can be seen from the organizational chart in Appendix I) in that parastatals and private organizations can grow, shrink and change chape readily as conditions change, while government bureaucracies have difficulty changing molds and never seem able to shrink in size.

The MIEM management philosophy of maintaining a lean DIA, providing guidance and contracting out to other agencies has several implications for project implementation. First, this management style requires the ministry's small staff to be of very high caliber and to possess good analytical skills. The smooth functioning and direction of promotional work depends in large part on the quality of these staff members, and in any future evaluation of institutional needs, careful attention should be paid to staffing quality of the MIEM's DIA.

Second, it should be noted that such a management style will not work everywhere. It is greatly facilitated in Madagascar by the existence of a core of local Malagasy accounting, engineering and related consulting firms. About eight such firms exist and are available for carrying out studies and analyses along with SERDI and INPF. MIEM is, thus, not confined to parastatals as implementing agencies, and this increases their flexibility substantially.

Finally, this management style can only work effectively if MIEM has the institutional levers at its disposal that allow them to effectively influence the actions of implementing institutions. Influence over INPF and SERDI are open to question. While MIEM does have a seat on the INPF board, MIEM is not its partent ministry. It is not clear if MIEM is able to shape the focus of INPF activity and its staff development to the extent they would find desirable for using it as an effective industrial promotion vehicle.

In the case of SERDI, the institutional link with MIEM is even more tenuous. While MIEM can influence SERDI through contracting terms of reference, it is not clear how implementation priorities, staff development and information sharing of SERDI's industrial data bank are effected. At present, it seems that MIEM can only influence SERDI through moral suasion facilitated by their sharing of a technical advisor. The frailty of this institutional link is currently under scrutiny, and it is likely that MIEM will assume a seat on the SERDI board. This will be important if MIEM is to effectively play its coordinating role in industiral promotion.

There is currently some overlap in institutional responsibilities, particualrly between SERDI and INPF. Both do market studies as well as diagnostic technical and management work. MIEM, SERDI and INPF personnel are aware of this overlap. As MIEM clarifies its control mechanisms, it will be important for them to come up with a clear indication of how they see the division of responsibilities between these two organizations.

Overall, the number of institutions supporting industrial development appears to be adequate. USAID assistance in industrial promotion should not involve the creation of new institutions but rather should entail working through the six institutions listed in Figure 1 as well as through the private consulting firms and PVOs that operate in Madagascar. The absorptive capacity of the six key institutions appears to be quite high given the rather high level of the staff relative to that found in other African countries. Any future involvement with these institutions, though, should be based on a careful examination of the evolution of the institituional responsibilities and relationships. Institution strengthening may be an important activity for USAID to consider, both in terms of logistic support and staff upgrading. One of the first actions needed in this area will be a careful analysis of staffing qualifications and an assessment of staff development needs at the six key institutions. For SERDI and INPF, such reviews will be undertaken

by other donors over the next several months. These activities should be followed closely as should the other donor efforts described in the following section.

D. Other Donor Activity

A listing of other donors' activity in the industrial sector is provided in Appendix I for each of the six institutions discussed in the previous section. Appendix II then provides a more complete overview, constituting what is believed to be a reasonably complete listing of all donor activity in the industrial sector.

From these two appendices, it becomes clear that there are three key donors in the industrial sector: UNIDO/UNDP, the ILO and the World Bank. UNDP is funding two projects implemented by UNIDO and which, because of their importance, are described in some detail in Appendix II. The first of the UNIDO projects is aimed at helping the MIEM to: 1) define an appropriate policy and institutional environment for promoting small and medium factory industry, and 2)set up a section to promote small and medium factory industries within the Direction of Industry and Artisanat. Because of their policy and institutional focus, it will be important to stay in touch with UNIDO in any project development work contemplated by USAID. Of particular importance is a 3-person team they will bring to Madagascar in March 1984 to study the staffing and staff development needs of INPF and SERDI. Any USAID assistance in building up those institutions should draw on this work.

The ILO is an important donor in that they provide, thr ough CENAM, the focus for promotion of artisan activities, and they also work with INPF. The ILO was largely responsible for launching CENAM, and today they continue to provide important technical assistance there. All other donors wishing to play a role in artisanal promotion have channeled their assistance to CENAM and through the ILO. The ILO, consequently, has substantial experience in artisanal training and promotion and should be consulted on any promotional activity USAID might design in that area. In should also be pointed out that the ILO provides technical assistance to INPF. They have a team coming out in February 1984 to clarify questions on the role of INPF given the

recent educational reforms that have been instituted. This analysis will be an important input in designing any program that would provide support through INPF.

The World Bank is the final key donor in the industrial sector. Although their industrial sector assistance is currently limited to a line of credit at the BNI and assistance in accounting training, they have played a lead role in lobbying (X) periodically to review their current assistance. They have made use of the ongoing analysis of these teams to pressure for liberalization of industrial pricing procedures, for streamlining of regulatory procedures, for clear incentives for export promotion, and for the devolution of parastatals to the private sector. Because of their ongoing interest, it will be important to coordinate with the World Bank in the development of any specific interventions in the industrial sector.

The activities of the remaining donors, particularly the FAC and the Swiss, are not insignificant. They are described in Appendix II.

(X) for industrial policy reform. They have had evaluation teams through

E. Special Problems Affecting Intervention

In concluding this discussion of factors that influence intervention in the industrial sector, two additional comments should be made. First is the fact that a large number of manufacturing firms in Madagascar are parastatals. This is the result of the 1975-1980 wave of nationalizations combined with the heavy direct government investment in new facilities during that period. The bulk of the large and many of the medium-scale manfacturing factories are, therefore, now government owned. The problem this poses is the conflict with the USAID mandate to promote the private sector. Resolution of the conflict leads to two conclusions: 1) that USAID may wish to assist the GDRM in identifying and studying the conditions under which certain parastatals could be devolved to the private sector; and 2) that the initial USAID focus on "small and medium industries" (including artisans) is well founded as these are most likely to be the enterprises that are privately owned.

A second special problem stems from Madagascar's widespread transport difficulties. These not only make it hare for individual enterprises to procure inputs and market output, it makes promotional efforts outside of Antananarivo substantially more difficult than they would otherwise be. Because of this, substantial travel budgets, perhaps including air fares and spare parts for extension vehicles, will likely be a necessary part of a program of assistance to the industrial sector.

III. RECOMMENDATIONS FOR SECTOR ASSISTANCE

A. Sector Ranking

Agriculture should be ranked number one - and by a considerable margin - among the three sectors being considered for USAID assistance. Transport and small and medium industries should be seen as playing supporting roles. Stagnant agricultural production is clearly one of the central problems facing Madagascar today. This stagnation in the face of ever increasing population levels has led to steadily rising quantity of food imports and is consequently a strong contributor to current balance of payments difficulties. In addition, there appears to be very good potential, in a number of crops, for increasing output and farmer income significantly within a relatively short period of time. On equity grounds as well, agriculture offers an attractive focus since large numbers of low-income people will directly benefit from increased agricultural production.

Furthermore, in the short run the increasing of agricultural production is one of the best possible means of boosting industrial output. Two-thirds of factory manufacturing involves agro-processing, and the current large amounts of excess capacity are in large measure due to shortages of agricultural commodities on which that processing is based. Increasing production of agricultural commodities such as cotton, peanuts, rice and beef will go a long way towards increasing manufacturing output; and the forward linkage with agro-processing will result in virtually costless additions to national income given the current large amounts of excess capacity in manfuacturing.

The other major problem facing manufacturing - in addition to an insufficiency of agricultural raw materials - is the severe shortage of foreign exchange for spare parts. Resolution of this problem will take place largely outside the industrial sector, since the scope for increasing manufacturing exports is rather limited, at least in the short run. Other

actions, such as modifying exchange rate policy and reducing agricultural imports, will directly and more effectively address the balance of payments problem.

In the absence of increased agricultural production and in the absence of adequate supplies of foreign exchange, a primary focus on industrial development would be an inefficient use of USAID resources. Direct industrial promotion efforts will simply be ineffective given the severity of these two major constraints to increased manufacturing output. In the short run, say over the next five years, the most important role industry can play is in assuring an adequate supply of inputs for agriculture. In the longer run, of course, industrial capacity or management deficiencies may become a binding constraint to increasing national income. Currently, however, it is not, and a USAID focus on agriculture is the one that will most directly meet Madagascar's key economic needs.

B. Potentially Useful Interventions in the Industrial Sector

Even with a primary focus on agriculture, USAID should consider a number of interventions in favor of the industrial sector. These could involve a number of short-run palliatives to current manufacturing problems. More important, they could involve the building of necessary groundwork for more sustained and active promotion four or five years down the road when the agricultural and foreign exchange constraints become less binding.

Assistance in the industrial sector should probably be limited to small and medium factory enterprises and to artisanal production units. The lesson of the last seven years seems to be that the very capital intensive production methods promoted during that period result in excessive import requirements, mitigate against local inter-industry linkages, are inefficient generators of employment and require investments beyond the capacity of most local private investors.

In the short run, several important and useful actions could be taken by USAID. The first involves a commodity import program (CIP). Such a program could be used to provide imported inputs that are required by manfuacturers and that are currently not available in sufficient quantity due to foreign exchange difficulties. MIEM has provided a priority list of the commodities they consider most important to manufacturing. That list is attached as Table 5. One attractive option from their list is that of providing steel required for the manufacture of agricultural inputs. Another involves the importation of soy beans or tallow, commodities that would produce local value added in manufacturing by supplying under-capacity processing plants that in turn would produce much needed basic consumption items such as soap, oil and candles.

A second short-run intervention involves training for staff members of the key promotional organizations. Scholarships abroad or some in country technical and management training could prove very useful at this stage.

Table 5

7/12/83

ESTIMATION EN QUANTITE DES BESOINS ACTUELS
EN PRINCIPALES MATIERES D'IMPORTATION POUR L'INDUSTRIE *

Matières	Destination	Quantité
- Tôle plane (3)	Ouvrage en métaux, fût	10.000 T
- Fer Blanc (1)	Boîtes métalliques	4.000 T
-Fils métalliques (2)	Ouvrages en métaux, pointes, grillage, lit métallique	3.000 T
- Fer rond (4)	Travaux de construction	15.000 T
- Profilés (3)	Travaux de construction	15.000 T
- Aluminium (feuille) (3)	Fabrication tabac et cigarette	35.000 Bobines
- Papier à cigarettes (3)	Fabrication de cigarettes	37.000 -"-
- Baguettes de filtres (3)	-"- -"-	99 000 000 Unités
- Aluminium lingot (4)	Ustensiles de cuisine	150 T
- P l o m b (2)	Accumulateurs	200 T
- Disque aluminium (4)	Articles de ménage	300 T
- Chaux et fleurs de chaux (4)	Sucre	2.000 T
- Charbon (1)	Cimenterie, fonderie	42.000 T
- Barytine (2)	Peinture	180 T
- Verre à vitre et verre à glace (4)	Miroiterie, vitrerie	200 T
- Fils synthétiques (4)	Bonneterie	2.000T
- J u t e s (1)	Sacs, toiles, fils	3.000T
- Fibres synthétiques (2)	Tissus, couverture	2.000T
- Fibres artificielles (2)	Tissu, couverture	2.500T
- Matière grasse (Suif) (1)	Savon	10.000T
- Soude caustique (1)	Savon, peinture, bouteille, papier, panneau	3.000T
- Paraffiné (2)	Bougies, fils à coudre, allumette, produit d'entretien	4.000T
- Matières colorantes (2)	Tissus	1.000T

*Quantity Estimates of Current Needs for Principal Imported Industrial Raw Materials

Priorities (1)
(2)
(3)
(4)

- Pâtes à papier (1)	Papier	10.000 T (7.000T) local:1000 T chimique :6000 T
- Insecticides (1)	Agriculture	1.000.000 Litres
- Herbicide (1)	Agriculture	60.000 l
- Carbure de calcium (2)	Oxygène acétylène	12500 T
- Extrusion (P V C) (2)	Tuyaux plastiques, tube	800 T
- Carbonate de soude (1)	Verre creux	2.000 T
- Polyéthylène granulé (2)	Sacherie	750 T
- Détergent (3)	Produit d'entretien	300 T
- Lait en poudre (2)	Lait concentré, sucré Nestlé glace alimentaire, biscuiterie, chocolaterie	1.800 T
- Huile de beurre (2)	L C S N, cremerie, biscuiterie, pâtisserie	800 T
- Malt (2)	Bière	6.100 T
- Tabac (3)	Cigarette	1.000 T
- Glucose (4)	Chocolat, biscuit, confiserie	1.000 T
- Blé (1)	Farine	40.000 T
- Soja (1)	Huile	60.000 T

Source: Ministry of Industry, Energy and Mines, December 7, 1983.

Now is the time to build up the capacity of the promotional organizations to provide the services that will be so important five years down the road when the macro environment is more favorable to an upswing in industrial activity. The upcoming evaluations to be done by UNIDO and the ILO on SERDI and INPF will be very helpful in identifying the needs of those particular institutions. CENAM seems to be the most appropriate institution to build up in the area of artisanal promotion. It is worth noting that one important technical area not currently serviced by CENAM, INPF (and I think not by SERDI) is that of agro-processing. It may be that some training now in food processing technology would allow the return of trained Malagasy technicians several years hence when additional development of processing capacity may well require technical assistance from these institutions. Before this is done, one should consult with the FAC on the nature of the 13 agro-processing scholarships they have recently awarded. My impression is that they are tied to very specific large-scale firms to which FAC is also providing technical and financial assistnace, but this should be confirmed to avoid duplication of efforts.

A third short-term activity that may be of assistance is diagnostic work and assistance in the devolution of parastatals. USAID has already helped with the devolution of a public construction company. Given the MIEM interest in this area, there may be a need for assistance in determining how best this could be done in specific instances..

In the long run, say in five years from now, active promotion of new manufacturing investment will be necessary. This will require the availability of technical and management assistance from the local promotional institutions. By beginning staff training now, USAID could be learning more about the needs of the promotional institutions and a few years down the road would be in a good position to hone in on areas of particular need. It does appear

that expertise in agro-processing is currently lacking. Beyond that, the exact needs in technical and management areas need to be evaluated in some detail. The UNIDO and ILO reports will provide a good start. As USAID gains experience in the industrial sector and as needs become clarified, AID may also wish to provide operational support in the form of equipment, training materials and transport.

C. Information Gaps that May Influence Intervention

Four main information gaps currently exist that may influence decisions on how and whether to intervene in the industrial sector. First is a detailed study of factory manfuacturing undertaken by SERDI under contract to the UNIDO Small and Medium Industry Project. The results of this study were not available at the time of the CDSS team visit to Madagascar. The study is likely to be very important as it is based on a nation-wide survey of 87% of all factory manufacturing establishments. It aims particularly at identifying the needs of small and medium factory enterprises. The survey work on which the report will be based was completed in September of 1983, so the information it contains is very up to date. In addition, it will provide the first breakdown of the characteristics and needs of small and medium as opposed to large-scale manufacturing. Because such a breakdown is not currently available, the current report is based on consolidated data for all groups of factory manufacturers. If capacity utilization, needs and problems faced by small and medium firms differ dramatically from those of the large, the SERDI report will provide an important means of checking the conclusions of the present analysis. The SERDI report is scheduled for ecompletion at the end of December, and the UNIDO Small and Medium INdustry project manager has agreed to send a copy of the report to REDSO as soon as it is available.

The second information gap has to do with staffing and staff development needs at the six key promotional institutions. While CENAM, CETA, MIEM and BNI will require USAID examination, SERDI and INPF are to be the subjects of both UNIDO and ILO studies over the next four months. Use of these evaluations will provide important input in determining staff upgrading needs of those two institutions.

A third information gap may affect potential CIP assistance. While consideration should be given to metal imports for agricultural inputs, it will be important first to determine whether the supply of metal and tools is in fact in short supply. Our team obtained conflicting evidence on this. It will also be helpful to obtain an estimate of the percentage and geographic distribution of agricultural tools produced by artisan as opposed to factory units.

Finally, it will be helpful to clarify with FAC the nature of the 13 food processing scholarships they have recently awarded. It is likely this training is very specifically aimed at providing technicians in the few plants where FAC also provides technical and financial assistance. If so, the need probably still exists for more general training of technical staff at the various promotional institutions. This can only be confinrmed by further dialogue with the FAC.

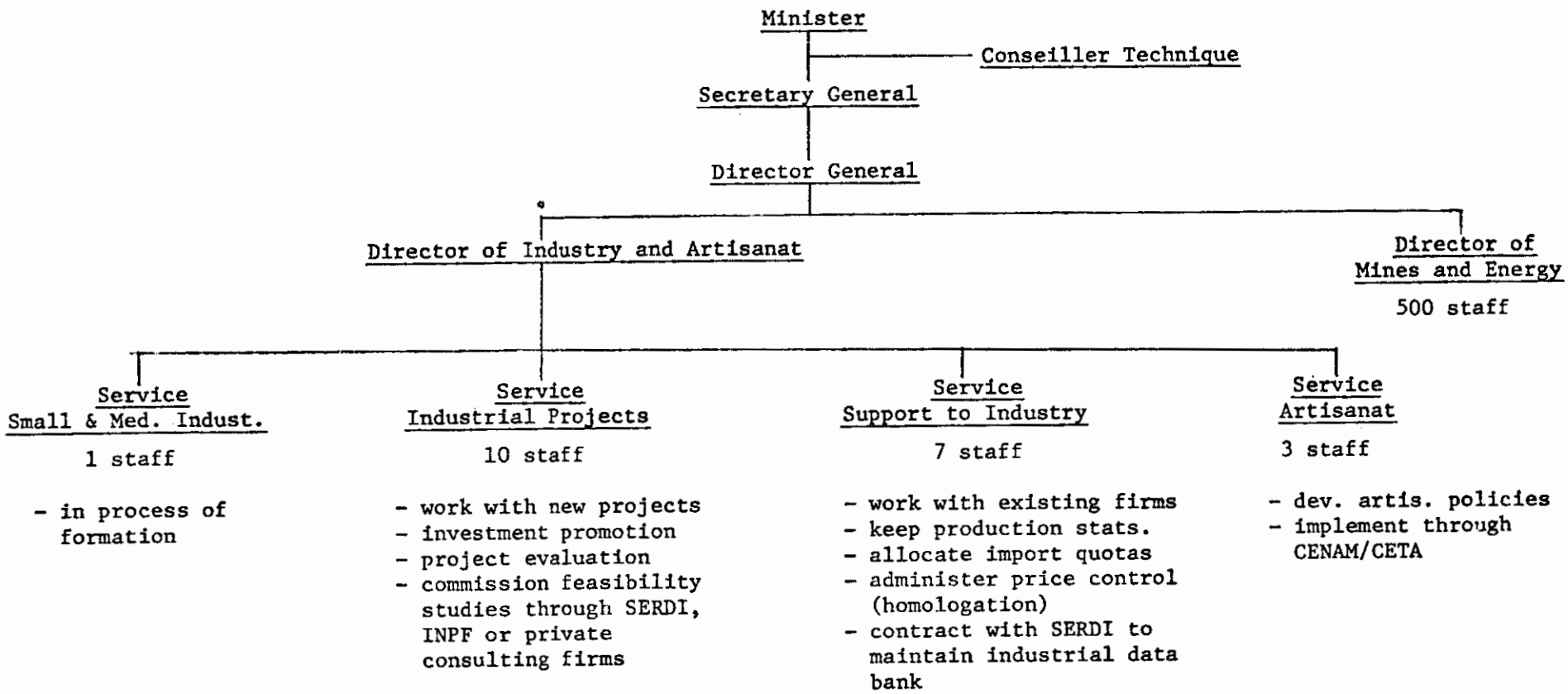
APPENDIX I

DESCRIPTION OF SIX KEY PROMOTIONAL INSTITUTIONS

		Page
1.	Ministry of Industry, Energy and Mines (MIEM)	36
2.	Centre National de l'Artisanat Malagasy (CENAM)	37
3.	Centre Economique et Technique a l'Artisanat (CETA)	43
4.	Societe d'Etude et de Realisation pour le Developpement Industriel (SERDI)	44
5.	Institut National de Promotion Formation (INPF)	45
6.	Banque Nationale pour le Developpement Industriel	46

ORGANIZATIONAL CHART

MINISTRY OF INDUSTRY, ENERGY AND MINES



CENAM

Centre National de l'Artisanat Malagasy

1. Legal Status
Organisme d'Etat; separate from civil service; created by decree in 8/78; reports directly to Ministry of Industry, Energy and Mines as ministry of tutelle.

2. Goal

to promote employment in rural and in poor urban areas; to promote utilitarian artisinat, primarily through technical assistance but also through management assistance and and helping artisans negotiate financing with banks.

3. Staff

77 cadres; see attached organizational chart

4. Budget

113 million FMG in 1982

5. Facilities

a. experimental workshops: 4 in Antananarivo; 1 still to be constructed; technical areas = tools and equipment, bricks and ceramic work, weaving clothing fabrication, leather working; shops well equipped; for technical personnel, see organizational chart;

b. Rural Technical Centers (CRT): 1 in Imerintsiatosika (Arivoninamo) specializing in agricultural tools; 1 in Ambohimahasoa (Fiananarantsoa) in ag. tools; 1 in Ankilibe (Toliary) specializing in fish preservation; These centers are rural workshops built and owned by CENAM. Local artisans may work in the shops in ruturn for doing extension work.

c. vehicles: 1 at each of 6 regional offices in the capital of each Faritany

6. Mode of Operation

a. for each technical area, first to survey of existing production and potential; major reports produced on each of the four technical areas listed above;

b. each technical division picks out promising geographic areas, determines what technical innovations can be usefully introduced, begins extension work to tell people about CENAM and about the benefits of cooperative labor;

c. training at experimental workshops in Tananarivo, then follow-up extension visits by technical staff;

d. often innovations require increase equipment; CENAM helps negotiate bank loans with BTM (the local agricultural bank); also helps private artisans negotiate loans; CENAM technical and management assistance often a condition of loan;

e. existing cooperatives and independent artisans can also request and receive training in CENAM workshops;

f. sporadic assistance provided in supplying raw materials and in marketing of output (example = CENAM negotiated contract for hand tools with local hardware store, purchased from artisans and delivered to store);

7. Impact to Date

6 cooperatives established;
8 locans negotiated through BTM, 4 for coops, 4 for independent artisans;
roughly 500 artisans trained last year;

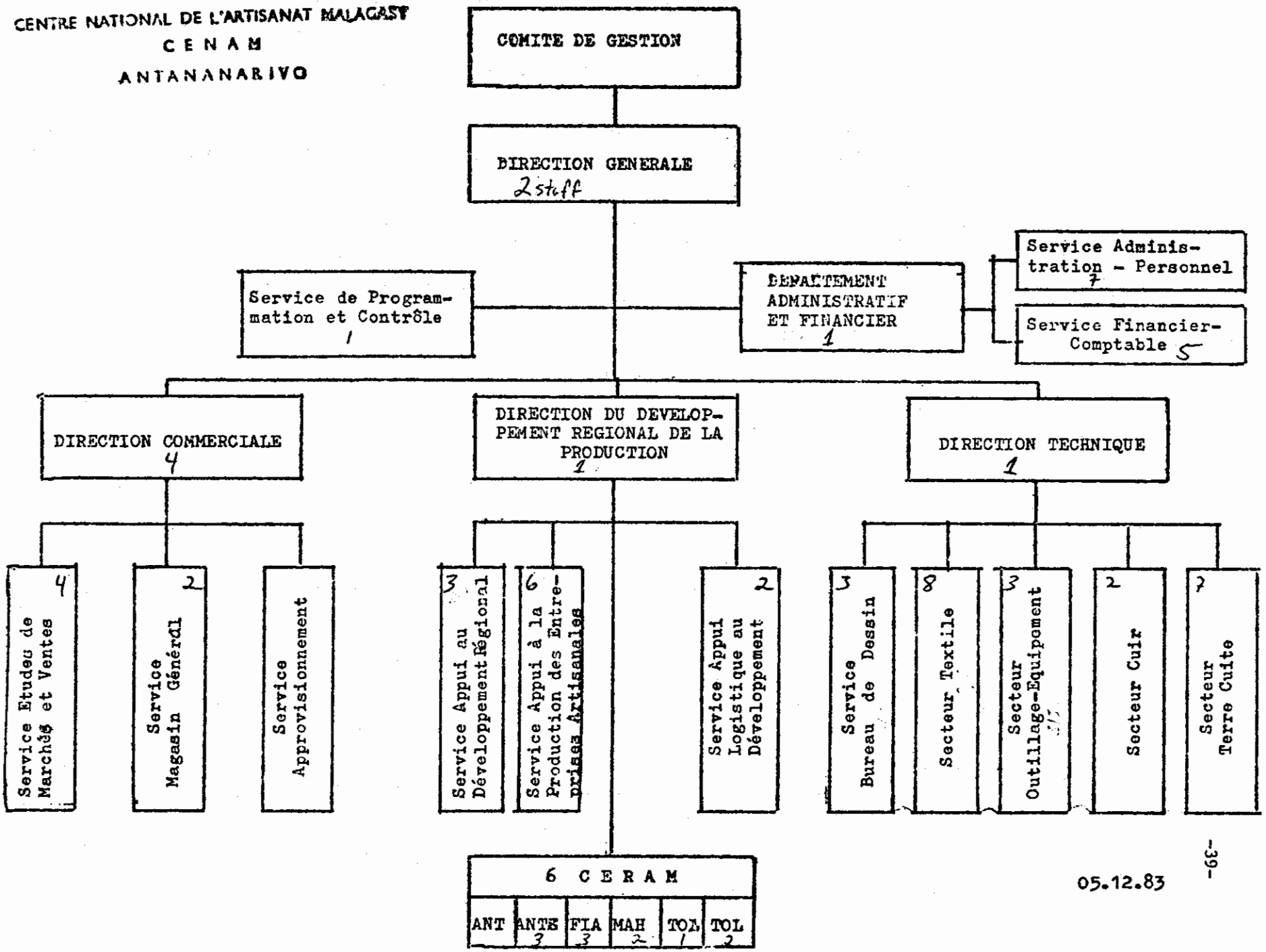
8. Donor Assistance

ILO: originally supplied 5 technicians to launch CENAM; due to funding cutbacks this was reduced to 1; probable funding for him through 1986 (expert in tool production);

other donors include NORAD, Japan, UNICEF, Swiss, FAC, PNUD, Konrad Adenauer foundation, World Bank; for funding details, see attached sheets;

note that all donors have used the ILO as the intermediary and implementing agency for their funds.

CENTRE NATIONAL DE L'ARTISANAT MALAGASY
C E N A M
ANTANANARIVO



05.12.83

5.- PROJETS REALISES ET EN COURS DE REALISATION :

51.- PROJETS DIVERS POUR LE DEVELOPPEMENT DE L'ARTISANAT DONT LE FINANCEMENT A ETE ACQUIS :

D A T E	BAILLEURS DE FONDS	MONTANT EN FMG	D E S T I N A T I O N	O B S E R V A T I O N S
1978-1982	P.N/U.D.	417.300.000,-	Assistance au développement de l'Artisanat (Experts BIT et Equipements pour Ateliers Expérimentaux).	Contrepartie Gouvernementale convenue : 827.080.000 Fmg mais une partie seulement débloquée dont : 1978 : 40.000.000 Fmg 1979 : 235.300.000 Fmg 1980 : 160.000.000 Fmg 1981 : 35.200.000 Fmg 1982 : 88.000.000 Fmg Soit au TOTAL : 558.500.000 FMG
1981-1983	NORAD (Cooperation Norvégienne).	80.000.000,-	Construction de 3 Centres Ruraux de Technologie en cours d'achèvement.	Contrepartie Gouvernementale de 52.000.000 FMG non débloquée.
1982	GOUVERNEMENT JAPONAIS.	30.000.000,-	Equipements pour Ateliers Expérimentaux du CENAM et pour Artisans.	
1982-1983	P.N.U.D.	100.000.000,-	Assistance au Développement de l'Artisanat (Experts BIT et équipements).	Contrepartie Gouvernementale : 1983 : 277.000.000 FMG
1982-1984	U.N.I.C.E.F.	84.000.000,-	Technologie appropriée en matière de nutrition et de santé dans la région de Fianarantsoa.	Exécution conjointe avec le Centre Artisanal de Promotion Rurale (C.A.P.R.) de Fianarantsoa.

D A T E	BAILLEURS DE FONDS	MONTANT EN FMG	D E S T I N A T I O N	O B S E R V A T I O N S
1983	D.D.A. (Suisse)	96.600.000,-	Aide à la balance de paiements.	Pour achats de fournitures et de matériel à l'étranger nécessaires à la promotion de l'Artisanat.
1983	F.A.C. (Gouvernement Français)	1.500.000,- 1.000.000,- 7.200.000,-	Pour Unité de Tissage à Macvatamhna. Pour Unité de Tissage a Mahitsy. Pour Unité Outillage a Fianarantsoa.	
1983 - 1984	D.D.A. (Coopération Technique Suisse).	200.000.000,-	Fonds de Promotion pour les Unités Artisanales susceptibles d'être renouvelés en 1985 - 1986	Dont les bénéficiaires actuelles sont : • La Coopérative "DI MAHITS. 7.400.000 Fmg. • La Coopérative "TAOBZAKA" 11.000.000 Fmg • La Coopérative "AINGA". 4.200.000 Fmg • La Coopérative "NIRINA" 4.000.000 Fmg • Unité de fabrication de cornes : 400.000 Fmg.
1983 - 1984	D.D.A. (Suisse)	60.000.000,-	Pour fonds de Promotion à l'Artisanat.	Pour achats de fournitures de matériel à l'étranger nécessaires à la Promotion de l'Artisanat.
1983 - 1985	P.N.U.D.	13.940.000,-	Développement Urbain (Réhabilitation de quartier à Antohomadinika.)	Exécution du volet emploi confié au CENAM.

CETA

CENTRE ECONOMIQUE ET TECHNIQUE A L'ARTISANAT

1. Legal Status

society of state (parastatal); created by decree 1962; under tutelle of Ministry of Industry, Energy and Mines

2. Goal

to promote artisan activity by: a) exporting artisanal products and
b) directly operating production units;

3. Staff

Direction Generale - about 40 professional staff
Export unit - 114 people, including women producing baskets for export (Antana.)
Woodworking factory - 112 people, including employees (Antananarivo)
Precious stone unit - 23 employees (Antananarivo)
Jewelry shop - 5 employees (Antananarivo)
Weaving business - 46 employees (1 at Toamasina, 1 an Antsiranana)
Weaving business - 38 employees (Anananarivo)
Raffia collection and export business - 37 employees (Mahajunga)
Brick manufacturing business - 30 employees (Mahajunga)

4. Budget

unable to obtain it; theoretically profit making; in practice recurring subsidies rqd.

5. Facilities

production workshops in locations described under #3; headquarters in Antananarivo

6. Mode of Operation

set up businesses and run them

7. Donor Assistance

large FAC technical and financial aid from 1962 - 1967; none currently

Previous Page Blank

SERDI

SOCIETE D'ETUDE ET DE REALISATION POUR LE DEVELOPPEMENT INDUSTRIEL

1. Legal Status

socialist enterprise; Government owns 85% shares; no ministry of tutelle; run by Comite de Gestion which includes 5 members - rep. of Government Printer, National Industrial Bank (BNI), Assurance Ny Havana (stock holder), their Director General and 1 employees representative;

2. Goal

- do engineering and management consulting on contract for government and private sector;
- maintain Malagasy patents;
- maintain an industrial bank of information;

3. Staff

- total 23; 10 are doctorats de third cycle; 13 have French maitrise
1. Department of Sectoral Studies - 6 staff
2. Documentation Division - 3 staff
3. Industrial Interventions - 14 staff

4. Budget

104 million FMG in 1982

5. Facilities

1 office in Antananarivo
1 Apple 3 microcomputer to be donated by UNIDO Small & Medium Industry Project

6. Mode of Operation

do market studies, engineering studies, feasibility studies, diagnostic management and technical evaluations of existing businesses, help with tendering ... on contract for private companies, for government or for parastatals;

7. Impact to Date

about 20 contracts per year; made profits in 1980, 1981 and 1983; financially solvent without any recurrent subsidies from Government;

8. Donor Assistance

1 conseiller technique, ½ time, shared with Minister of Industry, Energy & Mines

INPF

INSTITUT NATIONAL DE PROMOTION FORMATION

1. Legal Status

   parastatal; created by decree in 1974; under tutelle of Ministry of the Fonction Publique

2. Goal

   to train and advise enterprises in management and technical areas

3. Staff

   50 professional staff = 35 in technical areas + 15 in management (of which 3 specialize in small and medium enterprises)

4. Budget

   300 million FMG per year

5. Facilities

   - classrooms in Antananarivo
   - workshops in Antananarivo in the areas of general mechanics, motor and engine repair, electronics and industrial refrigeration
   - 3 mobile workshops to allow auto mechanics training around the country

6. Mode of Operation

   - short term (up to one month) upgrading courses for business people, sometimes INPF actively recruits trainees, sometimes people call to request services; accounts for 50% of staff time
   - diagnostic work in businesses, including market studies, financial evaluation, marketing, procurment, analysis of technical layout, internal communication system, ... accounts for 25% of staff time
   - extension training, mainly in auto repair, 15% of staff time
   - perform repair services for a fee, 10% of staff time

7. Impact to Date

   - total of 2,000 management staff trained
   - total of 1,500 technical workers trained

8. Donor Assistance

   UNDP, FAC, PNUD, ILO, Swiss
   two technical assistants - 1 ILO mechanic, 1 FAC mechanical/paint expert

BNI

BANQUE NATIONALE POUR LE DEVELOPPEMENT INDUSTRIEL

1. Legal Status

parastatal (as are all banks in Madagascar)

2. Goal

to promote industrial development by providing loan financing and by taking equity participation in enterprises

3. Budget

total loans = 95 billion FMG
total assets = 148 billion FMG

4. Facilities

branches in 13 towns in addition to Antananarivo plus periodic offices in two other localities

5. Mode of Operation

- loans, short term interest rate = 18-20%, long term rate = 15.5-17%
- equity participation

6. Impact to Date

- equity in 53 industrial enterprises
- distribution of loan portfolio
  - -- 80% industrial
  - -- 15% services
  - -- 5% agriculture
- time distribution of loan portfolio
  - -- 82% short term (less than one year)
  - -- 10% medium term (1-5 years)
  - -- 8% long term
- provide modest management advise to clients, if demands become heavy they recommend accounting firms or promotional organizations that can provide more regular help

7. Donors

- World Bank: $5 million line of credit of which .5 million reserved for small enterprises; no small money dispursed to date due to lack of bankable projects in that category
- Banque Europeene d'Investissement: negotiating a line of credit to be reserved for industrial rehabilitation loans
- CCCE

SUMMARY OF DONOR ACTIVITY IN INDUSTRIAL SECTOR

1. UNDP/UNIDO
   a. Small and Medium Industry Project: $925,000 over 5 years; helps MIEM set up SMI unit in Direction of Industry & Artisanat.
   b. Feasibility Study Project: $1.85 million over 5 years; helps Direction General du Plan, MIEM and BNI improve capacity to do industrial project evaluation
   c. aid to Centre de la Formation de Cadres in Antsirabe

2. UNDP/ILO
   a. CENAM: helped set it up; currently one ILO expert in tool manufacture; Note that all other donors to CENAM channel their aid through the ILO using them as the implementing agency.
   b. INPF: one technical assistant in mechanics.

3. IBRD
   a. line of credit to Industrial Bank (BNI): $5 million of which $500,000 is reserved for small enterprises.
   b. housing project: part involves support to CENAM for promoting artisanal supply of building materials, furniture and tools for the project.
   c. aid to Centre de Formation Comptable: long training in pure accounting, project also helps with legal statutes and setting of accounting standards
   d. policy analysis and pressure: evaluation team for industrial sector loan (unclear if it is a. above or an intended further structural adjustment loan) comes periodically, IBRD, on the basis of these team studies, is exercising pressure for the government to liberalize industrial pricing, to devolve parastatals and to liberalize export controls.

4. FAC/CCCE
   a. technical assistance to parastatals: 2 refrigerator engineers at abbatoir; 2 technicians in sugar plant; 13 scholarships for food processing studies.
   b. loans to rehabilitate specific industrial enterprises: total of 230 million FF; includes textile, paper, sugar, petroleum and flour industries.
   c. line of credit to BNI: 14 million FF for small and medium enterprises
   d. INPF: technical assistance

5. FED
   a. team to come in January to assist with revision of investment code
   b. conseiller technique shared between Minister of Industry, Energy and Mines and SERDI (from secondary source, should be confirmed).

6. Swiss, DDA
   a. aid to CENAM: for construction of workshops, to finance equipment for artisan cooperatives; one conseiller technique in coop management.
   b. INPF: three mobile workshops to allow auto repair training throughout the country.

7. Minor Donors
   CENAM receives aid from NORAD, Japan, The Konrad Adenauer Foundation and UNICEF, normally for specific workshops or training activities. See CENAM sheet for details.

APPENDIX II.

DONOR ACTIVITY IN THE INDUSTRIAL SECTOR

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UNIDO

INDUSTRIAL PROJECT EVALUATION

1. Legal Status

UNIDO project; lifespan January 1983 - June 1987; under tutelle of Direction Generale du Plan;

2. Goal

- to help Direction Generale du Plan to establish unit to do industrial feasibility studies and pre-investment economic evaluations;
- to also train staff from Ministry of Industry, Energy and Mines and from National Industrial Bank (BNI);
- to set up standard project evaluation methods
- to set up bank of information;

3. Staff

1 project leader, a Malagasy
plus sizeable budget for short term consultants

4. Budget

$ 1.85 million over 5 years (from UNDP)
39 million FMG contribution from Government of Madagascar

5. Facilities

1 office
1 mini-computer to come

6. Mode of Operation

provides training sessions as well as supervised practical experience in doing feasibility studies and industrial project evaluations; intention is to rotate in 4 trainees each year for a one-year apprenticeship

7. Impact

2 trainees currently working with project;
4 to be rotated in annually

8. Donors

UNDP

UNIDO

SMALL AND MEDIUM INDUSTRY PROJECT

1. Legal Status

UNIDO project; 5-year life span from 1/83 - 1/88; under tutelle of Ministry of Industry, Energy and Mines; work closely with SERDI and INPF

2. Goal

to support in the design and institution of a set of measures aimed at providing a favorable environment for small and medium industries

3. Staff

1 UNIDO team leader
1 homologue from Ministry of Industry, Energy & Mines, available to project half time, intended to set up the planned Small and Medium Industry Service in the Direction of Industry and Artisanat
budget for short-term consultants

4. Budget

$ 925,000 over 5 years

5. Facilities

1 office
1 micro-computer ordered

6. Mode of Operation

- do nation-wide survey of small and medium industries; assess needs
- take five best enterprises, provide intensive technical and management assistance to make them even better
- associate homologue with this work to provide ongoing training

7. Impact to Date

- nation-wide survey completed (contracted out to SERDI), results due end of December 1983;
- commissioned 3-person team to come in March 1984 to carefully study INPF and SERDI and evaluate staff development and other institutional needs

8. Donor

UNDP

LIST OF REFERENCES CITED

CENAM, "Etudes sur la conservation, la transformation et le contitionnement des produits de l'agriculture de l'elevage et de la peche par des unites artisanales ou cooperatives ou de petites industries", February 1981.

Democratic Republic of Madagascar, "Development Prospects, Policies and Programs, 1983-1985," Antananarivo, March 1983.

Dieudonne, G. "Rapport sur la situation actuelle des agro-industries a Madagascar" Ministere de l'Enseignement Superieur et de la Recherche Sceintifique avec FAO, UNDP, December 1979.

Direction Generale du Plan, "Enquete sur le secteur informel dans le grand Antananarivo" March 1980.

IBRD, "Madagascar: Agriculture and Rural Development Sector Memorandum" March 29, 1983.

IBRD, "Madagascar Economic Memorandum", November 3, 1981.

IBRD, "Madagascar: Public Sector Enterprises in the Agricultural Sector, a Sub-sector Review," March 22, 1983.

UNIDO, "L'industrie Malagache: analyse du fonctionnement et propositions d'action." DP/MAG/81/018, Vienna, May 1982.

CETA, "L'Artisanat extrat du livre bland de l'economie malagasy (1950-1960) et du plan quinquennal (1964-1968).

IBRD, "Madagascar: Recent Economic Developments and Future Prospects." 1979.

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MADAGASCAR ECONOMIC ANALYSIS

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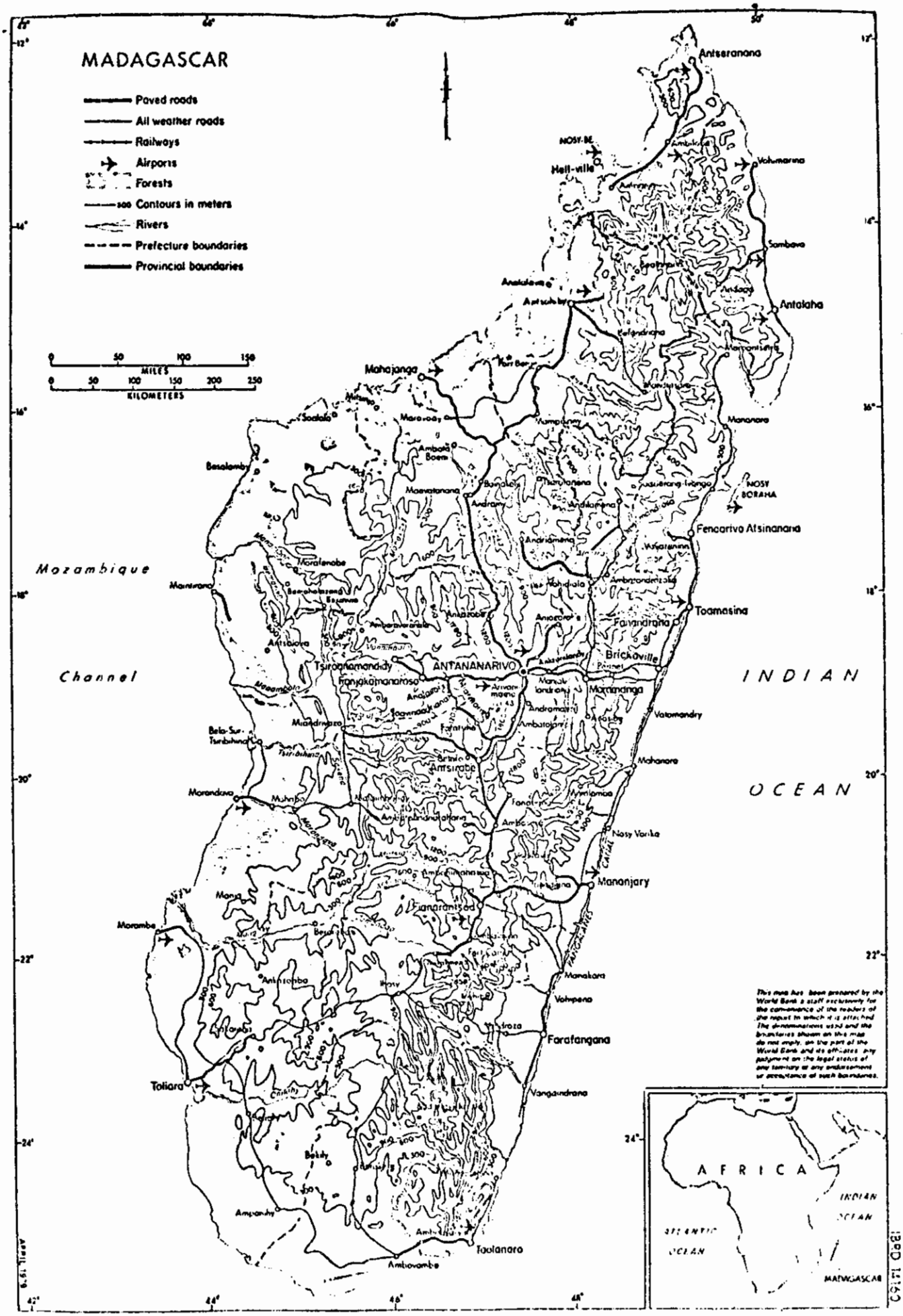
       2) Potential for improved overall economic performance resulting from sectoral interventions

    c. AID's comparative advantage in this sector

    d. Likely political benefits and risks to U.S. Government and pros and cons of AID assistance to this sector

REDSO/ESA, Nairobi: CS Callison, C Claude & A Pryor, 11/83


MADAGASCAR
Paved roads
All weather roads
Railways
Airports
Forests
Contours in meters
Rivers
Prefecture boundaries
Provincial boundaries
MILES
KILOMETERS
Mozambique
Channel
INDIAN
OCEAN
Antseranana
Hell-ville
Sambava
Antalaha
Mahajanga
Mananara
NOSY BORAHA
Fenoarivo Atsinanana
Toamasina
Brickaville
ANTANANARIVO
Tsiroanomandidy
Fianarantsoa
Mananjary
Morondava
Morombe
Toliara
Farafangana
Vangaindrano
Taolanaro
Ambovombe
Ampanihy
Bekily
Ambositra
Antsirabe
Miandrivazo
Maintirano
Besalampy
Antsohihy
Vohemar
Nosy Varika
Vatomandry
Mahanoro
Manakara
Vohipeno
AFRICA
INDIAN
OCEAN
ATLANTIC
OCEAN
MADAGASCAR
IBRD 14160

LIST OF ACRONYMS:

AMDP	African Manpower Development Program
ARDN	Agriculture, Rural Development and Nutrition
AfDF	African Development Fund
BADEA	Arab Bank for Economic Development in Africa
CCCE	Caisse Centrale de Cooperation Economique (French)
CDSS	Country Development Strategy Statement
CENAM	Centre National de l'Artisanat Malgache
CETA	Economic and Technical Center for Artisans
CIP	Commodity Import Program
CRS	Catholic Relief Services
DA	Development Assistance
DGP	Directorate General of Planning
EEC	European Economic Community
EHR	Education and Human Resources
EIA	Energy Initiatives for Africa
ESF	Economic Support Fund
FAC	Funds for Aid and Cooperation (French)
FAO	Food and Agriculture Organization
FC	Foreign currency
FED	European Development Fund
FOFIFA	National Center for Applied Research on Rural Development
FX	Foreign exchange
GDP	Gross Domestic Product
GDRM	Government of the Democratic Republic of Madagascar
IBRD	International Bank for Reconstruction and Development (World Bank)
IDA	International Development Association (World Bank affiliate)
IFAD	International Fund for Agricultural Development
ILO	International Labor Organization
IMF	International Monetary Fund
IMaTeP	Institut Malgache des Techniques de Planification
INPF	National Institute of Promotion Training
IRRI	International Rice Research Institute
ISNAR	International Service for National Agricultural Research
LC	Local currency
LWR	Lutheran World Relief
MCH	Maternal-child health
MGF	Malagasy francs
MIC	Ministry of Industry and Commerce
MIEM	Ministry of Industry, Energy and Mines
MPARA	Ministry of Agricultural Production and Agrarian Reform
MTP	Ministry of Public Works
MTRT	Ministry of Transport, Supplies and Tourism
ODA	Official development assistance
OECD	Organization for Economic Cooperation and Development
PD & S	Project Development and Support
PIP	Public Investment Program
PVO	Private voluntary organization
SAWS	Seventh Day Adventist World Services
SDP	Special Development Projects
SDR's	Special Drawing Rights (IMF credits)
SERDI	Society for Study and Implementation of Industrial Development
SME's	Small- and medium-scale industries
UNDP	United Nations Development Program
UNIDO	United Nations Industrial Development Organization

DRAFT
MADAGASCAR ECONOMIC ANALYSIS

I. Preliminary Macroeconomic Analysis

A. Resource Base and Basic Economic Structure

1. Population and Employment[1]

[1] Much of the information found in this section was obtained from The World Bank, World Development Report 1983, World Development Indicators Annex, various tables.

The population of Madagascar is approximately 9.5 million persons in 1983, about 19 percent of whom reside in towns or cities of more than 5000 inhabitants and 81 percent in the rural areas. Although the density of population on the total land area is fairly low at 16 per square kilometer, it is 26 per square kilometer on agricultural land, the vast majority (92 percent) of which is pastureland and capable of supporting only a fairly low density of population. Madagascar is one of the poorer countries of the world, its 1981 per capita GNP of $330 placing it in the bottom 25 percent of all countries ranked by levels of income. Real GNP per capita has been declining at an average annual rate of 0.5 percent during the last two decades.

Considerable efforts have been made over the last two decades to expand the public education system and raise the adult literacy rate. The Primary school enrollment ratio was increased from 52 percent in 1960 to 100 percent in 1980, while the secondary school ratio went from 4 to 12 percent. An acute shortage of trained teachers has been reflected in the persistence of a high (61) pupil-teacher ratio in primary grades, and the education system suffers from poor quality in other respects, as well. The

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adult literacy rate was estimated to be around 50 percent in 1980, up from 39 in 1970.

Life expectancy at birth remains short, at 48 years in 1981 (up from 37 in 1960), and it compares unfavorably with the 58-year average of all low-income countries. This plus other evidence indicates that, despite the government's recent efforts to improve living conditions--and much has been accomplished during the last several years--the overall health status of the population leaves much to be desired. The crude death rate is relatively high at 18 per thousand, compared with an average of 12 in low-income countries, although this is down from 27 in 1960. The infant mortality rate has shown considerable improvement in dropping from 109 in 1960 to 69 in 1981, and it compares favorably with the average of 99 for all low-income countries. It is still unnecessarily high, however, since a large portion of the deaths result from preventable diseases. Despite its relative poverty, and thanks partly to the efforts of the government to assure that satisfactory supplies of food are always on hand, even if it requires the expenditure of scarce foreign exchange for imports, the per capita calorie supply has remained high (at 109 percent of nutritional requirements in 1980, for example).

The population is currently growing at an estimated rate of around 2.8 percent, and this is expected to average an even higher 3.1 percent between now and the year 2000, by which time the total population will be around 16 million. The labor force is also expected to increase at about 3.0 percent annually. These relatively high growth rates will inhibit the country's ability to provide productive employment for all those looking

for jobs and to achieve very rapid improvements in per capita income.

An unusually high 88 percent of all workers are employed in the agricultural sector, compared with around 70 percent for all low-income countries, and almost all farm households are smallholders. Only 1.5 percent have jobs in manufacturing, 0.8 percent in construction, and only 9 percent in the entire services sector.

2. Land, Mineral and Energy Resources[2]

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[2] World Bank, Madagascar Agriculture and Rural Development Sector Memorandum, 3/29/83, pp. 6, 1316, 1248 and 179; and crop production data supplied by the Ministry of Agricultural Production and Agrarian Reform.

Madagascar is the world's fourth largest island, with a total land area of 587,000 square kilometers. A little over half (58%) of this area is pastureland and only 5 percent of it, 2.8 million hectares, is presently under cultivation. The remaining forests cover about 21 percent, or 12.5 million hectares. Another 9 percent, around 5.5 million hectares, is classified as cultivable but presently unused.

The climate is basically tropical and about half the island receives more than 1,500 mm of rainfall annually, while large areas, particularly those along the east coast, record up to 3,500 mm. Average temperatures are also high, with mean maxima and minima generally ranging between 20 and 30 degrees Celsius. The country's size, its mountainous interior, its extensive ocean coastline, and its location in an area of intense atmospheric activity, however, combine to give it a varied climate with

considerable contrasts in different parts of the island. The effects of altitude in the highlands, for example, causes the temperature to drop occasionally below freezing. Because of its wide variety of climatic and soil conditions, Madagascar is suitable for growing a wide range of different crops. A large number of different crops are indeed grown, and rice paddy, the front runner, is grown on only one-third of the cultivated land area and contributes only about one-third to the total value of agricultural production. Precipitation is sufficient in the north, east and highland regions for rainfed cultivation of most crops, but the south and west regions are so dry and rainfall there is so erratic that irrigation is indispensable for agriculture. This can be costly, however, and is complicated by the need to withstand occasionally violent cyclones.

In addition to cyclone damage, Malagasy agriculture suffers from generally poor soils which require the application of fertilizer for most crop cultivation, except for the rather small percentage of alluvial soils found mostly in the large river basins of the western region. Development of the alluvial soils themselves is hampered by the need for extensive irrigation and flood control infrastructure in those areas. A rapid rate of deforestation and soil erosion also pose serious problems for agricultural development, as does the physical isolation of most of the country, due to the rugged terrain and lack of adequately surfaced and maintained roads.

--presence of mineral resources and potential (See Embassy cable)
--domestic energy resources (T. Pryor)

3. Principal Economic Activities

The agriculture, forestry and fishing sector contributed 43 percent to Gross Domestic Product in 1982, compared with only 16 percent from industry and 38 from government and other services. It also provides by far the most foreign exchange from export earnings. In 1980 agricultural and fishing exports accounted for 83 percent of the total, while processed food, vegetable oil, textiles, shoes, and forestry products accounted for another 7, for a total of 90 percent derived from this sector. Its preponderance in providing employment for the Malagasy labor force was noted above. (See Tables ___ and ___.)

Industrial sector output declined from 19.2 percent of GDP in 1979 to 16.4 percent in 1982, due mainly to acute shortages of both domestic and imported raw materials and spare parts, although declining world market demand for a few export industries, especially mining, was also a contributing factor. This sector is relatively capital intensive, with manufacturing providing only 1.5 percent of total employment in 1982; and it is more heavily dependent on imported inputs than is desireable. Manufacturing is presently dominated by a large number of industrial parastatal agencies which are characterized by serious deficiencies in their technical, managerial and financial operations. The much smaller, and more labor intensive, artisinal or handicraft subsector remains primarily in the hands of small, private entrepreneurs.[3] (See Tables ___ and ___.)

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[3] World Bank, Madagascar Economic Memorandum, 11/3/81, p. 35.

While the services sector provides a fairly sizeable proportion of GDP, its estimated share of total employment is also quite small, at only 9.4 percent in 1982.

4. Transportation[4]

[4] See especially World Bank, "Staff Appraisal Report, Democratic Republic of Madagascar, Sixth Highway Project," 6/2/83, pp. 1-4 and 14-18, for a concise description of the transport sector, on which the following summary is based.

Madagascar's transport infrastructure is composed of nearly 50,000 km of roads, of which about 10 percent are paved, two unconnected railway systems totalling 860 km, four main ports and 11 lighterage ports of some significance, and 56 airfields. The only navigable waterway is the Pangalanes Canal along the east coast. The system fails to provide access to many productive areas of the country. The main transport link between the port of Toamasina on the east coast and the central plateau area--the country's "lifeline"--is a dilapidated railway line and an old, poorly maintained road, both of modest specifications. The deterioration of the road network during the last decade due to a combination of poor maintenance, heavy use and accumulated weather-related damages, has increased the isolation of many areas. Rugged topography and heavy rainfall over much of the country make the construction and maintenance of roads difficult and expensive. In response to grossly inadequate overland transportation facilities, Madagascar has developed a denser air transport network than most comparable countries as well as an extensive system of ports and coastal shipping.

The country's foreign trade also bears heavier ocean freight charges than normal, because of its location off the most frequently travelled freighter routes.

5. Institutional Structure

--institutional structure: process and effect of decentralization

AID, REDSO/ESA: CSCallison, 8/31/83 Draft (MGEIA.NAR)

I.B. Post-Independence Social and Economic Trends, Policies, Problems and Performance

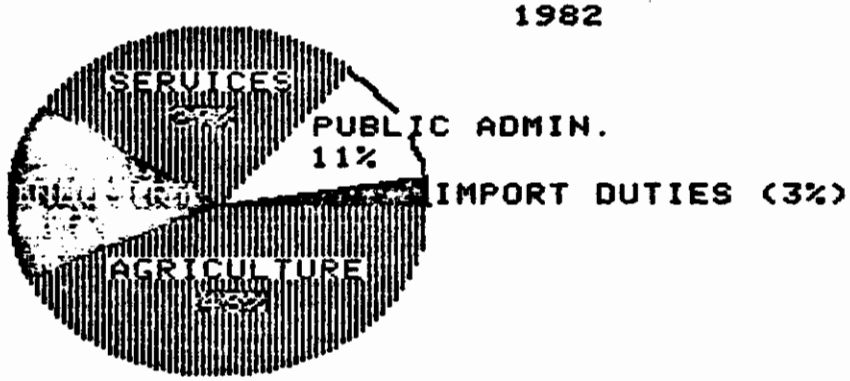
1. Overall Record of Economic Growth

a. Recent Performance

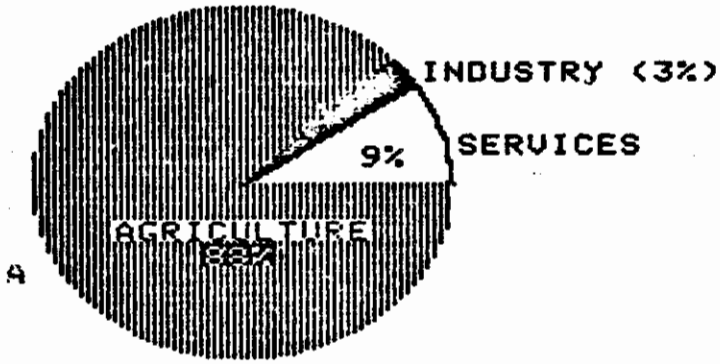
The economy has been up and down like a roller-coaster during the last ten years, with positive real increases in five years and declines in the other five. The production declines in both agriculture and industry have been more serious since 1980, however, and real 1982 GDP is estimated to have been 3.4 percent less than its 1972 level and represented a fall of 10.4 percent in two years. Although the level of production in agriculture, the dominant sector, has itself stagnated, most of the actual decline is attributable to the precipitous drop in the production of the industrial sector, which reduced its output by one-third in the last two years. (See Table ___.)

Even in the relatively good years, though, the growth rates have been generally insufficient to keep production ahead of the increasing population--the only exception being 1979. As a result, real per capita GDP has fallen by an average of 2.9 percent annually since 1972, or by a total of 26 percent in one decade.

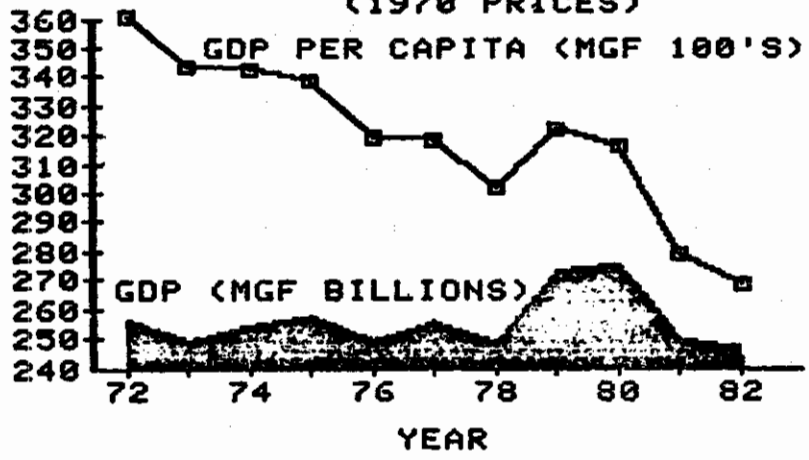
MADAGASCAR GDP BY INDUSTRIAL ORIGIN
1982



MADAGASCAR: EMPLOYMENT BY SECTOR, 1982



MADAGASCAR: REAL GDP & GDP PER CAPITA
(1970 PRICES)



(See Table ___.)

b. Causes of Recent Decline

Several factors have contributed to this poor performance, some of which, such as the recent worldwide recessionary demand for the country's exports and the resulting deterioration in terms of trade, as well as an occasional bad year for agriculture due to the weather, have certainly been beyond the control of the government. Other factors have derived from the policies of nationalization and market control undertaken by the Democratic Republic of Madagascar (~~DRM~~ GDRM) in its attempt to achieve better control over the domestic economy for social and political goals. Still other factors have arisen, in combination with those just mentioned, from the effects of the large public investment program initiated in 1978 with a strong dose of foreign financing.

An underlying weakness in the basic marketing system of the economy, which has been exacerbated by recent events, has arisen from government interventions during the last 10 years. Several parastatal marketing agencies were created to control the transportation and marketing of key commodities. These have tended to be poorly managed and operationally inefficient and have resulted in serious disruptions of normal marketing operations. The government has also attempted to control both consumer and producer prices, which in a period of high inflation resulted in sharp declines in real and relative prices for the goods controlled, as well as in disruptive shortages of key inputs and basic consumer goods, further reducing production incentives.

In 1978 the ~~DRM~~ GDRM decided to launch a greatly expanded public

investment program, financed heavily from foreign sources, which more than doubled gross domestic capital formation (GDCF), in nominal terms, in 1979. (In real terms the increase was still a substantial 81%.) As a proportion of GDP, GDCF almost doubled between 1977 and 79, rising from 12.9 to 25.3 percent. The ensuing increase in domestic inflation, which rose from an annual rate of 6.6 percent in 1978 to more than 30 percent in both 1981 and 82, coupled with domestic price controls and a relatively fixed foreign exchange rate, has had particularly depressing effects on both the availability of basic consumer goods and the financial incentives to produce throughout the economy. (See the discussion of the real foreign exchange rate in the next section and of real producer price trends in the agricultural sector below.)

Although the public investment program was designed in large part to build productive infrastructure and industrial facilities to enhance the country's income-generating capacity, its own high level of import requirements contributed substantially to the precipitous decline in the balance of payments on current account discussed in the next section. The consequent shortage of foreign exchange reduced the nation's ability to finance normal import levels of essential spare parts, equipment and other inputs needed by the industrial and agricultural sectors, thus contributing to their declining or stagnant output levels. The increasing debt-service requirements of the foreign debt incurred further reduced foreign exchange availability for normal import needs.

During this same period the GDRMB, while concentrating on

other priorities, neglected the maintenance of the basic road and railway network upon which the economy depends, and it deteriorated to the point where it represents a severe economic constraint, further disrupting the supply and marketing of goods.

Finally, the worldwide recessionary demand situation of recent years has contributed its share to the declining level of exports and GDP. Valued in SDR's, commodity export earnings dropped by 15 percent in 1981 and recovered only slightly in 1982. The export contribution to GDP dropped from 20 percent in 1978 to 12.8 percent in 1982. Except for a brief and relatively small upsurge in 1980, the international terms of trade have moved against Madagascar every year since 1977, declining a total of 34 percent during the last five years. This has compounded the country's foreign exchange problems by increasing the foreign exchange cost of imports while reducing the earnings of exports.

c. Major Constraints to Improved Performance

Despite recent moves toward market liberalization, government agencies and parastatals continue to control or dominate many marketing functions; and although some prices have recently been raised and the approval process for price change requests has been somewhat streamlined, the continued DRMG reluctance to allow commodity prices to adjust to market levels reduces production incentives, particularly in a period of fairly high rates of inflation.

In addition, the dilapidated transport system will continue to hamper input delivery and the marketability of outputs for some time to come, since its satisfactory rehabilitation and

expansion will be a costly and lengthy operation.

d. Corrective Measures Needed and Underway

The stabilization and economic restructuring measures currently being designed and implemented with assistance from the IMF and World Bank are important moves in the right direction. These include exchange rate adjustments, wage restraint, a reduction in the fiscal deficit, a reduced rate of domestic credit expansion, increased producer prices for rice and other agricultural commodities, the elimination of consumer subsidies on rice and, by 1984, the elimination of subsidies on fertilizer, greater flexibility in other administered prices, and an increase in interest rates. The government is revising its Investment Code to clarify the role of the private sector in the economy and encourage productive private sector investment.*

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*See the 1983 IMF and World Bank reports on Madagascar.

The DRMG has also, for the first time, prepared a Public Investment Program (PIP) to establish priorities for the sectoral allocation of public investment funds, to define project selection criteria within sectors based primarily on economic considerations, and to define policy reforms that would enhance the efficient use of investment resources. The total size of the PIP has been reduced, and priority is to be given to the completion of ongoing, economically viable projects and to the rehabilitation and better utilization of existing capital capacity. Most new project investments are to be postponed until later. Among sectors, agriculture is to be given a larger share of the public

investment resources than before, with the share of social services reduced.**

**World Bank, 3/28/83, op.cit., pp. 29-32, and discussions with various DRMG officials.

In addition to these policy, price and planning reforms, a major effort is underway, with sizeable amounts of foreign donor funding, to begin the rehabilitation of the transportation network, including primarily the trunk line road network and the railway. (See Section III, below, on Other Donor Activities.)

e. Major Information and Analytical Gaps

Current estimates of the National Income Accounts are highly aggregated and very rough approximations, providing little of the detail needed for satisfactory analysis of key macroeconomic problems. The Directorate General of Planning is presently estimating a 30-sector GNP Account to provide more of the desireable data, and this is expected to be completed before the end of 1983. Further work is urgently needed, however, to improve macroeconomic data generation, estimation procedures and analysis.

I.B. Post-Independence Social and Economic Trends, Policies, Problems and Performance

2. Balance of Payments, Exports and Imports

a. Recent Trends and Current Problems

The balance of payments on current account declined from a modest deficit level of -91 million SDR's in 1978, which was typical of the mid-1970's, to -374 million in 1979 and -464 million the following year. In proportion to export earnings of foreign exchange, the current account deficit rose from 26 percent in 1978 to 103 and 128 percent in 1979 and 1980, respectively, and it has remained above 100 percent for the last four years. In comparison with GDP, it rose from 5.3 percent to 17.3 percent between 1978 and 79, and it was estimated at 12.7 percent in 1982.

The level of commodity imports doubled between 1978 and 1980 to SDR 620 million, to almost one-third of GDP and twice the level of exports, which stagnated and even declined after 1980. External financing of this deficit, much of it on commercial terms, has led to a rapid increases in total foreign debt outstanding and in debt service obligations. In comparison with Gross Domestic Product (GDP), total external debt rose from 18 percent in 1978 to 59 percent in 1982. Meanwhile, debt service requirements increased in proportion to export earnings from 6 percent to 55 percent, before rescheduling. After rescheduling agreements this ratio dropped to 34 percent in 1982, but it was projected at an even higher 77 percent in 1983 (before rescheduling). (See Table ___.)

The resulting severe shortages of foreign exchange have

required restrictions on many imports, including on inputs needed by domestic economic activities; and this has been one of the primary causes of the general economic decline in Madagascar during the last few years.

b. Causes of B/P Deterioration

There are three primary reasons for this precipitous deterioration in the balance of payments. First, export earnings stagnated at around SDR 300 million and fell from around 20 percent of GDP in 1978 to 13 percent in 1982, due to a combination of factors. The most important of these seem to have been 1) the recessionary world market demand, which adversely affected Madagascar's terms of trade as well as the quantity of exports, 2) domestic transportation problems, which increased the cost and difficulty of export activities, and 3) foreign exchange rate, domestic pricing and marketing policies, which disrupted and reduced the efficiency of marketing activities and, particularly in a period of inflationary cost increases, reduced the real financial incentives of export production. Secondly, the sudden doubling of imports is attributable mostly to the large capital import requirements of the expanded public investment program, although associated imports for energy, raw material and intermediate input requirements also registered sizeable increases.*

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* See Table ____. Imports of non-food consumer goods declined in proportion to total imports from 17 percent in 1978 to 9 percent in 1982. Food imports, on the other hand, about two-thirds of which have been rice, have increased substantially since 1980, rising from 9 percent to a projected 22 percent in 1982. In the late 1970's, Madagascar purchased 36 percent of its imports from its former colonial metropole, France, another 10 percent from Germany, and about 6 percent from the U.S. (See Table ___.)

Third, the rapid expansion of domestic credit and expenditure related to the new investment activities created a high rate of domestic inflation, which, when combined with a relatively fixed exchange rate policy and sluggish producer price controls, caused the rapid reduction in real financial returns accruing to export producers mentioned above.

Madagascar's exports are dominated by agricultural commodities, which comprised 83 percent of the total in 1980. If processed foods and other manufactured goods based on agricultural products, such as cotton textiles and shoes, are included, this ratio rises to 90 percent. Mineral products, primarily chromite, graphite and mica, contributed another 5 percent of the total. Coffee has been the leading export crop throughout the last decade, rising from 28 percent of total exports in the early 1970's to a peak of 53 percent in 1980. Its contribution fell back to 35-36 percent in 1981-2, as the combined exports of vanilla and cloves increased, in terms of value, to an almost equal proportion. (Clove production was at the peak of its four year cycle in 1981-2.) (See Table ___.)*

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*The French and the Americans are the leading consumers of Madagascar's exports, purchasing an average of 24 and 19 percent, respectively, of the total during the late 1970's, followed by the Germans, Indonesians and Japanese, who purchased 7 to 8 percent each. (See Table ___.)

In addition to the main export crops mentioned above, Madagascar exports a sizeable list of agricultural products, including pepper, cocoa, sisal, sugar, meat and fish, as well as some fruit and vegetables. As is true with most agricultural crops, the farmers' decisions about how much of what crops to produce in

any given year are strongly affected by the expected rates of return on his time and investments for each crop. The Malagasy farmer has not only faced declining world market prices in hard currency terms, due to the effects of recession on demand, but he has also had to absorb increasing transport costs at home, as the condition of transport system deteriorated, and the decreasing real value of the Madagascar frank received in return for his export crops.

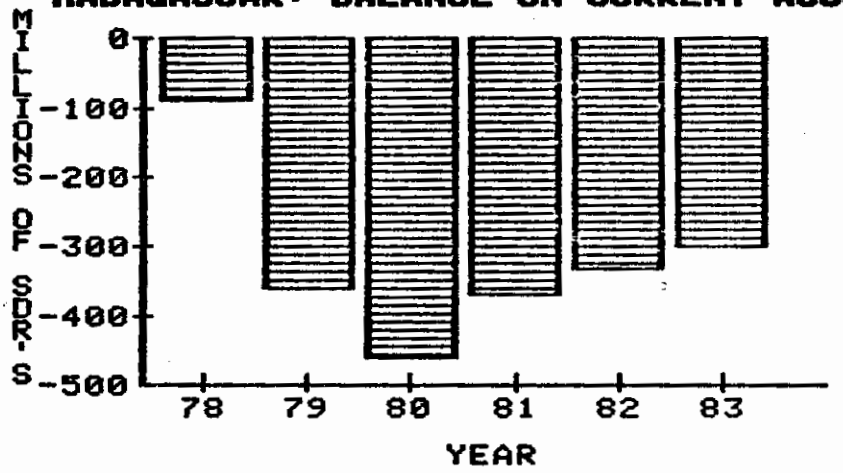
The DRMG has established a system of export marketing controls for the key agricultural crops that sets a guaranteed f.o.b. price for the exporter and controls the amounts per kilogram permitted for the exporter's margin and that of the processing firm, the transporter, the middleman and the producer. Export duties are subtracted from the guaranteed f.o.b. price. Whenever the world market price is above the guaranteed price the excess is deposited into a stabilization fund that is to provide money for subsidies when world market prices drop below the guaranteed price level, and which in the meantime is used by the government for investment purposes.

One result of this system is that the producer receives a rising proportion of the actual export price when the latter falls, and a falling proportion when it rises. In actual practice, however, the system has tended to work against the producers over the longer run, resulting in an average producer price lower than it would be without the duties and stabilization fund, since it requires administrative decisions to increase the guaranteed export price as world prices generally rise in response to

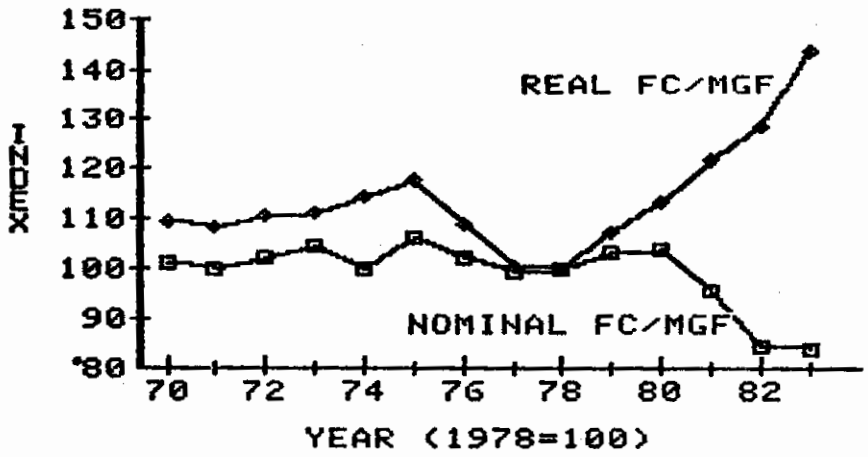
underlying inflationary trends, and this, even given the best of intentions, would result in an adjustment lag. As indicated in Table ___, an analysis of the percentages of the actual export prices received by the producers of six of the country's leading agricultural exports demonstrates that these ratios are generally lower now than in 1973, with sisal prices being the only exception. Whereas coffee producer prices comprised 67 percent of the actual export price in 1973, and went as high as 79 percent two years later, they are now only 33 percent. Vanilla producer prices have dropped from 33 percent of the export price to 21 percent. Producer prices for cloves have fallen from 43 percent to 16 percent. The ratio for lima beans has varied quite a bit, but whereas it was 81 percent of the export price in 1973, it was only 29 percent in 1983.

In addition to the decreasing proportion of the actual export price received by producers, the franks they do receive are worth considerably less than before. Section IIA on the Agriculture Sector discusses the sharp decline in real agricultural producer prices since 1978, due mostly to the joint impact of price controls and inflation. In the case of export commodities this effect is abetted by the steady revaluation of the Madagascar frank upwards--in real, trade-weighted terms, by 44 percent since 1978 (as of April 1983). The occasional nominal devaluations, against the basket of trading partner currencies to which the frank has been pegged, have simply not been nearly large enough to compensate for the higher rate of inflation at home than has been experienced by Madagascar's trading partners. (See Table ___.) This means that the value of the domestic

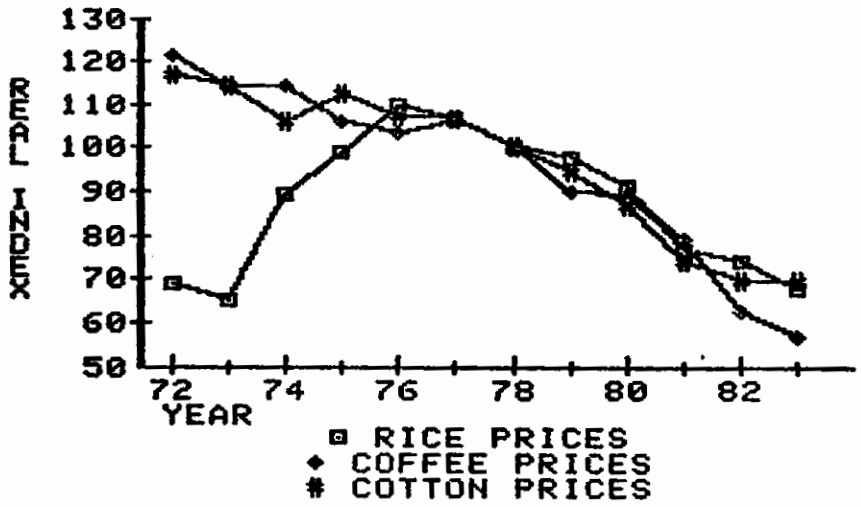
MADAGASCAR: BALANCE ON CURRENT ACCOUNT



MADAGASCAR FOREIGN EXCHANGE RATE



MADAGASCAR: PRODUCER PRICE INDICES



currency received by export producers and middlemen per dollar of foreign exchange earned is worth 31 percent less now than in 1978, in terms of its domestic purchasing power parity, even though the actual number of francs would be 70 percent larger per dollar if the proportion of the export price received had stayed the same.

Export producers have therefore been hit with a double whammy--not only are they generally receiving a significantly smaller proportion of the nominal export price than before, the value of the portion they do receive is worth 31 percent less in real terms due to the relatively high domestic rate of inflation and an inflexible exchange rate. Table ___ demonstrates the resulting sharp decline in real domestic producer price indices for several export crops since 1978: -43 percent for coffee, -45 percent for cloves, -49 percent for pepper, -25 percent for sugarcane, and -28 percent for lima beans.

c. Major constraints to improvement

The Malagasy authorities have already reduced the amount of new foreign borrowing and have taken steps to reschedule their debt service charges. The foreign exchange allocation system is being revised to realize a better sense of priorities in the granting of import licenses. The major constraints to a reduction of the foreign exchange shortage lie in the causes of sluggish export growth. Aside from recessionary demand abroad, which may now be on the verge of abating, these are related primarily to high internal transportation costs and to domestic pricing, marketing, exchange rate and administrative policies that have

reduced production incentives. While the rehabilitation and improvement of the transport system will be costly and time consuming, considerable scope exists for improvement of the policy framework affecting production incentives.

d. Corrective Measures Needed and Underway

The authorities recognize most of the problems and constraints discussed above and have recently taken several steps to deal with them. The frank was devalued by 15 percent in 1982 and by 6 percent in early 1983, but, as discussed above, this was not sufficient to correct for the real revaluation resulting from relative inflation rates, let alone to serve as a countermeasure for the supply and demand shifts underlying the sharp deterioration in the balance of payments. Similarly, the recent measures announced to liberalize marketing controls will certainly help, but the relatively small commodity price increases announced so far will still leave producer income per unit of output significantly lower than it was a few years ago.

Production for export is likely to remain sluggish until the financial returns are raised high enough to cover the costs of marginal production, as well as the lower costs of the more efficient producers, and to cover the increasing costs of domestic transport. This will require a more careful monitoring of the competitive aspects of the real foreign exchange rate and a high-level policy determination to pass a higher proportion of the actual export price through to the actual producers.

The government is about to undertake a massive effort to rehabilitate and improve its domestic transport system, with considerable financial support from major international donors.

This is a crucial task, but it will take several years to implement and will even then cover only a fraction of the total road network needing upgrading and repairs.

e. Major Information Gaps Identified

Information relating to foreign trade and the balance of payments in Madagascar seems to be more readily available, and probably rather more reliable, than that about many other aspects of the economy. It would seem, however, that the DRMG needs an improved in-house capability to analyze the data and to determine the economic effects of its various policies with respect to the exchange rate, producer prices, export duties and stabilization funds, foreign exchange allocations, etc., in order to reduce the self-contradictory nature of its policy matrix.

I.B. Post-Independence Social and Economic Trends, Policies, Problems and Performance (Cont.)

3. Public External and Internal Debt and Debt Service*

* This section draws heavily on IMF documents: Madagascar, Recent Economic Developments, July 1982, SM/82/127, and Madagascar, Mid-Term Review of the Stand-By Arrangement, March 1983, EBS 83/55 and supplements. Data for the Table years 1978 to 1981 come from the document on the 1982 Article IV consultation available in Nairobi).

Until approximately mid-1978 foreign borrowing was held to low levels and was confined mainly to project loans on concessionary terms. The subsequent large expansion of public sector investment (investissement a outrance) led to a dramatic increase in external borrowing and to virtual disregard of the provisions of the Exchange Control Regulations requiring prior approval of the Finance Ministry.

Table ___. Public and Publicly Guaranteed External Debt
(end of period, millions of SDR's)

	1978	1979	1980	1981 (est)	1982 (est)	1983 (proj)
Disbursed and Outstanding	315.6	511.4	928.7	1215.2		
Percent of GDP	17.7	22.6	35.6	53.3		
Debt Service Ratio	5.8	9.9	14.5	32.8	33.6	76.9*

* Prior to rescheduling

SOURCE: IMF, Madagascar: Staff Report for the 1982 Article IV Consultations, 1982; 1982 and 1983 debt service ratio from Madagascar: Mid-term Review of the Stand-by Arrangement, March 1983.

Madagascar's outstanding external debt has increased sharply since 1978, almost tripling between end-1978 and end-1980 in SDR terms (see Table ___). By the end of 1981 the outstanding exter-

nal debt of FMG 417.6 billion (equivalent to SDR 1.2 billion) was equal to 53 percent of GDP.

In 1980 arrears on external debt payments emerged,**

** Arrears with respect to dividend transfers have existed since about 1973. The total amount was relatively small, FMG 3.35 billion, at the end of 1980. In 1981 the Central Bank stopped processing requests for such transfers because the shortage of foreign exchange would prevent the remittance of dividends.

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reaching FMG 34.6 billion by end-1981, or 4 percent of GDP. The rapid increase in foreign borrowing was accompanied by a deterioration in the country's extrernal debt profile. The maturity structure and the average interest rates of the new loans contracted worsened significantly: while in 1977 nearly 90 percent of new borrowings had maturities of over 10 years, with no borrowing taking place in the 1-5 year maturity range, by 1979 over 16 percent of new foreign loans contracted had maturities of 1-5 years or less. The average interest rate on new loans increased from 4.6 percent in 1977 to 7.5 percent in 1980. (As a result of subsequent Stand-by Arrangements with the IMF, the average interest rate has declined in more recent years, while the average maturity increased.)

Reflecting all the above developments, the GDRM's external debt service payments have imposed and increasing burden on the economy. The debt service ratio (debt service as a proportion of the export earnings of goods and services) increased from about 6 percent in 1978 to somewhat over 30 percent in 1981, after the 1981 debt rescheduling, but excluding arrears. Projections for 1983 indicate that this ratio may increase to 75 percent, even

taking account of expected Paris Club reschedulings through mid-year, but including arrears owed to banks. (A reduction in the level of exports is partly responsible for increasing this ratio.) In mid-1982 it was projected that, exclusive of the 1982 reschedulings, the GDRM's debt service payments would peak in 1983 and decrease only gradually after that. Information is not yet available on more recent developments.

The Composition of External Debt by Type of Creditor

Table ___ underlines the shift in the relative importance of the different categories of the GDRM's creditors for new debt incurred between 1977 and 1981, in particular the dramatically increased role of financial institutions through 1980. Table ___ shows the concurrent changes in the terms of borrowing, which resulted in shorter average maturities and higher average interest rates between 1977 and 1980. The return to more favorable terms in 1981 reflects a return to a higher proportion of concessional financing, as well as a drastic curtailment of commercial debt, under the influence of the IMF assistance program, as mentioned above.

For the first half of 1983, the provisions of the Stand-by Agreement relating to foreign debt involved reductions in external payments arrears as well as provisions not to incur new debt with maturities of between one and ten years (except for the refinancing of existing debt or the special case of a loan agreement with France already signed in 1981).

Paris and London Club Agreements

The balance of payments difficulties in 1982 were compounded by a substantial shortfall of capital inflow, both for project

Table ___. Madagascar: Composition of New Foreign Loans by Creditor
(Millions of U.S. dollars)

	1977	1978	1979	1980	1981
Governments	46.5	152.9	77.3	77.9	92.5
Int'l Organizations	33.3	56.5	78.0	80.8	70.9
Suppliers	16.8	30.4	127.2	6.7	--
Financial Inst.	2.2	84.2	108.1	140.0	18.6
Exceptional Bal.of Pmts. Financing	3.0	--	100.0	39.3	9.4
TOTAL	101.8	324.0	490.6	344.7	191.4

SOURCE: IMF, based on data supplied by GDRM and World Bank.

Table ___. Madagascar: Maturity Structure and Terms of Loans
(In Percent)

	1977	1978	1979	1980	1981
1-5 Years	--	1.7	16.4	20.1	0.1
5-8 Years	11.4	21.6	25.6	20.9	12.6
8-10 Years	--	9.1	22.7	15.9	10.1
10-15 Years	32.7	34.2	12.6	10.8	35.0
Over 15 Years	55.9	33.4	22.7	32.3	42.2
TOTAL	100.0	100.0	100.0	100.0	100.0
Ave. Interest Rate	4.6	5.7	5.8	7.5	2.8
Ave. Maturity (yrs.)	23.0	17.0	15.2	17.1	24.7

SOURCE: IMF, based on data supplied by GDRM and World Bank.

financing (SDR 117 million) and for the exceptional balance of payments support mobilized during the Aid Donor's Conference. Disbursements by the donors' group were about SDR 20 million less than projected in the program and SDR 29 million below the level actually pledged. By contrast, Madagascar successfully rescheduled, within the framework of the Paris Club, its debt service obligations falling due during the second half of 1982 and the first half of 1983, and with other creditors outside the Paris Club for debt service obligations falling due in 1982. Negotiations regarding a rescheduling of the GDRM's outstanding obligations to commercial banks began in June 1982. In principle, agreement was reached to reschedule within the framework of the London Club the total outstanding debt (amounting to $195 million at the end of 1982, of which $70 million were arrears on principal). A formal rescheduling was delayed due to the failure to reach agreement on terms acceptable to all the commercial creditors. Although several meetings were held during the first part of 1983, by end-July a final accord still had not been reached. As of September the situation continues in a stalemate, but penalty charges on arrears have been waived pending settlement.

External Arrears

Under the impact of persistent foreign exchange difficulties, compared to a net reduction of SDR 7.6 million assumed under the IMF program for 1982, external payments arrears increased by SDR 55 million over the year (almost entirely--SDR 51 million--in debt service obligations to commercial banks), Madagascar consolidated SDR 6 million of arrears into future

obligations, repaid SDR 157 million of outstanding arrears, but accumulated new arrears amounting to SDR 218 million.

Inability to keep the arrears situation under control in 1983--a particularly difficult task in view of the unexpectedly bad export performance--resulted in the suspension of the Stand-by Agreement, making Madagascar ineligible for the last scheduled drawing. A new agreement is currently being negotiated and is reportedly a pre-condition to a new Paris Club meeting as well as to French release of a portion of their structural adjustment loan.

Conclusion: The external debt situation appears to be particularly bad, since there is not much chance that Madagascar will be able to sell its $54 million clove crop this year and imports appear to be already squeezed to the limit. The internal debt situation is a very confused situation of mutual obligations primarily between the government and parastatals, where it is not clear which party is a net creditor to whom. This situation is expected to take some time to clear up, although efforts to do just that are already underway.

4. Public Finance

Budgetary figures for 1978-1982 reflect the surge in public investment beginning in 1979, which rose from 4.3 percent of GDP in 1978 to 12 percent the following year, and the slow decline in the proportion of GDP collected as revenue over the same period, from 20.3 percent of GDP in 1978 to 14.8 percent in 1982. Subsequent stablilization measures have curtailed the growth of expenditures, both recurrent and capital, and reduced the overall

deficit from its peak of 18.4 percent of GDP in 1980 to an estimated ~~7.1~~ 8.4 percent in 1982.

Table _____. GDRM Fiscal Performance, 1978-82

	Percent of GDP:				
	1978	1979	1980	1981	1982*
Total Revenue	20.3	18.5	16.8	15.2	14.8
Total Expenditure	26.1	31.9	35.1	29.9	23.2
Current	21.8	19.9	24.8	18.3	16.1
Capital	4.3	12.0	10.3	11.6	7.1
Overall deficit	-5.7	-13.4	-18.4	-14.7	~~-8.1~~ -8.4

*Preliminary
SOURCE: IMF reports dated 6/11/82 and 3/8/83

Declining revenues were caused by the worsening economic situation, with import revenues dropping along with declining import volumes and domestic value-added and profit tax receipts falling along with declining domestic economic activity. Several measures have been introduced to raise more revenues and have helped to stem the decline.

The initial surge in government expenditures was mostly for the capital investment program and an expansion of social services, notably education. Much of the capital investment has been for projects of doubtful economic productivity, due to inadequate prior planning and analysis. Other expenditures which have been increased dramatically have been those for on-lending to state enterprises, mostly for investment purposes, for rice subsidies, and for deferred payments, including arrears.

Most of the deficit was financed from external sources, which amounted to 60 percent in 1982, and the Central Bank, which dominated the earlier years of this period. Net financing by

commercial banks has not been significant.

As a proportion of total recurrent expenditures, salaries and wages dropped from 59 percent in 1977 to 51 percent two years later but rose to 61 percent in 1981. Classified by economic function, the percent supporting public administration rose from 34 in 1977 to 43 in 1980, dropping slightly to 42 in 1981. The proportion supporting social services has remained slightly above one third, while that for economic services dropped from 17 percent in 1977 to less than half that in 1981. (See Table ___.)

Capital expenditures were more than doubled between 1977 and 1979, increased again the following year, but then drastically curtailed beginning in 1981. Until 1981 over half of this investment was allotted for infrastructure and equipment supporting economic services, about evenly divided between agriculture and public works. Capital investment in education rose to over 13 percent in 1979, but was reduced to less than 5 percent of the total in 1981. Investments in the public administration category have risen from 20 percent of the total in 1977 to 48 percent in 1981, as expenditures in the other categories were reduced. (See Table ____.)

We do not have sufficient information at this writing to comment on non-budgetary expenditures and receipts, such as those involving the various parastatal (government-owned) enterprises, stabilization funds, the export commodity stabilization funds, and funds earmarked for local government use.

5. Domestic Savings Mobilization

Domestic savings have declined continuously as a proportion of GDP from 11.3 percent in 1976 to 3.2 percent in 1982. Much of this decline was due to the deterioration in the terms of international trade, particularly through 1981, with import prices rising more rapidly than export prices and thus reducing the real purchasing power of incomes. The domestic resource gap increased dramatically as the PIP was financed by foreign borrowing and reached 17 percent of GDP in 1980, declining to an estimated 10 percent by 1982, thanks both to reduced levels of public investment and to the import restrictions which have also reduced domestic economic activity. Declining domestic economic activity has in turn reduced profits, which further reduced domestic savings and investment in 1982. (See Table ___.)

Table ____. Gross Domestic Expenditure, Savings and Resource Gap
(Percent of GDP in current prices)

	Ave. 1970-8	1979	1980	1981	1982
Consumption:	89.4	89.9	91.5	94.0	96.8
Private	72.4	72.6	74.4	78.5	82.1
Public	17.0	17.3	17.1	15.5	14.7
Gross Capital Formation	13.9	26.7	25.8	18.9	13.5
Gross Domestic Expenditure	103.3	116.6	117.3	112.9	110.3
Resource Gap: (GDP minus Expenditure)	-3.3	-16.6	-17.3	-12.9	-10.3
of which:					
Exports	18.7	16.7	15.1	12.6	12.7
Imports	-22.0	-33.3	-32.4	-25.5	-23.0
Gross Domestic Savings: (GDP minus Consumption)	10.6	10.0	8.5	6.0	3.2

SOURCE: World Bank, Madagascar Current Economic Situation and Prospects, 3/28/1983, p. 3.

The structure of interest rates was increased in June 1982, with the basic discount rate of the Central Bank raised from 8 to 12.5 percent. The minimum short-term lending rates charged by

national banks were raised to between 12.5 and 17 percent. Maximum interest rates payable on time deposits were raised from a 5.5 to 8.0 percent range to a 8.5 to 13 percent range, the exact rate depending on the length of maturity. In February 1983 these deposit rates were raised another 2.5 percentage points and they were made minimum and obligatory, in an effort to provide an additional incentive for savings. Lending rates on short-term credit were also raised by another 1 percentage point (on average).* In view of the much higher rate of inflation, however, these rates remain negative in real terms. (The CPI increased by 32 percent in 1982 and at an annualized rate of 24 percent during the first four months of 1983.)

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* IMF, "Madagascar - Mid-Term Review of the Stand-By Arrangement," 3/8/1983, pp. 11 and 20-21.

--caisse d'epargne (private savings)
--time deposits in banks
--Lova: national bond issue
--role of stabilization funds

6. Investment

The surge in public investment raised gross capital formation from its average of 14 percent of GDP throughout most of the 1970's to 28 and 26 percent in 1979 and 1980, respectively. In the face of the severe imbalances created within the economy and the general worldwide recessionary demand situation, this level of investment could not be sustained, and it began to decline in 1981, reaching 13.5 percent in 1982, below its earlier average. The GDRM relied heavily on foreign sources of financing to provide the imported equipment and other inputs required for its

public investment initiatives, and the increased debt service obligations have since reduced foreign exchange availabilities for other essential imports.

Information on the pattern of investment over recent years is very limited, but it is thought that rough estimates prepared for 1979 are fairly representative of the 1978-80 period. They indicate that only about 14 percent of this investment was allocated to the agricultural sector, that transport and communications received the largest share (in part due to the acquisition of a Boeing 747 aircraft and a number of coastal shipping vessels), and that the social sectors were also favored.

By comparison, the initial project list in the proposed Public Investment Program (PIP) for 1983-85 (which is still under review and subject to revision) indicates the GDRM intends to increase substantially the share of new public investment going to agriculture (from 14 to 31 percent) and to industry, mining and energy (from 29 to 40 percent), while reducing the share going to transport and the social sectors. (See Table ___, below.)

Table ___. Sectoral Allocation of Public Investment, 1979 and 1983-85 Public Investment Program (percent of total)

	1979	1983-5 (planned)
Agriculture	14	31.3
Industry, Mining & Energy	29	40.0*
Transport and Commun.	32	19.3
Social Sectors	22	9.4
Total	100	100.0

* Includes 23.4% for industry and 16.6% for mining and energy.

SOURCE: World Bank, 3/28/83, op. cit., p. 31.

The share going to transport will be primarily for rehabilitation of the existing road and rail network and will not include any major new roads or purchases of equipment. The Public Investment Program, as summarized for the Consultative Group Meeting, will emphasize the restoration and rehabilitation of existing capacity rather than starting new investment projects, in addition to the marked shift in sector priorities. While this first PIP ever prepared by the GDRM still requires review and refinement, particularly to establish priority selection criteria among the various projects listed, it represents an important step forward toward more orderly development planning in Madagascar. The planning undertaken so far on the PIP has had five general objectives:**

** World Bank, 3/28/83, op. cit., pp. 29-32.

(i) to establish a list of ongoing and rospective new projects, including projects for which a full and adequate economic and financial appraisal has not yet been made;

(ii) to establish the broad financing possibilities (external and domestic) within which the program would have to operate;

(iii) to establish the priorities for the sectoral allocation of public investment;

(iv) to define project selection criteria based primarily on economic considerations; and

(v) to define the specific policy reforms which would ensure an effective use on investment resources.

It is expected that the PIP will comprise roughly three-fourths of total fixed capital formation during this period (1983-85), with private sector investment making up the other

quarter. In order to clarify the government's attitude toward the private sector and to encourage more private sector investment, including foreign, the GDRM is currently revising its Investment Code, which is expected to be completed sometime soon.

--FNI ?

7. Credit

The investment boom and the ensuing stabilization policies are also reflected in the money and credit figures for 1978-82. The net foreign asset position of the monetary system deteriorated rapidly in 1979 and 1980 and more slowly during the next two years. Net domestic credit rose by about 50 percent in both 1979 and 1980, but by only 51 percent over 1981 and 82 combined. The expansion was overwhelmingly in net government borrowing from the central bank; at the end of 1982 it was 58 percent of total net domestic credit, compared with 23 percent at the end of 1977, while the proportion of net domestic credit representing claims on the private sector and state enterprises dropped from 77 percent in 1977 to 42 percent in 1982. Long term foreign borrowing rose from less than 2 percent of the monetary system's liabilities to 19 percent, the greater part of the increase in 1981-2 being due to the rescheduling of external debt.***

*** World Bank, 3/28/83, op. cit., p. 9. See also Table ___.

Over three-quarters of on-lending has been to state enterprises, and the rest to government agencies. After rising sharply from 1 to 12 billion francs in 1979, however, the total amount of such on-lending has not exceeded that rather modest level

since then, equalling less than 3 percent of total domestic credit in 1982. Unfortunately, information on the allocation of domestic credit between state enterprises and the private sector is not readily available.

--IMF credit ceilings? (probably not of much interest)
--banking system institutions ?
--banking system credit allocations ?

AID, REDSO/ESA: CSCallison & CClaude, 11/12/83 Draft (MGEIB3.NAR)

I.B. 8. Employment*

*See especially the World Bank analysis of the employment situation in World Bank, Madagascar: Recent Economic Developments and Future Prospects, October 24, 1979, Vol. I, pp. 14-18, and Vol. II, Annex III, pp. 73-115.

About 90 percent of the total labor force of 4.0 million works in rural areas, mostly (88%) in agriculture. Manufacturing (1.5%), handicrafts (0.6%), and construction (0.8%) together account only for an estimated 2.9 percent of total employment. Nor does public administration provide many jobs, contributing only 3.5 percent to the total. (See Table ___.)

Estimates for 1976 indicated that only 7.4 percent of all workers hold jobs in the modern sector, and that the number of urban workers either in the intermediate or casual categories or unemployed exceeded those in the modern urban sector. (See Table ___.) From all indications employment growth in the modern sectors seems to have stagnated in recent years, in part due to the relatively capital-intensive investments in large scale manufacturing capacity (at an average cost of US$100,000 per job created) made under the 1978-80 Plan and to the agricultural emphasis on large-scale (and costly) irrigation systems and mechanized farming.

Since the annual rate of growth of the labor force is projected to increase from 2.1 percent in the 1970's to 3.0 percent during the next decade or two, Madagascar must provide remunerative employment for between 120,000 and 200,000 new workers each year between now and the year 2000. Agriculture still has some room to expand, but the marginal land not yet under cultivation

will require high levels of investment in water control and road access infrastructure. The most promising avenues for productive employment generation within the near future are in the more intensive use of labor on land already under cultivation, utilizing more productive agricultural technology, and in the promotion of the more labor-intensive small- and medium-scale industries including, but not limited to, handicrafts and artisan production and agro-processing.

As discussed in Section II.B. below, the United Nations Industrial Development Organization (UNIDO) has been assisting the GDRM derive a plan for the promotion of small- and medium-scale industries. Two organizations that provide training, technical and marketing assistance to artisans are the National Center for Malagasy Crafts (CENAM), sponsored by the Ministry of Industry, Energy and Mining, and the private Economic and Technical Center for Artisans (CETA). Among the problems faced by these activities is the shortage of critical inputs that must be imported, although most of the raw materials used are obtained from domestic sources of supply.

A key constraint to the satisfaction of the increasing demand for jobs (or for more productive agricultural employment) is the rapid (and increasing) growth of the labor force, which of course is primarily caused by the relatively high growth rate of the total population. It is difficult and costly, in terms of the investment required in productive capital goods, land development and manpower training (including basic education and health services), to keep up with this growing demand, let alone get ahead of it. The lack of a clear GDRM policy promoting

family planning, in response to this problem, is a matter of some concern, even though some officials are careful to point out that neither does the government have an active policy against the family planning activities currently being promoted by private groups.

9. Wage and Price Levels

The average annual rate of price inflation rose sharply from less than 8 percent between 1970 and 1978 to 23 percent between 1978 and 1982, a rate that has continued, on an annualized basis, through at least the first third of 1983. Increasing pressure on the demand side, as the Government began to finance the huge public investment program, was met by increasing scarcity of basic food and consumer commodities on the supply side, due to the decline in domestic production incentives, market disruptions and the foreign exchange shortages discussed elsewhere in this report. After being bottled up by official price controls for a couple of years, average prices leaped upwards by about 31 percent a year in both 1981 and 82 as the GDRM attempted to restore production incentives.

Comprehensive data on actual wage rates do not exist for recent years. In view of the stagnation and decline in modern sector employment, together with the generally slow growth in agricultural production, in the face of a rapidly growing labor force, however, it is fairly certain that the average market wage rate has not kept up with the cost of living, and that real wages have therefore declined (along with GDP per capita).

As noted in Section I.B.4. above, the fiscal deficits have

been reduced, although they are still fairly large. In addition to continued pressure from the demand side, severe shortages of consumer goods, due to the country's reduced ability to meet import demand with sufficient foreign exchange, will help keep an upward pressure of prices for some time to come. Only a long term effort to increase export earnings and reduce dependency on imported supplies will ease this pressure.

--labor productivity among sectors, trends

AID, REDSO/ESA: CSCallison, 9/21/83 Draft (MGEIB8.NAR)

I.C. Identification of Poverty Groups and Their Current Situation

There are no published income distribution data in Madagascar for recent years. Tabulation, analysis and publication of the 1978 Household Income and Expenditure Survey, conducted by the Central Bureau of the Census, has been delayed for lack of funds and qualified personnel and is still (slowly) underway with little hope of early completion. The only preliminary results available are partial, mostly for urban areas, and in longhand.

The World Bank has published an estimate indicating that half of both urban and rural populations receive incomes below the absolute poverty income level, defined as that level "below which a minimal nutritionally adequate diet plus essential non-food requirements is not affordable. There is no indication as to how these estimates were derived, however.*

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*World Bank, Madagascar Economic Memorandum, 11/3/81, "Madagascar - Social Indicators Data Sheet"

The same incidence of poverty for both urban and rural areas would imply that roughly 81 percent of all poor households presently reside in the rural areas, and the remaining 19 percent in the urban areas. Within the urban areas, it is perhaps not so coincidental that roughly half of the workforce is classified as deriving its main source of income from the non-modern sectors or were unemployed (see Table ___).

Within the rural sector there are few data to indicate whether certain categories of farmers or workers are significantly worse off than others, but one can presume that those in the "modern" rural sector receive somewhat higher incomes than those in the "intermediate" or traditional sector. ~~But~~ the former accounted for only an estimated 2.7 percent of total rural employment in 1976. Of the more traditional activities, 92 percent of the employment was provided by agriculture, and, although small pockets of poverty no doubt exist among families employed in other rural activities as well, it is fairly clear that the vast majority of the poor in Madagascar live in traditional farm households.

Until the Household Income and Expenditure Survey mentioned above can be properly tabulated, published and analyzed there is no way to compare the relative incomes of the different farming, forestry and fishing categories to determine which groups in which parts of the country might be better or worse off than the others. We do have, however, at least rough estimates of the proportions of farmers who derive their income mainly from the principal crops, as indicated in Table ___.

About 84 percent of all families in Madagascar farm, even though some members of those families may also be engaged in other economic activities as well, especially during the off-seasons. It is thought that about 70 percent of all families, or 83 percent of all farm families, grow the staple foodgrain of rice on farms that average less than 1.0 hectare each. Around 20 percent of all farmers are engaged in coffee production, also almost entirely on small farms of between 1.0 and 1.5 hectare each (of which an average of 0.6 ha. is devoted to coffee). About 14 percent grow the other export crops of cloves, pepper, vanilla and/or cocoa, also on very small plots of land. Cotton hectarage is almost evenly divided between large plantations averaging 170 hectares each and around 10,000 smallholder plots averaging less than 1.0 hectare. (The large plantations account for about three-fourths of total production, however, achieving much higher yields than the smallholders.) Sugar cane is grown almost exclusively on four large government-operated estates.

Traditional fishing families number only about 6,000, less than half of one percent of the number of farming families. The number of families that raise livestock is quite large, since the cattle herd itself numbers more that 10 million and most of them are in traditionally small herds raised in conjuction with crop farming. No estimate of the number of families raising livestock could be found in the available documents.

AID, REDSO/ESA: CSCallison, 9/23/83 Draft (MGEIC.NAR)

D. Summary of Major Information and Analytical Gaps

- --debt
- --private sector credit, informal credit, availability of agricultural credit, de+facto operation of FNI
- --recent expenditures on wages, materials, etc.
- --income distribution, household expenditure, and identification of poverty groups
- --actual and real wage rate trends, by sector and occupation
- --labor productivity trends by sector
- --employment and unemployment data by sector, over time
- --socio-economic data needed for demographic analysis and planning
- --National Income Accounts

I.E. Preliminary Overall Assessment of Current Macroeconomic Situation and Future Prospects

Current economic and financial difficulties reflect long-standing weaknesses in the economy that have militated against more rapid and viable development. However, the sharp deterioration which began in 1979 and resulted in the serious pressures and disequilibria in external payments, public finance and domestic price movements are also to a considerable extent the consequences of the new economic initiatives begun in 1978, which relied so heavily on external sources of financing to achieve a large expansion of public sector investment. The country is presently grappling with the many-faceted task of simultaneously implementing short-term corrective and stabilization measures and beginning to deal with the more difficult underlying constraints to sustained economic development.

The immediate short-term requirement to reduce the balance of payments deficit and the growth of foreign debt-service requirements has resulted in sharp reductions in imported equipment, spare parts and other inputs urgently needed in both the

industrial and agricultural sectors. This has become a major factor in the decline of industrial production and the stagnation of the agricultural sector. The most urgent immediate need is for balance of payments support on concessional terms to help finance priority production inputs.

The domestic transport situation is disastrous. The recent restrictions on imports have severely reduced the availability of spare parts for the existing vehicle fleet and the replacement of unserviceable vehicles with new ones. This sector is also suffering from years of inadequate attention to the maintenance of the rail and road networks. While parts and new vehicles can be provided in the short term with balance of payments support, the reconstruction and rehabilitation of the roads and railways will require much time and expense. Meanwhile, the transportation constraint will continue to inhibit the timely cross-country shipment of exports, the distribution of critical production inputs, and the availability of incentive consumer goods in rural areas, which discourages production for the market.

There also seems to be an urgent need for greater technical, analytical, management, and planning expertise at all levels, both in and out of government. This is an underlying weakness inherited at independence with the expulsion and exodus of foreign technical and managerial personnel, and while the GDRM has made considerable progress in replacing critical skills with trained Malagasy personnel, the satisfactory resolution of this constraint is a long-term proposition.

On the positive side, the GDRM appears to have made genuine progress in providing social services on a more equitable basis

to the population at large. Its concerns with primary health care, including maternal and child health and proper nutrition, the provision of safe water, greater accessibility to schooling for children of both sexes, and functional literacy for adults have been translated into several ambitious programs over the past 6 to 8 years. While much still remains to be done in these fields, much has already been accomplished. In fact, the high level of government expenditure to expand social services, while addressing important social, political (and economic) goals, combined with large investments (often not so well chosen) in the industrial and agricultural sectors to create the present fiscal and financial crisis.

The administrative organization of the GDRM remains complex and there are many areas of overlapping and shared responsibilities, particularly, in the areas of transportation and other public works. There are also major difficulties involved in the GDRM attempt to decentralize certain economic planning and support activities to the local levels of government, as discussed in Part II below, and the operation of many government-owned or controlled enterprises and marketing systems has led to a great deal of inefficiency and reduced producer incentives. However, the administrative reforms undertaken during the last two years has resulted in steady improvements and has increasingly placed more technically qualified individuals into decision-making positions. Many observers believe these administrative changes, together with the policy reforms discussed in the next paragraph, indicate a seriousness of purpose within the GDRM and a pragmatic

willingness to consider and try alternative means to achieve the desired social, political and economic goals that augur well for eventual success.

Many of the GDRM's policy reforms with respect to pricing, removal of subsidies on rice and agricultural inputs, the liberalization of marketing control, foreign exchange allocations, etc., are relatively recent and, therefore, their ultimate impact is difficult to evaluate, although the indications are, as discussed elsewhere in this report, that they have not yet gone far enough to achieve the desired economic effects. Nevertheless, there is a distinct impression that these measures are based on a pragmatic realization that economic liberalization, combined with stricter control over investment and recurrent expenditures, offers a better environment for economic recovery. In this regard, it is noteworthy that government spokesmen seem to be making an effort, in their public pronouncements, to incorporate the pragmatic approach as a basic philosophical component of their socialist--ie., people-centered--revolution. One significant result of this pragmatism is the present de-emphasis of large state-operated farms and industrial parastatals, in view of their generally dismal record of success, in favor of support for small and medium-scale enterprises, artisanal production, and small-scale farming operations, along with an open recognition of the latter's importance in producing for both domestic and export markets and of their value in providing forward and backward linkages within the economy.

Economic recovery in Madagascar depends on increasing production and exporting more of it. Production, in turn, depends

on:

1) the availability of needed inputs, which are presently limited by import restrictions and by weaknesses in the domestic marketing system, including transportation,

2) production incentives, which involve both domestic price policies and the availability of incentive producer goods in local markets and which, for exports, are further limited by the steady revaluation upwards, in real terms, of the Malagasy franc and by an export marketing system that passes on to the producer a smaller proportion of the actual export price than necessary, and

3) market outlets for the goods produced, which in turn depends on the internal efficiency of the domestic marketing system, including transportation, presently hampered by government controls and direct involvement and, in the case of transportation, by years of maintenance neglect, and on demand, both for final consumption and for use as industrial inputs in domestic markets and for exports in the world market.

The prospects for recovery have been much improved by the various reforms and corrective measures already undertaken by the GDRM, as discussed elsewhere in this report, although further reforms are needed. Madagascar has adequate resources to sustain a much higher level of economic production than has heretofore been achieved, and the economic reforms are being designed to lay a better basis for long-run economic progress in addition to short-term recovery.

The economic and financial assistance provided by foreign donors can be used to encourage the design and implementation of

further reforms, especially if it is directed at improving the internal GDRM capacity to analyze the probable effects of various policy alternatives by providing appropriate technical assistance and training toward this end. A significant improvement in the transportation system will require technical assistance, foreign exchange for vital imports, and large amounts of capital for investment in road rehabilitation and reconstruction and in equipment, all of which can be provided by foreign donors. Finally, many of the production inputs that are currently in such short supply can be imported with the foreign exchange provided by foreign donors as balance of payments support, until the current account deficit can be satisfactorily reduced.

In sum, if the current pragmatic approach toward the choice of alternative solutions to Madagascar's pressing economic problems can be sustained, the prospects not only for recovery but also for more rapid economic development in the future are good; and there would appear to be much that the international donor community can do to encourage that approach and help give it substance.

AID, REDSO/ESA: CSCallison & CClaude, 10/1/83 Draft (MGEIE.NAR)

II. Preliminary Sector Reviews

A. Agriculture*

*The discussion in this section is based in large part on material contained in The World Bank, Madagascar Agriculture and Rural Development Sector Memorandum, 3/29/83.

Agriculture contributed an estimated 43 percent of GDP in 1982, a ratio which fluctuates slightly from year to year depending on the weather and on how well other sectors of the economy perform. It represents an underestimate, however, since the official prices at which agricultural production is valued are artificially low and do not reflect its true value to the society. The sector provides about 88 percent of total employment and contributes some 83 percent to export earnings directly, or 90 percent if processed and manufactured agricultural goods are taken into account.

1. Types and Scale of Activities

The primary crop is rice paddy, which contributes about one-third to the value of total agricultural output in value terms and is the staple foodgrain of the Malagasy diet. Next in importance are livestock products, which contribute about on the order of 20 percent to the total, fruits and vegetables, which contribute about 17 percent, and the various industrial and export crops, contributing around 15 percent. Primary forest products are valued at around 11 percent and fishery products at 2.5 percent of the total. The amount of pulses, roots and tubers grown is thought to be quite small, comprising only 1 percent of total production.**

**The relative magnitudes of output value in the agriculture sector were calculated for 1977 production estimates. See World Bank, 3/29/83, op.cit., p. 6.

About 70 percent of the population is involved in rice paddy production, which covers an estimated 1.2 million hectares, or between one-third and one-half of all permanently cultivated land. Around three-fourths of the paddy area is cultivated by smallholders, and most of the rest is found in government-managed irrigation schemes. Family holdings average 0.6 ha. in the coastal areas, where traditional production techniques and partial water control obtain average yields of about 1.2 MT/ha. In the Central Highlands standards of cultivation are better, where traditional irrigation systems yield an average of between 1.8 and 2 MT/ha. on family holdings of about 1 hectare each.

The livestock industry is dominated by beef production, virtually all coming from small-scale, traditional producers operating extensive management systems. Beef is an important part of the national diet and of export revenues, contributing about 4 percent of the latter in recent years. Madagascar has vast areas of good natural pasture, a large cattle herd (around 10 million head), and a strong tradition of animal husbandry. Its development over the last decade has been slow and it is not likely to respond quickly to policy changes and programmatic interventions, since successful development must be based largely on fundamental changes in traditional production systems, moving it from the margins of extensive production possibilities towards more intensive production systems.

In addition to rice and livestock, a wide range of foodcrops

of importance to the subsistence economy are grown in Madagascar, but information about them is weak. Manioc, used both as a staple food and as a supplementary animal feed, is the most important, with 315,000 ha. producing an estimated 1.6 million MT in 1980. Considerable maize is also grown, with an annual output of around 145,000 MT from 135,000 ha. Other important smallholder crops are sweet potatoes, potatoes, peas and beans. Fruit is grown primarily for local markets.

Coffee is the most important of the several industrial and export crops, itself valued at around 7 percent of total agricultural output and contributing almost two-thirds of total agricultural export earnings. Other important export crops are cloves, vanilla, sisal, cocoa, and pepper, while significant industrial crops, the end product of which is also exported, include sugar cane and cotton. About half of the cotton area and virtually all the sugar cane cultivation is farmed in large private or government plantations, but the other half of cotton land and almost all of the export crop area is farmed by traditional smallholders, often on very small plots of land.

Natural forests cover about 12 million hectares, or 21 percent of the total land area, of which about 7 million ha. are accessible, exploitable and productive. Rapid deforestation has contributed to serious soil erosion and degeneration in many areas; but since so much of the population relies on fuelwood and charcoal for domestic energy, the process of deforestation is continuing and the country will soon face a serious fuelwood crisis. Man-made forests involve pine and eucalyptus plantations totalling some 260,000 ha., the former providing wood products

for export, the latter mostly providing fuelwood and charcoal.

Although Madagascar has 4,000 miles of coastline, the coastal waters are not rich in fish. Offshore fishing potential is estimated at 150,000 tons a year, including about 8,000 tons of high value crustaceans off the west coast (prawns) and in the south (lobsters). Even this limited potential is not effectively exploited at present, however. The total marine catch by traditional fishing, which is the main source of livelihood for only about 6,000 families, is about 10,000 tons a year. Of this one-half is sold fresh in coastal town, about 20 percent is consumed by the fishermen and their families, and the rest is dried or smoked for transport to inland markets. Fishing techniques are rudimentary, largely using nets and spears. Commercial fishing is almost entirely for shrimp and prawns, of which 5-6,000 tons have been caught annually in recent years. Prawn exports have been contributing about 4 percent to total export earnings, but have limited potential for expansion without overfishing. Development prospects for commercial deep sea fishing, however, particularly for tuna, are excellent. Freshwater fishing yields an estimated catch of around 58,000 tons annually and provides an important supplement to the diet in many parts of the country.

2. Institutions Involved

The Ministry of Agricultural Production and Agrarian Reform (MPARA) has been subjected to several reorganizations since Madagascar regained its independence in 1960. Except for the 1979-82 period, however, it remained basically functional in structure, focussing on the traditional responsibilities of agricultural

production, livestock, fisheries, waters and forestry, with the more recent additions of implementing agrarian reform measures and supporting production cooperatives. Along with the government's major attempt to decentralize authority in 1979, the Ministry was reorganized along a integrated model at regional levels, with all technical services grouped under the regional directors. While this reorganization had many worthwhile objectives--to better coordinate field services, to focus management and planning on local needs and conditions, and to promote closer cooperation with local leadership--it was undertaken without adequate preparation and resulted in a loss of technical discipline and authority, which caused a serious deterioration in the services provided. These difficulties eventually became so obvious that, in September 1982, the Ministry was again reorganized along centralized, functional lines, and further organizational changes were placed under administrative study. Still more recently it was split into two ministries, with the creation of a new Ministry of Livestock, Forestry and Fisheries.

The Government relies heavily on public enterprises (both publicly-owned and mixed capital companies) in the agricultural sector, with more than 90 publicly-owned institutions that employ two or three times as many staff as MPARA itself and account for more than half of the Ministry's budget allocations. They are involved in activities as diverse as direct production of crops and livestock, processing, marketing, input supply, extension services, and management of crop stabilization funds. With a few exceptions, the performance of these parastatals has been very disappointing to the Government, since they have not fulfilled

their basic objectives and have resulted in large and recurring financial losses.

Since 1972 the Government has undertaken to create a decentralized system of local government that would incorporate traditional institutions and practices and encourage popular participation in the development process. Called the "fokonolona" (village community) reform, this is an effort to strengthen local government institutions in reaction against the highly centralized administration inherited from colonial days, with its lack of concern for local needs and popular participation. The fokonolona institutions have played an important role in agricultural credit, marketing, jurisdiction over land tenure, and management of irrigation systems. Their actual role has varied widely, subject to local initiatives, and considerable uncertainties remain about their responsibilities and authority, such as, for example, the relationships between fokonolona elected officials and appointed officials of the central government within the same jurisdiction.

II.A.3. Recent Economic Performance of Agriculture and Priority Problems vs. Potential, including principal causes of poor performance and resource constraints (physical, human, and financial)

Agricultural growth has been subject to wide fluctuations due to bad weather and the vagaries of world market demand for certain export crops. Its overall performance has been disappointing, however, particularly since the mid-1970's. As estimated in constant price terms for the National Accounts, total agricultural production reached a peak value in 1974 that has

never since been duplicated, let alone surpassed, with real production in 1982 still some 4 percent below that of 8 years earlier. Stagnation has been marked in the two most important single agricultural activities, rice and cattle production, which together account for over 50 percent of the total. Estimated rice paddy production reached a peak of 2.15 million tons in 1977 which has not been surpassed, with provisional 1983 production estimates still lower at 2.11 million tons. Madagascar has ceased rice exports, except for small quantities of luxury rice, and has resorted to increasing volumes of imports to satisfy domestic demand (350,000 MT in 1982, or 21 percent of total import value). Meat production has grown very slowly and has failed to keep up with the growth of domestic demand, thus causing meat exports to decline. (See Table ___.)

Production of the major export crops, particularly coffee and vanilla, has continued to increase, though slowly, while the production of industrial crops, notably cotton and sugar, has been more severely affected by recent economic problems and has declined.

This record of general stagnation and decline in Madagascar's most important economic sector is the result of several factors, all fairly serious:

1) Government pricing policies have reduced production incentives and efficiency and have adversely affected the marketing system. As demonstrated in Table ___, the real levels of key agricultural producer prices, even after recently announced increases, remain between 49 and 25 percent below those of 1978, with those for vanilla and sisal the only exceptions (and sisal producer prices

are 12.5% lower). The 1983 price for the major foreign exchange earner, coffee, is a whopping 43 percent below its 1978 level in real terms, and is less than half its 1972 level. The same is true for pepper and cloves. Real producer prices for the key crops of rice paddy and seed cotton have fallen to levels more than 30 percent below those of 1978, and for cotton this represents a 41 percent drop since 1972.

While most of this real price decline is attributable to domestic price policies, it has been exacerbated for the export crops by the fixed foreign exchange rate policy in a period of rapid domestic inflation. As indicated in Table ___, the real, trade-weighted value of the Malagasy frank in terms of foreign exchange appreciated by 44 percent between 1978 and April 1983. This means that the real domestic value of the francs received by exporting firms per dollar of foreign exchange earned has fallen by 31 percent since 1978, despite the somewhat larger actual number of francs received. Coupled with the government's system of export taxes and stabilization fund price controls, which reduce the proportion of the actual export price received by the producers, the real value received by the producers has been doubly reduced.

Table ___ indicates the share of the actual export price received by the producer and also what this share would be if the exchange rate had been maintained at the 1978 purchasing power parity. The trends are alarming. The actual share received by coffee growers has fallen from 67-79 percent in the early 1970's to 33 percent in 1983, and this would be only 25 percent at the

real 1978 exchange rate. Producer prices for cloves have fallen from over 40 percent of the actual export price to 16 percent, for vanilla from 33 to 21 percent, and lima beans from 81 to 29 percent. These price trends cannot help but have a seriously debilitating impact on agricultural crop production incentives.

2) The deteriorating transport, storage and marketing systems due to storm damage, neglect of normal repairs and maintenance, and mismanagement has increased the cost and uncertainties of marketing agricultural produce throughout the country, but particularly in the less accessible regions. The problems of the transport sector are discussed more fully in Section II.C. below.

3) Government policies favoring the nationalization and control of production and marketing activities have resulted in major disruptions and inefficiencies in those activities.

4) The decentralization of administrative and social services supporting agriculture has resulted in a significant decline in the quality and availability of those services.

5) Shortages of foreign exchange have had a major impact on commercial farming and processing industries, reducing their ability to import vital spare parts, equipment and other inputs.

6) The lack of basic consumer goods in rural areas, itself due to import restrictions and marketing disruptions, has reduced incentives to produce for cash sales.

4. Government Economic Objectives and Plans and Their Coincidence with U.S. Government Concerns*

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*In addition to World Bank, 3/29/83, op.cit., pp. 95-6, see especially GDRM, Development Prospects, Policies and Programs 1983-1985, Antananarivo, March 1983, pp. 12-21 (This latter document was presented to the Madagascar Consultative Group

Meeting in Paris held in April 1983.)

The GDRM is presently reformulating its policies and development strategy towards agriculture, in reaction to its poor performance and the resulting economic crisis. The efforts undertaken so far are substantial, and indicate a strong commitment to reform. They are only a beginning of what is needed, however, if agricultural production is to be expected to recover and improve on a sustained basis in the future. The policy statements contained in recent documents indicate a clear Government intent to give agricultural development higher priority, vis-a-vis other sectors, than before. The overall goals for agricultural development have been itemized as:

1) Helping to achieve an improvement in the balance of payments, by promoting agricultural exports and achieving self-sufficiency in food production, especially in grains and oilseeds;

2) Achieving a better integration of agriculture with the rest of the economy, particularly through the expansion of agro-industrial crops;

3) Providing priority assistance to small and medium scale farmers, in order to increase production and employment and to raise rural incomes and living standards.

These goals coincide closely with AID concerns, as mandated by the U.S. Congress, for increasing food production and also for raising incomes of the poor majority, since the vast majority of the poor households in Madagascar reside in rural areas.

5. Corrective Measures Needed and Underway Toward the Achievement of These Objectives**

**GDRM, March 1983, op.cit., pp. 13-21; and World Bank, 3/29/83, op.cit., pp. 96-101.

The Government has taken important steps to implement these policies, including substantial increases in the consumer price of rice in May 1982 in an effort to eliminate the subsidy element, the MPARA reorganization of September 1982, and measures to strengthen agriculture sector policy coordination by giving MPARA responsibility for it. Management reviews and financial support measures have been undertaken to support key parastatals, and staffing levels have been significantly reduced in some parastatals and in MPARA itself. In addition, several in-depth studies and reviews have been initiated, with support from IDA under the Agricultural Institutions Technical Assistance Project, to serve as the basis for policy reviews and reforms. Other recent measures include the transfer of the agricultural research institution (FOFIFA) to MPARA, reductions in fertilizer subsidies and a decision to phase them out completely by 1984, passage of cost recovery legislation for irrigation systems, and several actions addressing problems in the livestock sector, including the establishment of the new Ministry of Livestock, Forestry and Fishing. Rice trade by private dealers has once again been legalized, and other market restrictions are under review.

The action strategy announced by the GDRM at the April '83 CG Meeting stresses the importance of rehabilitating the existing productive capacity over the initiation of new projects, of institutional development, and of improving of the economic environment affecting production on small and medium scale farms, including incentive prices, marketing arrangements, input supply

and distribution, the availability of essential consumer goods, better transport facilities, and the provision of supporting economic services. This strategy indicates that the GDRM is aware of the key problems outlined above and is planning to take further action on several fronts to address them.

Several foreign donors are providing assistance to the agricultural sector, as summarized in Section II.A.7. below, and to the transport sector, discussed in Section II.C., in support of this action program.

II.A.6. Institutional and Policy Constraints (political, social, and economic)

a. Institutional Constraints

The guiding GDRM political philosophy of state control over prices, major market operations and key production facilities, while adopted in an attempt to achieve important social and political goals toward the development of a stronger and more equitable Malagasy society, have resulted in the reorganization of economic service delivery systems, the creation of state marketing monopolies and a set of economic policies that have seriously reduced the quality of agricultural services, disrupted marketing efficiency, and discouraged production, and which continue to hamper further economic development and growth. While, as noted above, the GDRM has recognized many of its institutional these deficiencies and has begun to take action to improve the situation, the rebuilding of the key service institutions involved, the redefinition of roles and responsibilities of the large number of state enterprises and agencies, the satisfactory reform of disruptive poli-

cies, and the political need to reconcile such reforms with the guiding philosophy of the State will require careful analysis and planning, much interagency discussion and consensus-building, and a considerable amount of effort and time.

The lack of an adequate in-house capacity to conduct the needed analyses and planning activities to identify and compare the likely economic, social, and institutional effects of policy alternatives is itself a critical institutional constraint to improvement. In attempting to deal with these tasks, the GDRM will need to improve its institutional capacity for development policy analysis and planning in matters affecting agriculture, including the overall macroeconomic policies affecting foreign trade, export promotion, foreign exchange allocations for imported inputs, the foreign exchange rate, and the farmgate prices received by agricultural producers of both exportable and domestically-consumed crops.

b. Policy Constraints

Although the GDRM is beginning to reform many of its policies and institutional arrangements that have been constraining economic growth, the reforms have not yet gone far enough to completely remove them as serious constraints. Policies that continue to reduce production incentives and impede economic growth include 1) domestic producer price policies that result in declining real returns to production, 2) the relatively inflexible foreign exchange rate policy that results in the overvaluation of the franc and reduces real export earnings in terms of domestic currency, 3) the operation of export stabilization funds and the imposition of export duties, which further reduce the

producer prices for export crops, and 4) market controls and restrictions on private sector trade and other economic activities, which disrupt the smooth functioning of market activities and reduce the scope for private initiative and investment.

7. Role of External Donors*

*World Bank, 3/29/83, op.cit., Annex 3, pp.247-264.

The GDRM is currently implementing over 90 separate projects in the agricultural sector. Foreign donors now working in Madagascar include UNDP/FAO, IBRD/IDA, the European Development Fund, Funds for Aid and Cooperation (FAC), Caisse Centrale de Cooperation Economique (CCCE), the Arab Bank for Economic Development in Africa (BADEA), the International Fund for Agricultural Development (IFAD), and the African Development Fund (AfDF), as well as the governments of France, Norway, Switzerland, China, Germany and North Korea. About 75 percent of the current projects have a regional focus, reflecting the diversity of Madagascar's agriculture and the difficulty of addressing problems on a country-wide basis. The emphasis is on rice and food crop production for domestic needs, particularly the development of new cropland in irrigation schemes, but there are also several projects focussing on industrial and export crops in specific areas, such as cotton, coffee, timber, cocoa and oil palm. The total estimated cost of the projects currently under implementation is about US $208 million. About 5 percent of the total is accounted for by livestock projects and 10 percent by forestry projects. IDA is preparing a new project, the Agricultural Technical Assistance

Project, to help the GDRM review its agricultural research structure and prepare a rice research program. This would also involve the International Rice Research Institute (IRRI), which obtains some of its funding from AID, and ISNAR, both of which are or have recently been engaged in preliminary reviews to help the GDRM better define its agricultural research requirements.

The World Bank has prepared its Sixth Highway Project in Madagascar, with implementation scheduled to begin in January 1984, for funding jointly by IDA (US $45 million), AfDF ($19.2 million), IFAD ($1.4 million), and the GDRM ($16.1 million) at a total estimated initial cost of US $81.7 million, with the expectation that other donors will add another $30 million later. This project will concentrate on the rehabilitation and maintenance of 1060 km of trunkline paved roads and about 2900 km of rural and feeder roads, out of the estimated 10,000 km of key economic roads in the country. In addition, three other proposed World Bank projects contain funds for the reconstruction and/or rehabilitation of feeder roads (the Lac Alaotra Rice Intensification Project, the Second Village Livestock and Rural Development Project, and the Cotton Development Project). These efforts will begin to address the severe transportation constraint presently impinging upon the agricultural sector.

The World Bank and the IMF are also assisting the GDRM in the analysis of its current macroeconomic problems, including those affecting the agricultural sector, and in the design of the policy reforms required to address these problems and begin the necessary process of structural adjustment.

8. Preliminary Assessment of Sectoral Growth, Efficiency

and Development Prospects under Current Conditions and Policies

It is generally agreed that the potential for agricultural production in Madagascar is much higher than has been achieved so far. Although its major foodgrain is rice, it has not yet utilized any of the high-yield varieties developed by IRRI and successfully adopted in many other countries, nor has it benefitted from higher yielding varieties already available for other crops, such as for sugarcane. There is also considerable undeveloped potential for irrigated cultivation, although much of it will require considerable capital investment in water control and road access.

Although the various constraints discussed above still effectively restrict agricultural growth, if the GDRM continues on its present course of policy and administrative reform the prospects for more rapid improvement in the future are quite good. Many of the policy constraints can be, and some of them are being, addressed fairly quickly through administrative decisions and, while many of them may require some politically difficult compromises within the government for effective solutions, the possible improvement in the economic climate for agricultural production is considerable. Institutional development and training requirements will require more time and effort, as will noticeable improvements in the transport sector, but at least these constraints are also beginning to be addressed with important new initiatives. The foreign exchange constraint is also susceptible to a better set of pricing, exchange rate and other policies designed to promote exports, together with a more

rational system to allocate foreign exchange among competing domestic requirements. One crucial requirement that must be met if the GDRM is to be able to persuade itself to continue along a desireable path of economic policy reform is the improvement of its own internal ability to analyze the expected effects of alternative policy choices.

It would appear that even the political constraints related to ideological considerations are in the process of being alleviated by a healthy dose of pragmatism in choosing the manner in which key social and political goals can be achieved; and this is perhaps one of the recent developments in Madagascar offering the most hope for the success of its future economic development.

II.A.9. Major Information and Analytical Gaps*

*See World Bank, 3/29/83, op.cit., pp.14-24.

A program to improve the agricultural data base and the analytical techniques used in Madagascar is urgently needed and must be given high priority if serious planning and support activities are to be successful in this sector. Madagascar was once considered a leader in agricultural statistics and conducted extensive research into various agricultural problems. Considerable information still exists in some areas that is excellent and reliable, such as for exports and for certain industrial crops. The situation has deteriorated during the last decade or so, however, until at present there is a serious lack of reliable agricultural statistics and analysis needed for development planning purposes. There seem to be three main problems:

1) The existing information and the results of past research are not located in central offices and are difficult to obtain by potential users.

2) Data collection systems have virtually ceased to function, and the analysis and publication of data is long-delayed and is not comprehensive. Recent market data usually reflect official marketing only and ignore the large parallel markets. Despite the normal difficulties of obtaining reliable crop area, yields, and production data in a complex smallholder system, data methods have not improved and suffer the common problems of underpaid, poorly supervised staff with little training and no logistic support, utilizing unreliable sampling methods.

3) Basic data on resources and farming systems in Madagascar is very limited. There is no reliable system in place, for example, to monitor the average producer prices received at farmgate.

This is an important problem which must be addressed if adequate planning and support for this sector is to be obtained. The FAO is providing some support for an Agricultural Census, and is planned for 1983. An IDA project contains funds for studies to improve the data collection and statistical system for rice. Much more is urgently needed, however, in the areas of land resources, general agricultural statistics, land use and ownership patterns, rural incomes and income distribution, nutrition, social factors, roles of women, etc. Basic land use data is badly out-of-date and unreliable, for example, and no systematic land use surveys or monitoring systems exist.

II.A.10. Pros and Cons as Sector for AID Assistance

a. Possible Development Assistance Strategy for this Sector

The development needs of the agriculture sector are as huge, varied and complex as the sector is in importance to the Madagascar economy. These needs and an appropriate strategy for meeting them have been thoroughly analyzed and presented in the recent World Bank sector memorandum previously cited.** A distinction

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**World Bank, 3/29/83, op.cit., pp.97-120.

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is made between those actions or interventions which are urgently needed for rehabilitation and recovery in the short term and those targetting medium and longer term development goals.

The short term emphasis should be on rehabilitating and intensifying production of existing production systems and not on starting new projects. Recovery efforts should focus on regions and commodities which are relatively accessible for the quickest production response, and they should include some large-scale production units and agro-industries now operating at far below capacity (notably cotton, textiles, sugar, vegetable oil processing, and meat processing). The priority commodity sectors for rehabilitation are rice, cotton, coffee, and livestock. Reforms in marketing and pricing policies must be a critical part of the recovery program, as are macroeconomic measures to address the fundamental issues of the exchange rate policies, resource mobilization and foreign exchange allocation.

The medium and longer term focus should be on smallholder production systems, which are the backbone of the agricultural

sector. Private sector investment should be encouraged in medium scale farming, processing industries, and rural trade. The role of Government in economic management needs to be redefined and its capability to manage must be improved, which will require long-term training and institutional development. The development needs for infrastructure, notably roads, and for the rehabilitation of plant and equipment are enormous.

It is suggested that Government action in agricultural development should concentrate on three principal areas:

1) Public Resource Management. Short-term reforms should redefine priority areas for investment and remove constraints to better management and project implementation (such as low prices, inadequate price margins, and inadequate foreign exchange allocations). In the longer run the budget systems and planning institutions need improvement, input subsidies should be eliminated, rural taxation reviewed, and a workable cost recovery system for productive infrastructure (such as irrigation systems) established.

2) Institutional Development. Urgent reform measures include continued reorganization of MPARA to improve production-related services (veterinary services, irrigation management, input supply) and the Ministry's planning and budget management services, with some short-term training in management. Longer term measures should include a comprehensive manpower development and training program, improved agricultural information systems, effective smallholder credit and extension programs, and the reestablishment of a broad agricultural research program. The complex issue of decentralization must also be addressed to resolve immediate operational problems arising from local control

over marketing, irrigation system management, and credit.

3) Pricing and Marketing Policies. In the short term price levels and margins for key commodities subject to price controls should be subjected to regular review and adjustment according to policy goals and market trends, especially for rice, cotton, sugar, groundnuts and coffee, and the reviews should explicitly include exchange rate policies. The longer term objective should be to establish a more flexible pricing system which relies less on controls and more on market forces, and this will require a much improved capability on the part of the Government to analyze current market behavior and the likely responses of producers, traders and consumers to alternative marketing and pricing reforms.

b. Potential Gains of AID Interventions in this sector

1) Target poverty groups and potential impact.

As noted in Part I.C. above, the vast majority of the poor families in Madagascar reside in rural areas and work in agriculture. Assistance to this sector would therefore target the rural poor "majority." Based on the analysis summarized above, the potential seems to exist for significant short and medium term improvement in rural incomes from policy reforms in pricing and marketing. The potential for further income improvements in the longer term are also good; but it will require substantial investments in physical and human capital as well as considerable institutional development, and it will therefore be realized more slowly.

2) Potential for improved overall economic performance resulting from sectoral interventions.

The potential for increased productivity and overall production in the agricultural sector is thought to be very good, due to its present depressed and underdeveloped state. Because of its overwhelming importance in the Madagascar economy, both as the predominant productive sector, supplying important inputs into the other sectors as well, and as the leading earner of foreign exchange, any significant improvement in agricultural production will have a strongly positive impact on the economy as a whole.

c. AID's comparative advantage in this sector

AID's comparative advantage in agriculture is well known--in production technology, research, extension, training, and experience in institutional development. The main difficulties we would have in assisting Madagascar is in finding people who could work at the professional level in the French language and, in any participant training programs we might want to sponsor, in either finding qualified participants who could benefit from training in English, finding suitable training programs in French, or providing sufficient preliminary training in English to the prospective trainees. This is not an insurmountable problem, and the solutions would be similar to those employed in the on-going AID-supported programs in Francophone West Africa. It does require careful selection among possible AID-supported activities, however, so as not to duplicate those that can be better supported by French-speaking donors.

d. Likely Political Benefits and Risks to U.S. Government and Pros and Cons of AID Assistance to this Sector

1) Pros and Likely Political Benefits

Assistance to the agricultural sector in Madagascar is an inherently attractive option because of the large potential economic gains it offers, due to its predominant size both as a productive sector of the economy and as a source of exports, and also due to the potential for productive gains believed to exist there. Since agriculture provides the main source of livelihood for the vast majority of poor households in the country, it would be easy to target an agricultural assistance program toward the poor as desired by the U.S. Congress. In addition, the U.S. has a strong comparative advantage, compared with other donors, in providing technical assistance in agriculture, since we have the huge professional training and consultant resources of our land grant agricultural colleges to start from.

With a guiding political ideology like Madagascar's that stresses egalitarian values, positive political benefits for the U.S. Government could be expected to flow from an assistance strategy that enabled the GDRM to improve the levels of income and consumption of the poorer elements of its society, the small farmers, while at the same time achieving a higher rate of overall economic growth, a reduced balance of payments deficit, and greater food self-reliance. At the same time it must be recognized, however, that because of the likely small size of a renewed AID program in Madagascar, in comparison with both the immense needs for assistance and the relative size of other donor programs in that sector, the number of people receiving direct

benefits from a "visible" AID-funded project to increase agricultural production is likely to be quite small, and is likely to be perceived as small by the Malagasy, thus reducing the actual political benefits to the U.S. There would seem to be greater possibilities for success in the longer run from less visible, and less costly, activities that aimed at fulfilling some of the institutional needs for agricultural development mentioned above, such as training, data generation, policy analysis, and building an effective extension service for smallholders.

2) Cons and Likely Political Risks

The infrastructure rehabilitation needs are so great in Madagascar that it would be difficult to achieve a noticeable impact from a small assistance program supporting directly productive investments in agriculture. The risk of failure of such investments is also high due to the various policy, institutional and physical constraints discussed above, and this raises the political risk of having to insist on unpopular reforms (a job now left mostly to multilateral donors, namely the World Bank and the IMF) in order to make a project successful or of being blamed for a failure not the fault of the project. While AID will not hesitate to do this, it requires careful consideration in a country situation where we will not have a large representation and do not have a long history of friendly collaboration to start from. Furthermore, since some other donor programs assisting the Madagascar agricultural sector are fairly large (World Bank and French), the likely size of an AID program would seem very small by comparison and would not provide much political "leverage" by

itself to press for further policy reforms.

With respect to manpower considerations, French-speaking U.S. agricultural technicians do exist, but they are not plentiful, and this somewhat reduces the AID comparative advantage in providing agricultural assistance. On the host-country side, the managerial and technical manpower requirements of small projects are not proportionately less than those of larger projects. It is likely, given the professional manpower shortages that currently exist in Madagascar, that a small productive project funded by AID would either not get the managerial and technical support it needed from the GDRM or, if it did, it would do so to the detriment of the manpower needs of larger projects funded by other donors. The same constraints do not apply to projects focussed on manpower training and development.

II.B. Manufacturing

Industrial production including mining accounted for approximately 18 percent of GDP during the 1970's and provided employment for an estimated 20 percent of the wage-earning population of 295,000 in 1976 (including part-time workers; see Table ____). With respect to the total active population, however, employment provided by formal sector manufacturing activities was in the neighborhood of only 1.5 percent. (Inclusion of informal sector manufacturing raises this figure to 4.5 percent; see Table ___.) Data for 1976 indicate that value-added in manufacturing alone represented almost 75 percent of total industrial value-added (or about 13 percent of GDP). Production of many manufactured goods has stagnated (as in the case of cotton fabric) or decreased over time, particularly since 1980. Malagasy industry is highly dependent on imports of capital goods as well as primary inputs and has been severely affected by the import restrictions of recent years as well as by recent crop shortfalls--e.g. groundnuts. Table 3 gives some indication of the changes in volume of production between 1975 and 1982. Production of such essentials as edible oils, soap, and batteries has decreased by almost 50 percent of the 1975 level.

1. Types of Activities

Malagasy manufacturing is dominated by production of consumer goods to satisfy local demand. Food processing (including beverages) and textile production are the dominant activities, accounting together for some 60 percent of value-added.

a. Food is processed for export as well as for domes-

tic use. In 1979, exports of processed meat and shellfish accounted for almost 10 percent of the value of exports while other manufactures (including processed spices and textiles) amounted to only 6.5 percent. Imports--particularly of soybeans--have taken on an added importance as inputs to a new oil mill (MAMISOA) for which domestic supplies are not yet available. (Soybean cultivation began in _____ and is not expected to meet the needs of the industry until _____ .)

b. Industrial crop processing. The textile industry is an important part of Madagascar's manufacturing sector. Domestic (cotton, raffia, sisal) as well as some imported inputs (silk, wool, and cotton) are used. Other activities which make use of domestic resources are the wood-based industries, which produce paper, lumber, and carpentry products. In 1976 production in these three categories combined accounted for almost 7 percent of manufacturing value-added.

c. Leather products are another category of goods based on local materials. This activity does not seem to be exploited to its fullest potential due to shortages of chemical imports for tanning and dyeing. In a way similar to many of the activities previously cited, it lends itself to small-scale, artisan-type of work as well as to larger-scale production.

d. Import-dependent manufacturing. Import dependence is characteristic of much of Malagasy industry, since capital goods and equipment are all brought in from abroad. It is particularly high in industries which also depend on imports of primary materials, such as those manufacturing metal products (e.g. agricultural implements), transport and electrical equipment, and

chemicals[1], as well as the edible oils mentioned above. These industries have suffered most from the import restrictions of recent years. Thus, it is not surprising to find that they are by and large the ones with the lowest capacity utilization. Table ____ lists the level of capacity utilization for some manufacturing activities.

2. Scale of Operations

Various sources put the number of recorded enterprises in Madagascar[2] at somewhere between 400 and 600. Of these firms, some 85 (or from 15 to 20 percent) are said to produce approximately 75 to 85 percent of total output, indicating a relatively large scale of production. It is unclear whether mining and energy are included in these statistics. Although a variety of government agencies are responsible for collecting data on industrial activity, this does not appear to be done in a consistently comprehensive manner. In particular, although increased attention has been given to small and medium enterprises (SME's) recently, the team was not able in the short time available to gather much data on their number, type, and contribution to total economic production. However, there does seem to be agreement among analysts that there is room for expansion of SME activity in Madagascar and that these smaller firms can play an important role in the improvement of inter-industry linkages as well as in providing more productive employment for the population. For some time UNIDO has been assisting the GDRM in planning support for SME's. A survey to identify existing small and medium industries is currently underway.

Ownership

Related to the question of size is that of the ownership of firms. Parastatal operations became important in the early 1970's as the government nationalized and made efforts to transform previously foreign-owned companies into Malagasy-managed ones. More recently it has been government policy to take over firms that were not performing well or in which improvements might involve reductions in the number of employees. Administrative arrangements regulating the different forms of state enterprises appear complex. Performance of the manufacturing parastatals varies and is not invariably poor.

Despite the reported dominance of parastatals in terms of output, there do seem to be a fair number of privately-owned firms in the manufacturing sector. Of a list of 144 firms recently provided by the Ministry of Industry, Mining and Energy, 88, or approximately 60 percent, were listed as 100 percent privately-owned. Less than 20 percent had State participation (direct shareholding or through the intermediary of State-controlled agencies) of 30 percent or more. While private employment accounted for some 45 percent of the workforce of 40,000 covered by this data, the 70-odd private manufacturing firms employed only 25 percent of this workforce. Securing production data for these firms would helpto clarify the relative importance of the private sector.

Artisanal/Informal Production

There appears to be room for expansion of artisanal production of textiles, brick-making and utilitarian pottery (tiles and

implements), and metalworking. The agency in charge of promoting such activities, CENAM (Centre National de l'Artisanat Malgache), contends that farm ploughs and other tools produced under its sponsorship are proving to be viable substitutes for the more expensive ones available from the two parastatals engaged in producing farm implements. CENAM has also, with UNIDO help, developed a flying shuttle loom to improve the efficiency of and encourage cottage-industry textile production. The goal of this agency is to assist artisans to create cooperative workshops in their localities to produce locally needed goods.

(INSERT: CETA, another artisanal promotion agency. See govt. documentation; informal sector study, ILO, 1978; IBRD'79, p.108.)

3. Post-Independence Economic Performance and Priority Problems vs. Potential, including principal causes of poor performance and resource constraints (physical, human, and financial)

a. Trends in manufacturing production (Table 3) and capacity utilization (Table 5)

b. Resource constraints

--raw materials: agricultural production can be volatile. Mineral production is still quite modest. Imported inputs are insufficient.

--foreign exchange to purchase capital goods and spare parts; import dependence: capital equipment and intermediate goods account for 60 percent of imports (UNIDO); 80% of spare parts must be imported, capacity to produce spares domestically is poorly developed. Manufacturing is capital intensive and all industry groups are affected to some extent by the current shortage of capital goods.

--financing: domestic credit is restricted by the requirements of the stabilization program and allocated unsatisfactorily; private investment by and large is not profitable; foreign resources are insufficient.

--human resources: manpower deficiencies result in poor maintenance and inventory control, poor planning and management.

c. Policy Constraints:

--government control of marketing (IBRD '79, p.63) has inhibited private domestic production. There have been cases where marketing parastatals have imported competing products and sold them at prices below the local cost of production. Pervasive state control has had a dampening effect on business confidence and willingness of private sector to invest.

--pricing policies (goods + factors: IBRD '79, p. 63) have reduced profit margins, contributing to lack of funds for maintenance and expansion which further reduces profitability.

--trade policies: effect of protection (UNDP Industry report, p. 86ff. on tariffs, quotas, and forex allocations, p. 67); export promotion vs. import substitution

--investment code

d. Other Constraints on Production:

--the disastrous transport situation compounds the other constraints and adversely affects timely deliveries of inputs and finished products, as well as availability of maintenance and repair services for firms.

--size of domestic market (IBRD'79, p. 63): "the small size of the market in Madagascar causes problems by itself, one being that it is often difficult to obtain equipment of precisely the capacity desired. Enterprises frequently find it more economical to take equipment that exceeds the capacity wanted than to have it made to order. Often enterprises operate with plant that is not well balanced, although it was about the best obtainable under the circumstances.... In the long run a properly developed export trade might make it easier for enterprises to find outlets abroad for excess output and hence permit them to avoid the lumpiness of many investments and the ensuing high cost."

e. Potential in Manufacturing:

--scope for SME's to increase activities in transformation of resources for local consumption as well as to provide inputs to other industries.

--enhancing potential by reducing constraints to production via training in repair and maintenance, or improved transport to facilitate availability of local (and imported) materials and parts as well as services.

4. Government Economic Objectives and Plans and their coincidence with U.S. Government concerns

(See the government's public investment program presented at April '83 CG Meeting)

a. Stress on improved efficiency and management; on-going industrial sector study with IBRD help; UNIDO assistance

b. Export promotion and differentiation: e.g. meat products;

c. Import substitution: plans for soybeans, fertilizer, paper plant

d. Stress on increasing linkages via SME's, i.e. develop small-scale production of intermediate goods as well as processing and packaging capacity.

e. Efforts to encourage private initiative, including foreign investment

5. Corrective Measures Needed and Underway toward the achievement of these objectives

a. Streamline pricing procedures (see comments on this in Ministry of Industry interviews)

b. Creation of industrial sector committees to improve foreign exchange allocation

c. EPI incentives to make foreign exchange available for import of intermediate inputs: this will benefit large producers

d. Investment Code revision to make investment climate more secure, i.e. to encourage foreigners as well as to stimulate domestic investment

e. Plan to create a National Coordinating Committee of government, enterprises, national training and management institutes to promote SME's. (see notes 8/2)

6. Institutional and Policy Constraints (political, social, and economic)

a. Possible conflict between central government and local initiatives: who is responsible for what?

b. Multiplicity of responsibilities at the central level and shortcomings in coordination of activities;

c. Poor use of existing data (UNIDO report on

industrial maintenance, '82, p. 65ff.)

d. Possible entrenched interests of extablished parastatals

e. Existing policies and practices continue to favor large producers; as only one example, SME's and informal producers usually have to buy inputs at retail level whereas larger producers can buy wholesale; but recall the UNIDO comment that the government does recognize the importance of SME access to investment code benefits.

f. foreign exchange overvaluation contributes to holding down potential exports by keeping the marginal producers out of business

7. Role of External Donors

a. World Bank sector evaluation and possible SAL in preparation?

b. UNDP/UNIDO/ILO concentration of technical assistance on industrial sector management and promotion of inter-industry linkages; employment objective of assistance; UNIDO continues to assist with surveys and studies: most recent project (June '83) is for SME promotion, $925,000 over 4 years.

c. EEC involvement?

d. Bilateral assistance to specific industries: French to sugar refineries and flour mills, Swiss to wine-making, others?

8. Preliminary Assessment of Sectoral Growth, Efficiency and Development Prospects under current conditions and policies

a. Don't really have enough reliable data to make a firm judgement; growth has been eratic, but seems to have decreased sharply in most subsectors since 1980

b. Importance of making inputs available, as well as technical assistance, to spur local production and reduce imports of finished products. How valid is the notion that Malagasys seem to hold that import substitution is more important for them because of high foreign transportation costs?

c. Given (b), the best prospects may be in SME transformation of local products.

9. Major Information and Analytical Gaps

a. Need to develop a more precise notion of relative public/private sector contributions and of the potential for private firms owned by nationals

b. Insufficient (or non-existent) data on current SME status and production; the same for informal production

c. no clear idea of the actual possibilities for small rural agro-industries in terms of availability of infrastructure, local markets, credit, etc....We do know that transport and communications are poor.

d. To what extent is manufacturing held back by poor domestic production of basic commodities and to what extent does the production deficiency reflect a lack of technology rather than financial or transport inadequacies?

e. We need to have a better idea of the World Bank's intentions in the industrial sector

Additional Information and Analysis Needed (for Part IV)

1) Coordinate with World Bank to determine their thinking and intentions for this sector

2) Maintain contact with UNIDO, which seems to be interested in having us collaborate

3) Need more study of small manufacturing/informal sector (cottage industries) opportunities in Madagascar. This would require visits around the country as well as renewed contacts in the Ministry of Industry and probably the two Agriculture Ministries. (Suggest a woodfuels initiative should not be considered under this type of activity. It would appear more productive and in keeping with the government's approach to link that directly to a reforestation/wood conservation initiative.)

4) Due to transport difficulties, study would probably require a minimum of 3 weeks in-country: 1 week for central government and other-donor contacts, and 2 additional weeks for visits to 4 or 5 likely centers for SME development.

5) Team composition: French-speaking small enterprise specialist (anthropologist?) and economist.

10. Pros and Cons as Sector for AID Assistance

a. Possible development assistance strategy for this sector

--Provide spare parts and maintenance know-how for industries

--develop small indigenous rural industry

--develop agribusiness based on local production

--formulate a strategy based on a marketing initiative to facilitate widespread availability of intermediate and consumer goods to firms and individuals

b. Potential Gains of AID Interventions in this sector

1) Target poverty groups and potential impact

--improved rural incomes and greater availability of essential commodities in rural areas
--improve incentives to stay in rural areas and avoid urban pressure

2) Potential for improved overall economic performance resulting from sectoral interventions

--improved linkages within the economy
--increased production and efficiency
--contributes to reduction of imports

c. AID's comparative advantage in this sector

--experience in small agribusiness/market linkages/export promotion in Latin America
--strong capacity to provide technical assistance: experience with PISCES (Program for Investment in the Small Capital Enterprise Sector) and related studies provide guidelines for promoting small scale activities

d. Likely political benefits and risks to U.S. Government and pros and cons of AID assistance to this sector

--Political benefits:
--show support for government's own objective of helping rural population improve their incomes, as well as to improve industrial linkages and reduce import needs

--Political risks:
--would appear to be minimal if activities are linked to major initiatives sponsored by UNIDO or IBRD
--SME initiative without adequate infrastructure, marketing, transport or credit facilities may be doomed to failure, but AID wouldn't undertake it unless we could be assured of likelihood of removing the most critical of these constraints

--Pros:
--UNIDO studies have identified some criteria, constraints, and opportunities for development of the manufacturing sector and have studied the question of SME's in particular. We could take advantage of their expertise and complement their efforts in those areas already identified for which they lack adequate funding.

--World Bank initiatives are also setting the stage for possible collaboration

--The government desires to develop rural industries as one means of stabilizing the population and stemming migration to urban areas; local small scale manufacturing activities could be an important source of additional income, given the seasonal nature of agriculture in many areas

--Local production of intermediate inputs is crucial to the reduction of inelastic industrial import demand

--Cons:

--The relative importance of the domestic transport constraint to local production is unclear; it's probably worse for rural industries, but is it strong enough to undermine a rural-based promotion and assistance effort?

--Manufacturing provides only a small percentage of employment at present (but could it be a stronger growth sector?)

--To what extent would insufficient credit availability be a constraint?

--Duplication of responsibilities within the government may make interventions in this sector difficult

--Most SME projects are staff-intensive and often difficult to monitor and follow-up

--It is unclear to what extent the lack of available infrastructure may prevent the development of manufacturing, either on a small or large scale. This includes the question of energy availability (hydropower).

AID, REDSO/ESA: CSCallison & CClaude, 11/13/83 Draft (MGEIIB.NAR)

II.C. Transport*

*The discussion in this section is based primarily on material contained in two recent reports by the World Bank: Madagascar Transport Sector Memorandum, 2/4/83; and Staff Appraisal Report, Democratic Republic of Madagascar Sixth Highway Project, 6/2/83.

1. Types of Activities

The Madagascar road network consists of about 50,000 km of roads, of which less than 10 percent are listed as paved, slightly more than 10 percent are engineered earth and gravel, and 80 percent are unpaved feeder roads and tracks. The main north-south artery, Route Nationale (RN) 4 and RN 7, stretches from the regional center of Mahanjanga on the northwest coast, through Antananarivo, to the south-central regional center of Fianarantsoa, covering less than half the total length of the island. Other paved roads branch off of this central trunk or are found around the major coastal towns. All six regional capitals are connected with all-weather roads, but some productive and potentially productive areas on the east and west coasts are not. Most of the roads in the southern region are earth roads or tracks, but since the climate is dry they are passable all year.

The country's total vehicle fleet is estimated at 30,000 vehicles, about 43 percent light and 57 percent commercial. Of the latter, there are about 11,000 utility, 1,000 buses and 5,000 heavy truck vehicles, and the heavy trucks carry about 80 percent of all freight. Since 1980 the severe shortage of imported spare parts has led to a sharp decline in the number of useable vehicles.

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The road transport industry is composed of state-owned and private enterprises, a large number of individual owner-operators and a few cooperatives. The state owns about 40 percent of the heavy trucks; but it controls the movement of all basic commodities and has created a state trucking enterprise in each administrative region. The state enterprises generally lack adequate maintenance facilities and trained personnel, however, and their operations have not been efficient, while the magnitude of state involvement and controls have discouraged new private investment in this sector. Passenger transport is even more closely regulated. Individual carriers may operate independently for only one year, after which they must join a cooperative.

The railway consists of two, unconnected, single-track systems totalling about 860 km. The most important is the northern system of about 700 km which connects the capital region of Antananarivo to the principal port of Toamasina on the east coast, with spurs to Antsirabe, an industrial and population center south of the capital, and to Lake Alaotra, an agricultural region and the location of the chromite mines north of Moramanga. The southern system (163 km) connects the southern plateau agricultural region of Fianarantsoa to the southeastern port of Manakara. The rolling stock and locomotive fleet are adequate for the present traffic, although their condition and that of the track is very poor due to poor maintenance.

Maritime shipping handles almost all of Madagascar's foreign trade, and it depends on coastal shipping for transporting goods between many areas of the country without all-weather road links. Four main ports handle about 85 percent of all the traffic:

Toamasina on the east coast (66%), Mahajanga in the northwest (11%), Antseranana (Diego-Suarez) on the northern tip of the island (4%), and Toliara in the southwest (4%). Diego-Suarez is well known as one of the finest natural harbors in the world, which gives it some strategic military, as well as commercial, significance. The main international port of Toamasina serves the economic and population concentrations of the central highlands via the railway to Antananarivo. It has adequate equipment for present traffic levels, but the equipment of the secondary ports is mostly old and in poor condition.

Because of its large size, the distances between population centers, the rugged terrain and the poor condition of surface transportation infrastructure and vehicles, Madagascar has developed a dense domestic air transport network. It has 56 airports, of which 5 are suitable for international traffic and another 12 are built to all-weather standards, with the rest gravel or grass strips. Air Madagascar, 80 percent government-owned, provides service to Paris, Marseilles and several countries in East Africa and has a monopoly on domestic service. The international airport at Antananarivo handles half of all traffic, while 40 of the small airports account for only about one-fifth. The government subsidizes service to the latter in order to ensure access to otherwise isolated areas.

2. Institutions Involved

Several ministries and agencies share responsibility for the transport sector, but the two most important are the Ministry of Transport, Supplies and Tourism (Ministere des Transports, du

Ravitaillement et du Tourisme, MTRT) and the Ministry of Public Works (Ministere des Travaux Publics, MTP). MTRT is responsible for road, rail, air and water transport, and it operates all airports and ports, except the Port of Toamasina, and oversees several autonomous government transportation agencies. It is also responsible for transport safety, tariffs, regulation and control and for directing the transport of basic commodities to all parts of the country to prevent shortages. MTP is responsible for planning, building and maintaining highways, ports and airports.

Among the other agencies with responsibility for transport policy, operations and services, the most important ones are: 1) the Ministry of Industry and Commerce (MIC), which controls most of the state-owned enterprises that collect and market crops, determines, jointly with the Central Bank, foreign exchange allocations for importing road transport, maintenance and construction equipment and spare parts, establishes policies for the importation and assembly of motor vehicles, and controls the prices of basic commodities, thereby affecting transport tariffs; 2) the Ministry of Agricultural Production and Agrarian Reform (MPARA) and 3) the Army operate the largest state-owned road transport enterprises; 4) the Directorate General of Planning determines inter-sectoral priorities; and 5) each regional government (faritany) operates its own regional trucking company.

State enterprises dominate the transport of commodities by road. Some are specialized by region or commodity, others are trading firms, such as those responsible for exports, that undertake the collections and delivery of the products they are con-

cerned with. In principle there is free entry into the freight transport industry, but there have been no new private entrants during the last five years due to the unavailability of new vehicles, lack of spare parts, and the government's policies of greater state control. The existing private sector transport operators, for these same reasons, have experienced a sharp decline in their profitability, their operational fleet and the level of their activities.

The passenger transport system is mixed, consisting of private owner-operators, cooperatives and private, semi-public and public bus companies. Entry into the industry is fairly easy. Regulations and urban fares are fixed by the Ministry of Transportation and inter-urban fares are based on an official minimum-maximum rate system.

The railway, the Port of Toamasina, the two main maritime and coastal shipping firms, and Air Madagascar are autonomous state enterprises. Other ports are administered directly by MTRT.

II.C.3. Recent Economic Performance and Priority Problems vs. Potential, including principal causes of poor performance and resource constraints (physical, human, and financial)

The existing road network has badly deteriorated during the last decade or more and is presently in very poor condition, in all parts of the country. In addition, as noted above, not all productive areas in the country are yet connected with all-weather roads. The deterioration is due to a combination of causes: accumulated weather-related damages, continual use by

overloaded trucks, and an almost complete lack of maintenance. Many rural roads are not or only barely passable by motor vehicles and, as a result, the distribution of agricultural inputs and incentive consumer goods and the collection of harvested crops is severely hampered.

The general scarcity of both investment capital and government operating funds is compounded by the high costs associated with the maintenance, rehabilitation or new construction of roads in Madagascar due to the ruggedness of the terrain and to the high annual rainfall patterns of many areas. The shortage of foreign exchange for equipment and spare parts and the lack of sufficiently qualified engineers and other technical personnel have also contributed to the problem.

The condition of the railway systems has also deteriorated and the efficiency with which they have been operated has declined during the last several years, causing a marked (25%) reduction in total freight carried between 1976 and 1981. Both the rolling stock and the track are presently in poor condition due to bad maintenance. The operational efficiency and financial viability of the main line had declined so badly by 1982 that the World Bank IDA was moved to suspend disbursements of its Second Railway Project until major organizational, policy and management reforms were undertaken. The railway had become unable to meet transport demand and itself became a major bottleneck in the economy, with a large backlog of goods piling up at the Port of Toamasina waiting for transportation inland.

Coastal shipping has also been increasingly hampered by the lack of imported spare parts, by an inappropriate tariff struc-

ture, and by the poor condition of the equipment in the secondary ports. Several private companies used to operate along the eastern coast, but they have been folding up because of insufficient tariff rates and the lack of spare parts. Port traffic has stagnated since 1972, resulting in a present over-capacity in the ports, particularly in Toamasina, so that the chief need now is for rehabilitation and modernization, not further expansion.

The rapid expansion of air service to numerous small communities resulted in increasing financial losses, since the revenues generated on many of those routes were insufficient to cover the costs. Service to 12 smaller airports was cancelled in 1982 and tariffs elsewhere were significantly increased. The primary need of the air transport industry is for better communication and navigation facilities and for adequately trained technical personnel to operate and maintain them.

4. Government Economic Objectives and Plans and their Coincidence with U.S. Government Concerns*

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*Government objectives and plans for this sector are explained in GDRM, "Development Prospects, Policies and Programs 1983-1985," Antananarivo, March 1983, pp. 31.

The key GDRM objective in this sector is "to satisfy transportation requirements, in terms of quantity, quality and frequency, at a reasonable cost to the population, while contributing to the development of the country as a whole." Its immediate priorities will focus on rehabilitation of existing capacity of both roads and vehicles (with priority foreign exchange allocation for necessary supplies and spare parts), particularly on those routes serving productive agricultural and industrial

areas. Also to be given priority are new or rehabilitated roads which will open up isolated regions and facilitate the supply of staple goods to local communities.

Priorities for the other transport subsectors also focus on rehabilitation, training and financial recovery, including the provision of vital spare parts, and, for airports, upgrading safety equipment.

These sector goals and priorities correspond well with AID concerns for pursuing a pattern of development that would simultaneously stimulate efficient growth of overall production and provide direct benefits to the poorer elements of the population, who are in this case mostly residents of rural areas. An improved transport system is also essential for the development of the private sector.

5. Corrective Measures Needed and Underway toward the Achievement of these Objectives

The World Bank Transport Sector Memorandum identified the following six key requirements for sector improvements in Madagascar, listed in order of priority:

a. The need for financial recovery for transport enterprises, including the railways, the national airline and parastatal trucking companies;

b. The need for increased efficiency in the road transport industry, including the removal of excessive state controls and a clearer definition of the role of public and private sectors;

c. Improved pricing policy in the sector;

d. The need for a shift of emphasis from new investments to

rehabilitation and maintenance;

e. Improvement of sector planning and coordination; and

f. The need for increased manpower training and technical assistance.

The World Bank-GDRM dialogue induced by the sector review resulted in a substantial change in the Government's transport sector strategy. It has stated its intention to permit private transporters to compete on equal terms with the public sector, to reduce public trucking fleets by selling those trucks assigned to the provincial trucking companies, and to deregulate freight transport by December 31, 1984. There has been a marked shift in planning emphasis from new investment to rehabilitation and maintenance, particularly of roads; and, as part of the financial recovery program, tariffs have been increased substantially for air, rail and road transport.

The GDRM has selected a limited road network of about 10,000 km, or one fifth of the total, representing the key economic roads of the country, for priority rehabilitation and maintenance. This network includes 4,300 km (about 90%) of all paved roads, including the critical 1,100 north-south axis of RN 4 and RN 7, 3,300 km (60%) of the engineered earth roads, and 2,400 km (6%) of the feeder roads and track. The World Bank-supported Fourth, Fifth and Sixth Highway Projects in Madagascar are assisting in this effort.

The Sixth Highway Project also includes US$5 million in foreign exchange allocated for spare parts to meet the immediate needs of private truckers, and the GDRM has decided to allocate at least US$15 million annually to meet the normal, recurrent

spare parts needs of the commercial vehicle fleet. Additional assistance with the recurring foreign exchange requirements is expected to be provided by the Fonds d'Aide et de Cooperation (FAC-France).

The GDRM has recently taken major steps to address the most urgent operational problems of the railways and to resume a more normal flow of spare parts for them, as well. A financial recovery program was approved which includes 1) granting financial autonomy to the railways, 2) scheduling the payment of Government arrears, and 3) sizeable tariff increases. This program was sufficiently strong to persuade IDA to resume, at the end of 1982, the previously suspended disbursements under its US$13 million Second Railway Project, which provides funds for replacing outmoded equipment, track renewal, improvement of telecommunication and workshop facilities, technical assistance to improve financial management.

In view of their present overcapacity, the GDRM plans only modest investments in ports and coastal shipping facilities, mostly for maintenance and protection. It has recently terminated air service to 12 small airports and increased tariffs to reduce the financial losses of the national airline, and it is presently reviewing other cost-cutting alternatives in the air transport subsector.

Finally, technical assistance, manpower skills training, and improved investment planning and coordination are being undertaken in various programs assisted by the World Bank highway and railway projects and by FAC projects.

6. Institutional and Policy Constraints

Efficient investment and operations in the transport sector have been hampered by the lack of coordination among numerous agencies with overlapping responsibilities for various activities within the sector. While a recent GDRM decision to increase the status of the Planning and Programming Unit in the MTRT's Directorate of Transport, which is charged with transport sector planning, and the recent transfer of the Directorate General of Planning (DGP), which determines inter-sectoral priorities, from the Ministry of Finance to the Office of the President will help achieve better coordination, the overlapping responsibilities of several different agencies will continue to delay decisions and hamper needed activities.

The continued state control over the movement of goods and tariffs will constrain the development of a more efficient transport system until the sector is deregulated at the end of 1994. Even after such deregulation, however, it will be difficult to achieve commercial-level efficiency of operations (as is planned) among the large trucking parastatals that will remain under government control, although the private sector should be able to improve.

The lack of adequately trained and experienced technical and managerial personnel will continue to hamper the achievement of efficient transport operations and maintenance, particularly in the public sector. Although several technical assistance and training programs are either currently underway or planned, as mentioned elsewhere, the needs are still greater, and it will

take several years for the impact of such training to be felt.

Finally, economic, foreign exchange allocation and fiscal policies, discussed in Part I above, are to a significant degree responsible for the critical resource constraints represented by insufficient foreign exchange, capital and operating expense funds for necessary investments in rehabilitation, maintenance, construction, and for the importation of needed equipment and spare parts. These constraints will continue to hamper improvements in the transport sector until adequate policy reforms are implemented to reduce the fiscal and balance of payments deficits.

7. Role of External Donors

The road transport portion of the 1983-85 Public Investment Program includes 18 priority sub-projects or programs for which external financing has already been obtained, representing about US$140 million, or three-fourths of the total amount planned. Seven of these are on-going activities financed by the World Bank Group, AfDB, Kreditanstalt fur Wiederaufbau (KfW), the Norwegian Agency for Development (NORAD), and China. China, for example, is financing the reallignment and reconstruction of the "life-line" highway from the Port of Toamasina to the capital city, which parallels the old railroad. The other eleven sub-projects are proposed for funding by the World Bank Group, the European Development Fund (FED), AfDB, CCCE, FAC and the USSR in a coordinated effort led by the World Bank. Those projects not yet funded, about US$42 million, will have to be deferred unless additional sources of external funding are found. In addition, the World Bank and FAC are helping to finance the rehabilitation

of the railways, including technical assistance and training to improve overall management, operations and maintenance.

As noted above, in addition to being heavily involved in the support of highway rehabilitation and maintenance, including commodity imports of equipment and spare parts, both the World Bank and FAC have been assisting the GDRM to reappraise its transport sector strategy and policies; and they are providing technical assistance and training to help upgrade the GDRM capacity for transport sector planning, coordination and management.

The role of foreign donor funding is critical to the overall effort in view of the two key resource constraints--foreign exchange and investment capital.

8. Preliminary Assessment of Sectoral Growth, Efficiency and Development Prospects under Current Conditions and Policies

The institutional constraints and physical difficulties facing road and railway rehabilitation and development are severe, but given sufficient time, persistence and funding they can be overcome. The presently high priority assigned by the GDRM to the necessary tasks, and its willingness to review current policies and institutional arrangements with an eye to further significant reforms, in addition to those already undertaken, coupled with the substantial financial and technical support being received from foreign donors, bodes well for eventual success in the medium-term effort of rehabilitation and improved management. In the longer term, the key constraint is likely to be the financial one of insufficient investment capital to upgrade existing feeder and farm-to-market roads and dirt tracks in

order to open up currently isolated areas and link all potentially productive areas to domestic and foreign markets as soon as would be desireable.

9. Major Information and Analytical Gaps

This sector has been subjected to considerable attention and analysis from both the GDRM and its principal donor agencies during the last few years, due to its identification as a major constraint in the overall economic development process. Both the FAC and the World Bank Group have provided technical assistance to help the GDRM conduct its own analysis, and the World Bank has conducted extensive analyses of its own in connection with the preparation of its Madagascar Transport Sector Memorandum and its Sixth Highway Project appraisal, both of which were completed in early 1983 (cited above).

The major remaining gaps in information pertaining to the transport sector have to do with the lack of good data on land use and agricultural potential in the various areas competing for improved or new roads, upon which more rational road building and maintenance priorities could be based.

10. Pros and Cons as Sector for AID Assistance

a. Possible development assistance strategy for this sector

The Ministry of Public Works has asked REDSO/ESA for technical assistance with their periodic training program for local road maintenance. They also need Caterpillar parts and new equipment. AID could use CIP funds to import badly needed road maintenance and truck equipment and spare parts and allocate the

counterpart funds generated to related training and maintenance activities, particularly with respect to rural farm-to-market roads. REDSO/ESA has agreed to provide the technical assistance requested under the African Manpower Development Project (AMDP). This effort could be continued in conjunction with a Commodity Import Program.

b. Potential Gains of AID Interventions in this Sector

1) Target poverty groups and potential impact

Improved rural roads would enable rural residents, who include most of the poorer households, to better transport their produce to markets and bring agricultural inputs and consumer goods home. They would also provide greater access to social and economic services in neighboring towns. Given the present inaccessibility of many rural areas, this should substantially improve their incentive to produce for the market and thereby increase their real incomes and standard of living.

2) Potential for improved overall economic performance resulting from sectoral interventions

With agriculture being such a predominant sector, both in terms of overall output and employment and of foreign exchange earned or potentially saved, a good farm-to-market road system is vital to improved overall economic performance. With the substantial program of agricultural sector reforms and interventions supported by other donors presently getting underway, further efforts to improve the rural road system can be expected to produce significantly positive economic results by the time they are finished, assuming that the agricultural reforms are imple-

mented as expected.

c. AID's comparative advantage in this sector

AID has access to considerable skill and experience in rural road construction and maintenance, and, since capital resources available for an AID program in Madagascar are more limited than those of other donors involved, in particular of the World Bank and France, AID would have a "comparative advantage" in assisting the GDRM with less costly rural roads than with the main trunk line system.

d. Likely political benefits and risks to U.S. Government and pros and cons of AID assistance to this sector

A Commodity Import Program to provide road maintenance and transport equipment and spare parts would be a relatively flexible instrument enabling the U.S. to respond quickly and assist the GDRM with two of its most critical and urgent needs--immediate balance of payments support and improved domestic transport facilities. Combined with a program to assist the government repair and better maintain rural access roads it should demonstrate U.S. government concern for more rapid rural development as well as its willingness to help with the more immediate needs presented by Madagascar's current economic crisis.

Such support from free world donors is essential to help make a success out of the current GDRM program of cautious reforms toward a more market-oriented economy and to encourage it to continue along that path. The potential benefits to the U.S. Government of encouraging a more genuinely neutral political

stance on the part of the GDRM in world affairs are large. The potential risks of failure of the current "new direction" to achieve a more satisfactory rate of economic growth, as might occur if sufficient capital assistance in critical areas were not forthcoming on a timely basis, are, on the other hand, also relatively large, if the GDRM were to give up on the likely success of the reform path and return to a more controlled economy realigned with the Eastern Bloc countries for support.

The political risks of possible failure or lack of success of such a program are minimal. The needs are great, the equipment, vehicles and spare parts are available (especially with the U.S. economy presently operating at less than full capacity), the technology is relatively simple and can be readily transferred. Furthermore, the role of farm-to-market roads and relatively efficient bulk transport facilities is so important in an agricultural economy, and the current conditions in Madagascar are so bad, that improvements in rural road transport alone should result in significant economic gains.

Such a program would be relatively easier to manage and would require less AID staff time than some other possible programs. This is an important consideration, since AID presently has no American staff in Madagascar (although one direct-hire position is planned for the near future). If AID does decide to initiate a small DA or ESF program there, it would most likely want to begin slowly, with a minimum of in-country staff and consultancy requirements.

Local currency generations derived from the sale of equipment and spare parts imported under the CIP could be allocated,

by agreement with the GDRM, to support the local costs of maintaining important rural roads, thus generating political goodwill toward the U.S. in the local communities affected.

By helping to rehabilitate and maintain local transport infrastructure, which is important to the efficient operation and profitability of small- and medium-scale private entrepreneurs, who provide marketing services, inputs and incentive consumer goods to the rural areas, such a program would help stimulate the growth of the private sector in Madagascar.

AID, REDSO/ESA: CSCallison, 9/20/83 Draft (MGEIIC.NAR)

D. Energy and Natural Resources Sector

Introduction

The energy/natural resource sector will be examined in three components: the modern sector (including energy use in industry and transport, and energy sources such as petroleum distillates, hydroelectricity, coal and "heavy oil"); the use of energy in agricultural production, processing and distribution, as well as energy derived agricultural by-products; and energy and the natural resource base (forestry, fuelwood and charcoal, as well as environmental issues). The energy sector in aggregate - including fuelwood, petroleum, household use as well as industrial consumption - will also be summarized.

While the energy sector is often examined as if it were clearly defined and homogeneous, it is more useful to divide discussion into these three components. We will not present at this time a separate analysis of the Forestry sector but incorporate it in the third component. We recommend that an additional team be fielded to examine the forestry sector in detail.

1. Types of Activities

Approximately two-thirds of all energy consumed in Madagascar is composed of wood or charcoal. Petroleum imports account for another 30 percent of the total consumption while the remainder is provided by hydro power and bagasse (3% each) and imported steam coke (1%), according to World Bank estimates. Consumption of electricity per capita is extremely low, (no more than 40 kilowatt hours per capita in 1978). In general, Madagascar's energy resources are either under utilized or poorly utilized, and represent an important potential driving force for growth in the country.

In terms of the first category of energy resources, Madagascar appears to have some potential sources of supply of hydrocarbons, although at this time none is being extracted, either on land or off-shore. However, there are several companies (Occidental, Agip and Mobil) exploring off the coast or on land in the West It appears that there petroleum resources significant enough to at least provide a percentage of Madagascar's internal energy requirements, which in turn would help curtail the outflow of hard currency caused by the demand for imported petroleum. In 1978, the Bank estimated that the petroleum import bill accounted for 15% of total exports. Our estimates for 1981 show that this has increased to almost 37%, given the poor performance of

Madagascar's export crops. The country does have a refinery, located at Tamatave, but it is running far below peak capacity. Over the last several years, the island had had to import a significant amount of refined products, in part due to the loss of its export market in Reunion. In addition, the refinery mix does not adequately meet the needs of the island, requiring the import of refined products. Any expansion or alteration in the refinery probably will be prohibitively expensive.

In terms of hydropower resources, Madagascar is considered to have perhaps the best potential for hydropower of any country in Africa, excluding Zaire. So far, of the 160 MW of installed capacity only one-third comes from hydropower. However, the completion of several hydropower projects by this year will have increased the amount of hydropower presently available to the country by approximately 100MW.

It is estimated that the potential for hydropower for the country is over 3500 MW. However, it should be noted that the severe erosion throughout the island and the resulting high levels of silt will cause problems with hydro schemes requiring some form of diversion or dam. There is also some evidence of coal deposits, including a potential of 80 million metric tons of steam coal.

In terms of energy for use in the agricultural sector, little data are available, although it is probable that a significant part of the demand for diesel goes to power irrigation pumps. In addition, the sugar refineries in the northern part of the country use most if not all of their bagasse to generate electricity and to produce steam for processing. Charcoal is also used for rural industries, including brick making kilns.

The major source of energy for household use comes from trees and shrubs. However the data on the quantity of wood consumed and the amount still available country wide are very weak. Most rural households consume firewood, while capital city residents appear to consume both fuelwood and charcoal depending upon income levels and location. Over the last 15 years the availability of wood in nearby Antananarivo has diminished rapidly; now, most fuelwood for the city is transported from more than 30 kilometers away. Therefore, an increasing percentage of the wood for fuel is converted to charcoal and shipped in by contractors.

Forestry resources are significant, being the source of most of the country's energy, and the destruction of forest cover appears to have been a major cause of soil erosion and the widespread reduction of agricultural productivity.

2. Institutions Involved

As with many developing countries there are a multiplicity of agencies and institutions involved in energy planning, exploration, and distribution. There are at least 12 different institutions, government agencies and parastatals that have some role in the development of energy sources. The two major institutions are Omnis - the Office Militaire Nationale pour les Industries Strategiques-which is in charge of petroleum exploration and development (including negotiations with multinational corporations), and energy planning; and the Ministry of Industry, Mines and Energy, which is responsible for exploration and development of coal resources, hydropower resources as well as oversight of Jirama, the power and water utility, as well as Solima, the parastatal in charge of oil distribution and refining. The Ministry is also nominally responsible for energy planning in conjunction with Omnis. However, the World Bank's recent project on petroleum exploration and promotion, initiated in April 1980, included a segment on energy planning but was given solely to Omnis. There are also several parastatals involved in the promotion of solar energy and other activities. The Ministry of Finance and Planning does have a somewhat limited role in decisions related to fuel pricing and other related matters.

The Ministry of Rural Development and Land Reform included the department of water and forests, in charge of the production of charcoal and fuelwood and is the agency most directly involved in reafforestation schemes. The reorganization has-created a new Ministry of livestock, Forestry and Water, as well as the Ministry for Scientific Research, the latter to include FOFIFA, the forestry research institution.

3. Post Independence Economic Performance and Priority Problems

The demand for energy is still quite low, estimated by the World Bank at approximately 142 Kilogrammes of oil equivalent per capita in 1978. If fuelwood and charcoal are combined with petroleum products and electricity, the available statistics indicate a moderate but continuous increase in consumption per capita during the 1950s.

During the 1960s, after independence, per capita consumption increased rapidly, in large part due to the increase in income as well as the expansion of industries throughout the island. The oil crisis of 1973 brought a dramatic halt to the country's economic growth and per capita energy consumption has stagnated since then. However, a distinction should be made between the

demand for petroleum products and electricity with that for charcoal and fuelwood. The former tends to be directly effected by income growth and the expansion of the industry and the transport sector, i.e. by the attributes of increased economic growth.

The second, fuelwood and charcoal, tends to change slightly due to the growth of the economy. While there are exceptions (when higher income families move from charcoal to other desired fuels, or when industries are developed that used charcoal as feedstock), most fuelwood and charcoal is used by the majority of the population for cooking. Hence the per capita amount consumed tends to change relatively little in relation to the growth of economy, but tends to increase by the rate of population growth. If more wood is being converted to charcoal, as the evidence seems to suggest, then the amount of wood being consumed increases at a higher rate than population growth, particularly given the inefficiency of the fuelwood to charcoal conversion process in Madagascar.

In terms of the distillates produced by the refinery, diesel and fuel oil used for power generation and rail transport constitute over 60 percent of total consumption, and gasoline approximately

25 percent. Of the remainder, demand for residential fuel such as butane and kerosene has increased rapidly over the last several years as middle and upper class residents have shifted away from the use of charcoal and fuelwood.

The principal causes of the relatively slow exploitation of the country's potential oil reserves are two fold. First is the unfortunate timing of the expansion of oil exploration activities in Madagascar when most oil companies are experiencing severe cash flow problems. This has particularly effected Occidental Corporation. Second, the country (in part through encouragement from the World Bank), has spent a considerable amount of effort and political capital on the exploration of heavy oil resources.

OMNIS has done much to rationalize the petroleum exploration and development process in Madagascar, although there are still severe manpower deficiencies within OMNIS. While prospects for the successful exploitation of the heavy oil deposits have diminished, there still appears to be considerable optimism.

Hydropower, while potentially a major resource, suffers from several problems, the most important being a lack of capital.

The World Bank has provided major funding for the Andekaleka, hydropower project (approximately $209 million), however, this level of funding will have to be greatly increased for hydropower to account for the major percentage of Madagascar's electricity capacity.

The second constraint relates to the demand for electricity. While it will be useful for Madagascar to replace oil-fired electric generation with hydropower, the dampening of industrial production over the last several years has severly constrained the potential demand for electricity. It also does not appear likely that residential use of electricity will spread rapidly beyond the key urban areas, in part due to the massive instructure problems affecting other aspects of the Madagascar economy. Therefore, given the tremendous capital requirements for major hydropower schemes, and the relative softness of electricity demand it may be difficult to justify significant expansion in hydropower during the next 10 years.

However, there may be considerable potential for localized small hydro schemes. Rivers are scattered throughout the island and in most cases have significant heads. Since the country has a large number of isolated communities, relatively inexpensive hydro

schemes designed to serve local industries may conceivably be economic. At this time, however, this option has not been evaluated in detail. The exceedingly high levels of silt load in most rivers may significantly effect even small hydro projects; however there has been little analysis to evaluate the extent of this potential problem.

The loss of agricutural productivity through soil erosion has reached an alarming level; although the island has always been susceptable to erosion, the continued use of slash and burn agriculture and other inappropriate cropping and livestock practices, coupled with the demand for fuelwood and charcoal appears to have adversely affected the productivity of the country's resource base at an increasing pace.

The consumption of charcoal and fuelwood has kept pace with population growth, but the composition of demand has changed from fuelwood to charcoal as distances of supply have increased. Charcoal marketing does have a significant link to the modern sector and petroleum products, since most truck traffic in the Antananarivo region is employed in the distribution of fuelwwod and charcoal. It is unclear what the impact of transportation cost is on the consumer price of charcoal, although it was

estimated that approximately 60 to 70 percent of the charcoal price in the center of Antananarivo is accounted for by the cost of transport. The price of charcoal within Antananarivo may vary by 30 percent depending on where within the city limits the consumer is located.

ent World Bank study also notes that the change from locally available fuelwood and charcoal to charcoal that must be trucked in from 30 to 40 kilometers away has led to a change in the marketing structure. Where at one time the producers of charcoal were also the final sellers, there has now developed a rather complex system of intermediaries. This has led to an increase in the price to the consumer while the price obtained by the producer has stagnated. There is little incentive for the charcoal producers to increase the efficiency of their production if additional capital is required. In addition, transport costs are passed on to the consumer, so that the producers are willing to move to new areas of supply further away from the city, as long as the distributors are still willing to purchase the final product.

The environmental destruction caused by charcoal production in Madagascar may be different from that in Kenya and other parts of

East Africa. In Kenya, there is a tendency for producers of charcoal to destroy the entire tree including the root system. This is considerably different from the collection of fuelwood, which tends to be as a by-product of agricultural production. However, in Madagascar, for charcoal production it appears that the trees generally are coppiced, so that they will regenerate. Most of the trees providing charcoal for the capital city are Eucalyptus and while in many instances the trees are not owned by the individual producers, in most cases they are cropped in a rotation.

It is unclear from initial observation as to whether the cause of the severe deforestation in many parts of the country is due to the demand for charcoal, inappropriate farming systems being employed, the severe weather patterns that annually overwhelm the island, or a combination of factors. Specific data on the extended destruction caused by charcaol production versus destruction caused by agricultural practices are not available. However, it is clear that the demand for charcoal has a major impact in hastening the loss of agricultural productivity.

It does not appear likely or possible that alternative fuels can be found to replace charcoal; as population increases, so will

charcoal demand. Madagascar may have the potential for producing adequate supplies of wood but there appears to be little social concern or interest in the preservation of forests, forest land, or the production of woodlots to serve urban markets. There is no available data at present to determine whether the evident deterioration in the natural resource base has been a major factor in the stagnation of agriculture yields.

4. Government Objectives and Plans and their coincidence with U.S. Government Concerns

GDRM objectives and plans in this sector are not fully defined. It is expected that a clearer definition of energy sector objectives will be developed during the next several months. Of the areas of concern, however, there are several of potential relevance to USG interests.

- Reduction of oil imports, promotion of oil self-sufficiency and development of indigenous resources
- Provision of adequate eletricity and liquid fuels to support industril growth, particularly outside of the Antananarivo region

- Rationalization of energy pricing policies
- Expansion the fuelwood and charcoal supply;
- Limit deforestation and erosion.

5. Corrective Measures needed and Underway toward the achievement of these objectives

o Rationalization of energy prices, in particular the price of petroleum distillates and electiricity. Considerable progress over the last two years.

o Development of localized power sources for irrigation crop processing and transport. There is some interest in small scale hydropower and the sugar industry presently relies on its bagasse for power; other

o activities in the agricultural sector so far are minimal.

o Development of para-urban charcoal units to provide Antananarivo with fuel; cutting down on transport costs, and providing employment. No activity in this area at present, although IBRD is planning a prototype project.

- o Development of pricing incentives for the improvement of charcoal kiln efficiency. No activity in this area at present.

- o Expansion of reforestation programs, and promotion of soil conservation strategies. The Forestry Department's activities have been effective but insufficient, little success at present in the promotion of soil conservation among farmers.

6. Institutional and Policy Constraints

- o Severe institutional fragmentation with significant overlap between institutions. No clear focal point for energy planning Separation between energy planning unit in OMNIS, the Ministry of Industry, Energy, and Mines, and the Directorate Generale du Plan.

- o Over-reliance until recently on prospects for major oil discoveries.

- o Little economic incentive to conserve the country's natural resource base, and relatively little social concern.

- o All forms and uses of energy tend to be evaluated equally in terms of national policy goals; this leads to the discounting of the role of biomass and other renewable energy because of their minimal impact on BOP.

7. Role of External donors

- o The World Bank is active in supporting energy planning through OMNIS, and is planning an Energy Sector Assessment for 1984

- o The Bank is also financing some oil exploration activities and the construction of hydroelectric facilities.

- o Under the World Bank's forest and pulp project, it will be considering alternative uses of the pine, including as fuel feedstock.

- o CIDA, the French government, Saudi Arabia, Abu Dhabi and Kuwait have also assisted in hydroelectric development and expansion.

- China is considering several energy activities, particularly related to biogas and microhydropower.

- UNIDO is initiating two activities of possible relevance, in support of small and medium scale industries, and preinvestment studies of agroindustries. About $1 million will be allocated to these activities over four years, some of which could be allocated in concert with other donors to energy related topics.

- The EEC is providing much of the funds for the UNIDO work, and probably will be involved in additional energy projects over the next five years, with an emphasis on solar energy, energy planning and agroindustries.

- The French Madagascars largest donor, have expressed interest in supporting work in the energy sector, but the details of this assistance have not been made available.

o IDRC has been approached by the GDRM to provide support to the new Ministry of Scientific Research. IDRC has also asked ICRAF to provide the GDRM with relevant agroforestry information.

8. Preliminary Assessment of Sectoral Growth Efficiency and Development Prospects under Current Conditions and Policies

(to be added)

9. Major Information and Analytical Gaps

- Most data are of dubious accuracy, with the possible exception of petroleum import levels, refining volume, distillate consumption and prices.

- The only existing national energy assessment and plan was based on an analytical model far too sophisticated for the quality of available data.

- Lack of institutional coordination has led to partial analyses within ministries.

- Little information exists on the use of energy in the

transport sector, and fuel cost in the transport of agricultural produce as well as fuelwood and charcoal.

- Little or no data is available on the natural resource base, on the availability and qualtiy of agricultural and forest land, and the extent of deforestation.

- There is a clear lack of trained personnel, both vocational and professional, but there is no information on availability of trained human resources, and an assessment of future needs.

10. Pros and Cons as Sector for AID Assistance

a. Possible development assistance strategy

1) Improved energy planning and policy capability

- Improve analytical capacity in energy planning, and assist in supporting interministerial data collection, analysis and policy planning

- Provide technical assistance and training on petroleum planning, oil market modeling and energy economics within OMNIS

2) Provide GDRM with knowledge on alternative resources for rural growth and agricultural production

- Assess potential for small scale localized hydropower schemes to promote rural industries

- Assess potential for gasifiers, windmills or other sources to power irrigation pumps

- Assess energy use in agricultural transport and processing

3) Assist in slowing down the deterioration of the natural resource base, increase the availability of fuelwood and charcoal, and improve agricultural productivity through the promotion of agroforestry and on-farm fuelwood production

- Carry out a detailed energy-natural resource pre-assessment, identifying data, analytical, and institutional strengthns and weakness

- Using LANDSAT and other data, and based on matira; resource pre-assessment, assist in the design and implementation of a land use assessment (as recommended in the IBRD Agriculture and Rural Development Sector Memorandum, p.15)

- Assess the charcoal and fuelwood marketing system, following on a recent GDRM study

- Support research by GDRM in kiln designs linked to extension program

- Finance pilot paraurban charcoal production facilities through local institutions or groups

- Expand active reforestation programs to include fuelwood species, including the financing of species trials if necessary.

4) Assess human resource needs for country's energy sector and develop plan for use by other donors and USAID

b. Target poverty groups

- Assistance in energy planning and petroleum management would help to improve country's BOP, and thus the country's general economic welfare. Better planning would also permit the identification of energy resources for use by the rural population.

- Assistance in providing power sources for use in agricultural production, processing and transport, and rural industries would directly improve agricultural incomes, leading to the improvement of the welfare of a major segment of Madagascar's poor, at the same time promoting local initiative and productivity.

- The country's poor, both rural and urban, rely on fuelwood and charcoal for cooking and heating; any success in increasing supply and stabilizing prices, while halting the deterioration of the natural resource base, would directly improve their welfare.

c. AID's Comparative Advantage

- Considerable experience in supporting the establishment of energy planning capability

- Contractor expertise in energy economics, data collection and analysis. Potential capability in oil market assessments

- Contractor expertise in assessing energy technologies for agriculture

- Experience in assessing energy sector training needs and development relevant training programs in the U.S. and indigenously

- Major programs in fuelwood research, support of ICRAF and other forestry/agroforestry activities

- Development of energy/natural resource preassessment methodology

- Availability of French-speaking U.S. experts, particularly in energy assessments, and the production, conversion and use of biomass.

- Support of Regional Remote Sensing Facility and training programs

d. Pros and Cons

Energy is an intermediate good used in all economic activity. Improvement in key segments of the energy sector can help to promote economic development in other sectors

- While many energy technologies can be beyond the scope of AID's financial capability, there are donors available for funding such projects. However, the assessment, planning, evaluation and maintenance of such technologies is a crucial activity requiring relatively small amounts of funds.

- This support is not easily provided by the multilateral development banks and most other donors

- Developing energy systems that enhance agricultural production may be a high visibility, small scale activity that does not place AID in direct competition with the other, larger and mere established donors in agriculture.

- Fuelwood scarcity and environmental deterioration are as severe in Madagascar as anywhere else in Africa; anything AID could do to promote the growing of trees and the improvement of kiln efficiencies could have a major impact both on forest and agricultural productivity

- AID assistance identifying human resource capabilities and needs would assist CDRM and other donors at low cost

- Availability of centrally-funded resources through the Energy Initiatives for Africa Project permits initial studies, assessments and possibly a project to begin without the normal long lead time required for new project design approval.

Cons

Energy sector, while important, is relatively stagnant; other donors are providing sufficient resources to maintain some momentum.

USAID unclear at present as to what areas of energy it feels most competent to address; all inclusive energy programs would probably be counter--roductive given institutional fragmentation.

Multiplicity of institutions would create problems in selecting counterpart institutions; fluid situation may limit long term planning activities.

Availability of accurate data is unknown, although it is probable that any activity in the energy sector in areas of potential USAID interest would require extensive data collection and analysis.

- The apparent decimation of the country's extension capability over the last ten years may limit the ability to support work requiring these skills (involving agroforestry, improved charcoal kilns, or other similar projects.)

5. Recommended Action

Several other donors are active in this sector, although few in the latter two components of the energy sector; energy and agriculture; and energy and the natural resource base.

Data are inaccurate, in Paris and other sites outside of Madagascar, or are nonexistent. The institutional environment is still confused, and not well understood by USAID.

For USAID to do anything in this sector, it is first necessary to identify data gaps, analytical capabilities within the country, and institutional structure.

Information on forestry/natural resources is particularly weak.

It is therefore recommended that the following steps be undertaken:

1. Forestry/natural resource site visit, to complement visits by Regional Energy Advisor and EIA staff. This site visit should be organized as soon as possible, led by the Regional Forestry Advisor.

P,D and S funds may be required for the services of a natural resource specialist, possibly Mr. Fred Weber, for a two-week TDY.

2. Design and implementation of an institutional analysis, as well as any natural resource inventories which may be deemed appropriate by the forestry/natural resource team.

This should be organized in early 1984, and funded, if possible, through EIA.

3. An assessment of microhydropotential related to small industries should be designed by the NRECA. Its implementation however should be delayed until the institutional uncertainties described in this report have been resolved or clarified.

4. In March, REDSO should convene a meeting to discuss the advisability of undertaking a pilot project through EIA, in concert with ongoing assessment work and institutional analyses.

E. Public Works

1. Types of activities.

a. industrial infrastructure

b. roads, ports, airports

c. waterways

d. housing

e. utilities: electricity (see principal discussion in Energy sector)

water supply (see also Health sector)

sanitation

2. Institutions involved.

a. Central government: Public Works Ministry, Min. of Industry(energy, water), Min. of Agriculture (irrigation), Min. of Health (water in the context of basic needs).

b. parastatals

c. role of private contractors

d. local authorities

e. regional development authorities?

3. Performance and potential

a. have info on roads (public works as distinct from transportation) but no expenditure data;

b. waiting for info on housing, construction, irrigation, water supply and sanitation;

c. no info relating to irrigation (e.g.,

expenditures, extent of involvement) other than that included in IBRD's Ag. Sector Memorandum.

Constraints: (esp. for water)

--funding for investments and maintenance

--lack of appropriate technology?

--manpower deficiency (numbers and skills)

--lack of imports: equipment and materials

--high cost of providing services due in part to inadequacy of transport system? but also to the low population density

4. Government objectives and plans

a. infrastructure

b. transport, including waterways

c. housing

d. utilities

5. Corrective measures

--WHO/IBRD study for water supply?

--Min. of Health plan to provide water and sanitation to 400 of its rural centers?

--other

6. Institutional and policy constraints

--administrative proliferation and poor coordination between planning and execution (primary health care report notes that 15 government organization are involved with potable water)

--unclear distinction over provision of infrastructure and maintenance among central agencies and between central and local agencies.

--poor planning

--poor management at government and parastatal level (include supervision of work)

--policy on user fees or pricing of services? their relation to subsidies, excess demand, or non-provision of services

--for rural water supply, the possibility that cultural constraints affect adversely the demand for and use of the service

7. Role of external donors.

a. Pangalanes canal? include use of U.S. counterpart funds for part of the work and equipment

b. Energy production discussed in Energy sector

c. Roads: discussed in Transport sector?

d. IBRD 1980 project for Antananrivo water and sanitation.

e. WHO/IBRD July-Aug. 1982 mission on water supply

f. U.S. T.A. to Min Pub W.

8. Preliminary assessment of efficiency, development prospects

impossible without further information

9. Major information and analytical gaps.

10. Pros and cons of AID interventions.

possible assistance in rural water supply

housing? can't tell without having some basic information

F. Social Services

--GDRM has shown evidence of a great concern for social equity. Approximately 40 % of government recurrent budget has been allocated to social services in recent years, and this probably does not count social expenditures incurred by parastatal enterprises.

TABLE 1

MADAGASCAR: BUDGETED SOCIAL EXPENDITURES 1/
(FMG Billion)

	1975	1980	1981	1982	1983
Total current expenditures	48.6	111.7	111.4	130.4	134.0
Social expenditures	17.9	43.3	41.3	n.a.	n.a.
of which:					
Education	11.6	31.4	33.1	34.1	37.3
Health	5.5	10.3	6.8	10.3	10.8
Total investment expenditures	11.2	48.1	23.1	41.0	43.7
Social expenditures	0.9	6.7	2.4	n.a.	n.a.
of which:					
Education	0.5	4.8	1.3	4.0	0.7
Health	0.4	0.4	0.3	3.1	1.6

1/ Data up to 1981 come from the consolidated accounts prepared by the IMF. Data for 1982 and 1983 are preliminary and come from information collected by the Embassy. Although these two series may not be totally compatible, they serve to show the high proportion of social expenditures. While health expenditures are relatively lower, there is an (unverified) presumption that they may have accounted for a larger proportion of the total before 1975.

1. Types of activities.

A. Education:

1) primary and secondary formal education

2) adult literacy: program initiated in 1977

B. Training

1) government in-house:

--in-service technical

--management (IMATEP, one other)

2) training provided by parastatals to their own employees

3) vocational training

4) socio-economic advancement centers for disadvantaged persons who have had to drop out of school

5) use of fokolona institutions (village and district councils?) to promote learning

6) artisan training and improvement centers

C. Health

1) overall system appears to be organized to spread services as widely as possible via 35 medical subdivisions country-wide

2) curative: 19 major hospitals,

approximately 155 local hospitals and medical centers

3) preventive:

--340 health units and 220 clinics or infirmaries staffed by paramedical personnel (nurses and midwives) fairly equitably distributed by region.

--recent creation (1979?) of rural primary health care program which currently services approximately 2/3 of all firaisana (850 centers functional).

--related training and re-orientation of new and existing health staff

--emphasis on maternal and child care

--concern relative to safe water supply is reflected in the activities of the Ministries of Health and Industry, Mining, and Energy as well as over a dozen other national agencies.

4) recent initiative to study traditional medecine at central level (with a view of incorporating useful aspects?)

D. Nutrition

--initiatives included as part of the primary health care program

--also in maternal and child health

E. Population/ family planning.

--data: rate of population growth ; fertility ; mortality (of which infant); morbidity ; dependency ratio

TABLE
MADAGASCAR: DISTRIBUTION OF POPULATION BY PROVINCE

Total	Antan.	Fiana.	Toama.	Mahaj.	Tolia.	Antsi.
I. Population levels, 1981. (millions)						
8.9	2.6	2.1	1.4	0.9	1.2	0.7
II. Population density. (Inhabitant per km^2)						
15.1	43.7	20.3	19.1	6.4	7.5	16.4
III. Urban/rural distribution. (Percent, based on 1975 census)						
A. Urban:						
16.3	26.2	10.2	11.8	15.0	9.1	22.1
B. Rural:						
83.7	73.8	89.8	88.2	85.0	90.0	77.9

Family planning

--no official policy; govt. argues 1) there's insufficient data from population control measures in other countries to be able to judge their effectiveness, 2) Madagascar is not overpopulated relative to land area, 3) the measures taken to promote economic development will in and of themselves (in conjunction with education measures) lead to a natural decrease in the birth rate.

--should the goal of family planning be to promote better health for mothers and children, or to limit the size of the population?

--stress "responsible parenthood"

--while there is no official policy, the GDRM encourages the activities of NGOs (among them the International Planned Parenthood Federation), does not enforce the 1920 French law against contraception, and allows sale of contraceptives under a physician's prescription.

2. Institutions involved.

--Ministries: Education, Health, Population, productive ministries for training programs.

--Training institutions: IMATEP, the other government institute, parastatals and enterprises.

--Local governments: have responsibilities in expressing their preferences for the type of social services they would be interested in and also for providing in kind support (e.g. in building and furnishing facilities for primary health care aides). Also are expected to fulfill the traditional educative and training functions of the fokolona system.

3. Government objectives and plans.

Social goals are ambitious. They may have been thwarted or at least set back by a number of constraints, including: shortage of recurrent funds for programs; insufficient equipment or materials; poor infrastructure and communications (inadequate road network, lack of vehicles, poor

sanitation and lack of amenities in general are among the disincentives for personnel to become involved in the social programs); inadequate planning and coordination among the many active agencies.

A. Education

1. provide equality of opportunity to all citizens by providing a school in every village. It appears that the discrepancy between social goals and economic realities (insufficient employment) now requires serious re-thinking of this objective.

2. Plan in progress, assisted by UNESCO (and French?) to review the whole educational structure.

3. Want to reorient the educational system to be more responsive to the needs of agricultural and rural development.

4. At higher education level, develop Regional University Centers for each province.

B. Training

1. build up IMATEP

2. Stem movement of population to larger cities and create jobs by developing vocational training in localities, specifically to be able to respond to local needs for technical skills (e.g.: masonry, metal working, electricity, public works, construction, agriculture). The Centers for

Socio-economic Advancement (Centres pour la promotion socio-economique), initiated in 1979, are intended to give such opportunities to youth, ages 14 to 20, who have not been able to continue their education. These centers were to be created at the fivondronam level, so there would eventually be 115 in all. By locating in the vicinity of large industrial units which require small industry linkages for inputs, repairs, or other services, the trainees would have the opportunity to familiarize themselves with the equipment with which they would eventually be working. It was expected that after completion of training, some graduates would be able to set up their own cooperative units at the more rural firaisana level.

3. support skills development and establishment of artisans workshops through the National and Regional Centers for Malagasy Artisan Crafts sponsored by the Ministry of Industry. It is not clear how these centers and those sponsored by the Ministry of Population coordinate their objectives and activities.

4. training and retraining under Population Ministry is motivated by a concern for undertaking appropriate activities in a development context and for facilitating productive employment.

C. Health

1. create and staff the remaining

primary health care centers to help extend services to the 44% of the population which still does not receive satisfactory care. 540 of these centers are in progress.

2. increase the availability of safe water. This is an objective for both the Ministry of Industry and the Ministry of Health, which has a plan underway to insure safe water and sanitation to 400 of its rural health centers.

3. reduce the incidence of communicable disease by revamping the relevant facilities in each of the 35 medical districts.

D. Nutrition

The GDRM expresses concern for the nutritional status of the population but does not appear to have formulated a specific nutrition policy. Improved nutrition is expected to follow from increased food production, better health practices, and better understanding of nutritional practices. These achievements are being promoted respectively by the government's agricultural, health, and education/training initiatives.

The Secretary General of Health stated that the population is moderately well-nourished. He said that malnutrition is particularly evident in Antananarivo and some other urban areas and affects children from 0-5 years. Outside of urban areas, malnutrition is more likely to be related to taboos, for instance against certain types of food. Based on

the water supply study, there are apparently also taboos which affect the consumption of water, surface water being preferred to "dead" water from underground.

A survey undertaken of the rural population in 1978 in conjunction with a basic needs seminar (Primary Health Care document, 1983, p.12) found that although caloric needs were met, there was a 5.5% protein deficiency and a 13.7% carbohydrate deficiency ("besoin lipidique") in the diet. Furthermore, calcium needs were not being met satisfactorily.

E. Population

The primary concern of the government, which motivates most of its activities related to population matters, is to find ways of stabilizing the rural population and stemming migration toward urban centers. As in the case of nutrition, it appears that the food production, health, and education/training initiatives form the core of the stabilization plan. At the central level, there is concern for improved data collection and analysis facilities in order to improve planning and monitoring of projects.

Provision of services for women and children form an important part of the GDRM's pronouncements on its priorities in population matters. This includes special training for women (who have less education by and large) to enable them to join the work force as well as child care services to facilitate women's participation. Enterprises, public and private, are

expected to provide such services to their workers.

4. Performance and potential of sector; constraints and corrective measures underway.

A. Education

--school enrollment as a proportion of age cohort is not available, partly because the census data for rural population has not been processed due to lack of funds.

--one available estimate indicates a substantial change in the proportion of children aged 10 to 14 classified as "economically active": from 40% in 1975 to 20% in 1979. This decrease might be explained in part by the greater availability of educational facilities in the later period.

TABLE
MADAGASCAR: EDUCATION DATA

	1963	1971	1975	1980
A. Enrollment				
Primary	549,770	938,015	1,100,000	1,597,596
Secondary	12,989	30,074	53,400	133,500
University	1,032	n.a.	9,874	33,449 1/
B. Number of schools				
Primary	3,019	5,856	n.a.	11,352
Secondary	44	106	135	550

1/ Enrollment for 1981-82.

--in spite of creation of 5 Regional University Centers, the Antananarivo campus still

accounts for over 75% of total enrollments (1981-82).

--relevance of course of study: over 50% of University students are in the fields of law, economics, sociology, management, and letters. Only 1% are in agronomy; less than 30% in sciences and technical fields.

--high University enrollments may be encouraged by the large proportion of scholarships available: from 36% in 1975-76, it climbed to almost 80% in 1981-82. 80% of all scholarships awarded were full scholarships, including funds for books and materials. Award of a scholarship implies an obligation to the recipient to work for the government for 10 years after graduation.

--the very high rate of increase in overall student enrollments has resulted in a marked lowering of educational quality. In primary schools: to enable rapid expansion, lycee (academic secondary schools) graduates were recruited to staff rural schools. This apparently was not very successful. At the University level: data seem to indicate a high dropout rate, and a poor record of degree completion.

--no data on achievements of the adult literacy program.

Sector constraints: lack of equipment and materials, insufficient teacher quantity and quality, poor supervision, poor initial planning relative to the needs and capacity of the

economy.

Corrective measures: GDRM is undertaking an evaluation of the whole educational system, with assistance from UNESCO and perhaps France.

B. Training.

1. Primary Health Care aides are recruited from villages themselves. They must have an education equivalent to 8th grade. The training program lasts 14 months, and prepares the aides to care for children and normal pregnancies and deliveries. In addition, the aides are expected to demonstrate good nutritional and sanitary practices. The village (firaisana), which must provide a furnished dwelling, is also required to contribute a plot of land on which the aide can grow a variety of vegetables to serve as dietary supplements. It is hoped that this example will induce local people to do the same. We have no data on which to judge the success of this program. Centers continue to be created around the country.

Constraints: funding, availability of trainers, logistical support (transport, communication, availability of materials and medications, poor documentation, poor motivation on the part of some villages.

2. In-house government training services seem to lack funds, trainers, coordinated planning (i.e., there may be duplication of efforts), etc...

3. Artisan training projects lack funds for equipment.

4. We have no information on the progress of the Centers for Socio-Economic Development.

C. Health.

1. In addition to training initiative for Primary Health Care centers, GDRM is trying to improve integration of all levels of its health services. There is an effort to revitalize the disease control capacity of the 35 medical regions especially with respect to combatting malaria. It is not clear what exactly is being done, given the inadequacy of the transport system, lack of recurrent funds, shortage of medecines, etc...

2. Lack of health personnel for effective information-gathering and documentation to help in monitoring and program development. There is an effort to improve the data-collecting capacity of the rural health aides in order to remedy this situation.

3. Water supply

Constraints: Ministry of Health personnel needs improved motivation to support the Ministry's (new?) local care thrust; need more effective integration of various levels of health services; transport, communications, and equipment availability; need better supervisory mechanisms.

D. Nutrition.

E. Population.

The government's primary concern is to stem the flow of rural to urban migration and if possible to reorient people toward sparsely populated but potentially productive areas. Resettlement plans which were tested in the mid-1970s have apparently been discontinued.

Relative to family planning, the government is content to give moral support (and apparently some small amount of funding?) to NGOs working in this area.

5. Role of External Donors.

A. Education

B. Training

C. Health including water supply and sanitation

D. Nutrition

E. Population

6. Preliminary assessment of development prospects under current conditions and policies.

7. Major information and analytical gaps

8. Pros and cons as Sector for AID assistance.

A. Pros and cons

B. Possible assistance strategy

C. Potential Gains of AID intervention:

1. target groups

2. potential for improved overall economic performance as a result of interventions

D. AID's comparative advantage

E. Likely political benefits and risks

III. Other donors

A. Overall levels

Aggregate data on foreign assistance to Madagascar has not been available past 1981. For the four year period 1978-1981, Table -- shows that overall ODA commitments decreased after 1980, although some doncrs, notably France and the U.N. agencies increased their concessional assistance throughout the period.

TABLE 1
Madagascar: ODA commitments by major donor
(in millions of U.S. dollars)

	1978	1979	1980	1981
France	36.9	48.2	62.5	70.1
Germany	1.3	23.4	6.4	12.5
Switzerland	10.7	1.0	2.3	4.4
U.S.	1.4	2.1	--	10.7
OPEC bilat.	24.0	34.2	9.4	--
Subtotal (bilateral)	99.7	123.1	105.1	121.1
EEC (FED)	14.1	12.3	55.8	19.1
IBRD	33.0	49.0	61.5	29.9
AfDF		6.1		19.3
U.N.	4.4	7.2	10.4	12.4
OPEC multi.	10.0	6.5	5.0	10.0
Subtotal (multilat.)	61.5	87.6	132.6	90.8
TOTAL ODA	161.2	210.7	237.7	211.9

Source: OECD, Geographical Distribution of Financial Flows to Developing Countries, 1982

B. France

France has traditionally been the largest bilateral provider of external concessional assistance to Madagascar. Between 1978 and 1981, French ODA commitments averaged about 25 percent of all bilateral and multilateral ODA combined, and almost 50 percent of bilateral ODA. Indeed Madagascar has become France's second largest aid recipient, after Senegal.

In 1982, disbursements of French aid increased to approximately $95 million, almost 60 percent above the 1981 level of $58 million.[1] /Footnote: Source: Fonds D'Aide et de Cooperation, report on 1982 French assistance to Madagascar; values in French francs are converted to dollars at the average rates of $1 = FF 5.4 and $1 = FF 6.5 for 1981 and 1982 respectively./ This jump was due in part to partial disbursement of a structural adjustment loan valued at FF 230 million, or approximately $35.5 million. In terms of French francs, technical assistance (including commodity imports) and capital assistance increased by 43 and 69 percent respectively over 1981. (Technical assistance: 1981, FF 181.9 million; 1982, FF 261.1 million, or $40 million. Capital assistance: 1981, FF 128.1 million; 1982, FF 216.4 million, or $33.3 million.)

Over 80 percent of French aid (excluding structural adjustment) was concentrated on 3 sectors in 1982:

1. Rural development, including support for agricultural production and research as well as water and forestry resources. Among others, France's FAC produced a study on the supply of inputs to the rural sector.

2. Industry, in particular agro-industries such as sugar, and flour milling. France also extended support to the textiles and paper industries and provided loan money for small industry. France is supporting the extension of the oil refinery and has participated in the financing of the Andekaleka hydroelectric project.

3. Transport and communications. France's contribution in the transport sector has been focused on railroads, through the provision of railroad construction and maintenance equipment as well as rolling stock and spare parts. Technical assistance has also been provided to encourage improvements in railroad management practices and to help in the development of a transportation plan.

France has been active in telecommunications, assisting in rehabilitation of the telephone system and providing a regional transmitting system in the south of the country.

C. On-going projects

The Direction Generale du Plan provided a listing of current projects financed by external donors as of August, 1983. (See Table 2.) This list indicates a total of approximately $200 million is currently committed to projects of one to five years' duration.[2] /Footnote: A few projects of under $100,000 have been omitted from the table./ About half of this amount is earmarked for agricultural production, including related infrastructure rehabilitation (e.g. irrigation networks) and livestock. Education and training ($30

million), forestry ($23 million), rural credit ($16 million), and health ($11 million) account for most of the remaining funding. Project-related technical assistance, technical studies, commodity imports, and emergency relief operations amount to $11 million.

In terms of exposure by donor, the IBRD is far and away the most heavily involved in projects, at a level of $120 million committed over an average period of four years. The other major donors are the African Development Bank, $26 million, France, $17 million, IFAD and the U.N. agencies, approximately $14.5 each, and Germany, $6.7 million.

Surprisingly, the information provided makes no specific mention of projects undertaken in the transport sector. These would include at a minimum World Bank and Chinese-assisted highway projects as well as French assistance to the railroads, mentioned above. Current IBRD transport sector funding alone, (Highway projects V and VI) amounts to almost $70 million, and three other projects (industrial bank credit, heavy oil exploration, and water/sanitation) total another $37 million.3/ /Footnote: Source: IBRD, Madagascar, Cotton Development Project Report, Dec. 5, 1983, Annex 11./ Thus the information in Table 2 and on the IBRD's exposure above is understated by over $100 million.

Drafted: AFR/DP, C. Claude, 12/29/83, 9370

TABLE 2
MADAGASCAR: ON-GOING PROJECT ASSISTANCE
(commitments in millions of dollars)

	Ag. Production & Infrast.	Ag.Research	Credit	Forestry	Instit.Devel.	Infrastructure	Education & Training	Health	Tech. Asstce.
IBRD	Livestock I 4 yr. 9.6		BTM Rur.Dev.Bank 3 yr. 11.5	2nd Project 5 yr. 20.0	TA for Agric. Institutions 2 yr. 5.7		2nd Project 5 yr. 14.0		Antananarivo flood control 3 yr. 2.3
	Livestock II 4 yr. 15.0						Accounting 5 yr. 11.5		
	Lac Alaotra (rice) 5 yr. 18.0								
	Mangoky Ag.Dev. (rice & cotton) 3 yr. 12.0								
IFAD	Mangoky Ag.Dev. (with IBRD) 3 yr. 6.5								
	Livestock II (with IBRD) 3 yr. 6.0								
AfDB	Irrigation Infrastructure 5.5		BTM Rur.Dev.Bank 4.5					Hospitals improvement 7.3	
	2nd rice infras. 9.1								

	Ag. Production & Infrast.	Ag.Research	Credit	Forestry	Instit.Devel.	Infrastructure	Education & Training	Health	Tech. Asstce.
France	Sugar plantation 11.0	Wheat experimentation 4 yr. .7 Barley culture 2 yr. .1 Seed multiplic. center 1 yr. .7				Irrig. infras. (Antananarivo) 1.5 Lac Alaotra infrastructure 1.3			Training for cotton indus. .4 Lac Alaotra extension study .3 T.V. studio equipment .2 Flood relief .3 Medical commod. .3
Germany	Irrigation infrastructure 1 yr. 1.3	Fisheries research and experimentation 2 yr. 1.6					T.A. and commod. for school sports 2 yr. .9		Integrated development 2 yr. 1.0 Livestock health laboratory 3 yr. 2.0
Norway	Agricultural Development 5 yr. 2.2								
Switzerland				Wood products research .4					
Intern.Fund for Science & Technol.									TA for marine research 3 yr. .9

	Ag. Production & Infrast.	Ag. Research	Credit	Forestry	Instit. Devel.	Infrastructure	Education & Training	Health	Tech. Assice.
UNESCO							Rural educ. 3 yr. .2		
UNFPA							Educ.in Popul. matters 3 yr. .5	Health & Demog. statistics 2 yr. .6	
UNICEF							Basic education 3 yr. .8 Pre-school activities 3 yr. .6	Basic health 3 yr. 1.5	
FAO						Irrigation rehabilitation 1 yr. .2			Procurement & extension for fertilizer 3 yr. 1.0
WFP				Forestry & Regional Devel. 3 yr. 2.6					TA for charcoal production 5 yr. .5
WHO							Training for health workers 2 yr. .2	Comprehensive health services 2 yr. .3	
UNDP						Urbanization 2 yr. .2	Youth services 4 yr. .9 Support for INPF 5 yr. 1.6	Handicapped services 5 yr. .9	TA for improved seed production 4 yr. 1.7
									GRAND TOTAL

~~III. Summary of Other Donor Assistance~~

~~(To be drafted)~~

IV. Additional Analyses Needed (Summary and Priorities) (Scopes of work, duration of effort required, team composition, and proposed methodology)

(To be drafted)

V. Preliminary Summary of Views Regarding Possible Priorities for AID Interventions in Madagascar

A. Current AID Activities in Madagascar

AID has been managing a Title ___ PL 480 food commodity import program in Madagascar, which has brought in mostly rice since 19__, when it began as an humanitarian response to domestic rice production shortages due to weather related causes (first cyclone damages, then drought). This program will amount to US $____million in 1983, and will finance the importation of ___MT of surplus American rice. PL 480 rice imports amounted to ___MT in 1982, or ___percent of total rice imports. Since concessional rice imports, by augmenting domestic supplies, help the GDRM keep the consumer and producer prices of rice low, which has become a serious disincentive to greater production while at the same time encouraging higher levels of rice consumption, the economic justification of this program--at least for continued imports of rice--should be subjected to critical review. Other PL 480 commodities, such as vegetable oils, which are in short supply and must be imported, since insufficient quantities can be produced locally, might be more appropriate.

AID is currently engaged in discussions with the Ministry of

Public Works preparing to provide some short term technical assistance for their annual road maintenance training program for local government personnel supervising the actual maintenance of roads. This assistance would be funded out of a centrally-funded project, _____, and is expected to take place in early 1984.

In addition, the centrally-funded African Manpower Development Project (?) funds 6 to 8 new scholarships each year for Madagascar scholars to study in the U.S. The selection process is administered by the American Cultural Center, based on GDRM choices as to priority fields of study.

B. Relative Merits of Different AID Instruments

The most urgent need facing Madagascar at present is for additional foreign exchange to help relieve the balance of payments crisis and finance critical imports of inputs needed in the various productive sectors of the economy. In view of the economic reforms urged by the IMF and World Bank and either already agreed to by the GDRM or under active review, and in view of the slow economic recovery presently underway in the industrial countries which should eventually result in larger export demand for Madagascar, the current dire shortage of foreign exchange is expected to gradually be alleviated over the next few years. The present need is critical to the success of Madagascar's current economic reform and development efforts, which represent an important departure from the policies of state control and ownership of the last decade.

It is also clear, with current budgetary and manpower con-

straints and with the urgent priorities of rehabilitation and recovery facing the country, that the GDRM should not initiate any more new productive projects for a few years, but should concentrate its resources on those priorities and on completing the most viable of the projects already underway. This would be in line with the strong recommendations of the World Bank and would argue against most new projects that might be funded under an AID development assistance (DA) program. Appropriate exceptions would be those projects which aimed at improving GDRM capacity to manage its development program, such as those funding training, data generation, policy research and analysis, development planning and similar activities. Institutional development activities such as these improve the absorptive capacity of the host-country government over the long term, and do not require large amounts of resources, in comparison with infrastructure investment needs, for example.

In this country context, if the U.S. Government decided to expand its assistance program beyond the current PL 480 program and small amounts of ad hoc training and technical assistance, the most appropriate modality for most of that assistance in the immediate future would seem to be a Commodity Import Program (CIP), financing badly needed imports to assist the GDRM in its rehabilitation and recovery program. Given sufficient time for careful planning and coordination with other donors, in collaboration with GDRM authorities, small amounts of DA funds could be allocated for critical training, data generation, analytical, development planning, and other institutional development needs, to help the GDRM better manage its economic policy matrix and its

entire portfolio of development activities. Within a few years, after the recovery program is well underway, the policy context is improved, and the balance of payments crisis has been alleviated, other DA projects could be considered.

Since AID does not at present have an office in Madagascar and, although a small representation is currently being planned for the near future, its own project management resources for that country are likely to remain limited for the near future, this approach has the added advantage of starting out with relatively fewer demands for AID project management personnel, as CIP funds are relatively easier to administer than a DA portfolio of the same annual magnitude.

C. Some Thoughts on Sector Priorities for AID Assistance

1. Transport Sector

The transport sector is in such bad shape it has become one of the most important bottlenecks in almost every economic sector of Madagascar. Successful recovery and development in the other sectors will depend heavily on the rehabilitation and better maintenance of the road and rail networks and of the related transport vehicles and equipment. In addition to the sheer physical problems of commodity movement, it is difficult to get technical personnel and managers to travel to rural areas when the roads and vehicles are in such bad condition. For the immediate future this places this sector in top priority for assistance, since its improvement is a prerequisite for successful development of the other sectors.

Substantial investment funded or planned by other donors

already covers most of the hard-surfaced, trunk line roads, but this represents only about one quarter of the total road network and is not sufficient to have a satisfactory impact in rural areas. Considerable effort is still needed to upgrade rural and feeder roads to facilitate input supply, agricultural product marketing, and the availability of incentive consumer goods.

Interventions in this sector offers the opportunity to cooperate with other donors in a coordinated attack on the problem, and they would address a constraint presently given the highest priority by the GDRM. They could easily take the form of either or both CIP and DA assistance modes, in various combinations. CIP foreign exchange funds could be used to import priority road maintenance equipment and spare parts as well as transport vehicles and parts, while local currency generations can be allocated to help the GDRM finance rural road building and maintenance activities. DA funds could be used to finance technical assistance, training programs, and larger road construction activities.

2. Small-scale Agro-industry

Althcugh more specific information is needed on the assistance possibilities in this subsector, there are several reasons why AID might want to consider it a second priority for assistance. Successful agricultural development will depend on dependable markets for the various products, and a well-developed domestic processing and packaging industry helps to assure those markets. Madagascar agricultural output is fairly well diversified, which helps to reduce the risk serious economic damage from

bad weather, pests or diseases which might affect a particular crop or crops in any one year. Thus agro-business opportunities based on several different crops exist and should be encouraged, such as for canning (citrus fruits, juices, beans and other vegetables), the manufacture of instant coffee, soap (using domestic vegetable oils), textiles (from cotton), leather goods, etc.

Developing a better capacity to process primary goods produced locally is considered high priority by the GDRM, as is the encouragement of small, rural, indigenous and private enterprises. Not only can such development enhance the markets for agricultural production, it can also provide more jobs for the labor force, since these activities are fairly labor intensive, thus further increasing rural incomes. Transportation is presently a serious constraint. Assistance to this subsector could be combined with assistance to necessary rural roads.

UNIDO has been assisting the GDRM in planning for the promotion of small and medium scale industries and has sponsored a considerable amount of analysis in this area, and they are now looking for sources of finance to fund the proposed program. If AID decides to renew its development assistance to Madagascar it could very readily start off by "piggy-backing" on analytical and planning work already done under UNIDO auspices, funding specific groups of small and medium scale industries, such as rural agro-industries, until it has time to do more analysis and planning of its own.

V. C. 3. Agricultural Sector

While the development of the agricultural sector should receive the highest priority from the GDRM and its major donors, in view of its dominant position in both overall economic and export production, there are a few reasons for not choosing direct support to agricultural production activities as the top priority for AID assistance at this time. The key constraints facing the agricultural sector, discussed in Section II.A. above, are deep-seated, complex, and interdependent and will require considerable time and expense to overcome. It would be difficult for a small, new development assistance program to deal with them satisfactorily.

Despite recent reforms in the right direction, the Madagascar policy matrix is still heavily biased against agriculture, particularly the pricing, foreign exchange rate and marketing policies. Until they are substantially turned around, productive agricultural projects are very likely to founder in a morass of inappropriate prices and inefficient marketing arrangements that depress their financial viability. For the GDRM to agree internally to substantially turn them around will probably require the prior development of much better agricultural and marketing data and in-house analytical capability than presently exists, and this will take some time and investment in institutional development.

Alleviating the transportation constraint is also critical for successful agricultural development, since it will depend on more efficient transport to lower the costs of production inputs, of marketing farm products, and of making incentive consumer

goods available in rural areas.

Agricultural extension services cannot presently reach small farmers effectively, making it difficult to introduce more productive technology in the largest part of the sector. This constraint will require a considerable amount of time and institutional development to break.

Finally, other foreign donors are assisting Madagascar address these constraints in the agricultural sector with much larger amounts of assistance than AID can provide, but until their efforts start to achieve positive results a small AID-funded production-oriented project would continue to suffer from them.

AID is likely to find a more useful and successful initial role in helping the GDRM address the prerequisites for success in agriculture, even though the project outputs might not be as "visible" as those of a production project. Examples of such prerequisites can be found in rural transport (rural road maintenance and the import financing of vital spare parts and equipment), in agrobusiness development, in improved data generation and analysis, and in better development policy and program planning and management. These are all areas in which a small, carefully designed program can make a significant contribution.

4. Energy (to be drafted)

5. Rural Water Supply

Another attractive candidate for AID assistance is a continued effort to improve rural water supplies. AID funded the

drilling of rural wells in the early 1970's in a program that is still remembered with appreciation by many Malagasy. Only 16 percent of the rural population has access to safe water sources, according to one recent estimate.* The GDRM places considerable

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*World Bank, Madagascar Economic Memorandum, 11/3/81, Social Indicators Data Sheet.

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priority on continuing this effort and is currently trying to improve rural water and sanitation facilities through their rural health initiatives. Some PL 480 counterpart funds are currently being allocated to this activity. The success of such an effort, aside from its importance on humanitarian grounds, is important for the long-run success of economic development in Madagascar, since the availability of safe water is an important amenity people look for in rural areas, and it helps to determine migration patterns and the ease with which these areas can attract and hold skilled and technical personnel.

A rural water initiative could utilize either DA or CIP funds, for equipment and materials and DA funds for technical assistance. While this area is important, it is probably of somewhat lower priority at the present time than assistance to the productive economic sectors, in view of the current economic crisis facing Madagascar.

D. Critical Needs to Support Any Effort

Two areas of possible AID support are critical to the success of GDRM efforts in any of the regular economic sectors discussed above. These are efforts to improve the socio-economic

data base on which all development analysis and planning depends and to improve the in-house GDRM capacity to analyze that data, plan appropriate development programs and projects, consider the effects of alternative economic policies and interventions, and manage approved programs and projects efficiently.

Better and more timely socio-economic data is a critical need for development planning in virtually all sectors, except perhaps for a few specific agricultural crop subsectors where reliable data is still being collected. Even where data is still being collected the responsible agencies usually lack the funds and a sufficiently trained staff to process and disseminate it in a timely fashion. Existing data is more often than not unpublished and scattered throughout the government and its various agencies in small offices, making it extremely difficult for potential users to access it. Interventions could take the form of some additional funds for collection and/or processing, including technical assistance on how best to do it, and perhaps some equipment to support particular operations. AID could consider assisting with some data collection and processing activities in conjunction and in support of its own background analysis required to support programmatic decisions.

Technical assistance and training to improve economic and policy analysis, development planning and management at the central government level could result in very high returns from the design of better economic policies and development programs, thus enabling the GDRM to utilize all the resources at its disposal for efficiently and more effectively for development purposes. Since other donors are already supporting some efforts in this

direction, AID would want to design and coordinate any additional activities of its own carefully, but it is an area in which AID has some comparative advantage vis-a-vis most other donors. A good opportunity exists to provide such assistance through the recently established Malagasy Institute of Planning Technology (IMATEP), which was set up precisely to provide such services to the various ministries and agencies of the Government, but which must first develop its own capacities to do so. Other government training institutions and units within individual ministries and parastatals also exist which could benefit from such technical assistance.

CDSS MACROECONOMIC ANALYSIS TEAM

C. Stuart CALLISON

Colette CLAUDE

July, 21 - Aug.3, 1983

Friday, july 22, 1983

15:00 Mr Philippe RAJAOBELINA

Directeur General Adjoint charge de la conjoncture et du budget Economique

Mr Daniel RAKOTOMAVO
Directeur General Adjoint du Plan charge de l'Appui et de la Coordination

Mr Armand RAZAFINDRAKOTO
Directeur du Controle du Plan

Mme Lalao RAHARISOA
Chef du Service de la Cooperation Internationale

Monday, july 25, 1983

09:00 Mme Zinah RASAMUEL
Directeur de l'emploi et de la Main d'oeuvre
Ministere de la Fonction Publique, du Travail et des Lois Sociales

11:00 Dr. Emmanuel ANDRIAMAMPIHANTONA
Secretaire General
Ministere de la Sante Publique

15:00 Melle Renee RAZAFINTSALAMA
Directeur General
Banque Centrale de Madagascar

Mr Robert RAMELINA
Directeur du Credit
Banque Centrale de Madagascar

17:00 Mr Domimique JOSEPH
Directeur Adjoint
Caisse Centrale de Cooperation Economique

Tuesday , july 26, 1983

09:00 Mr Philippe RAJAOBELINA
Directeur General Adjoint charge de la Conjoncture et du Budget Economique

Mr Claude RAMAHAROMBANDRO
Directeur de la Plannification Globale
Direction Generale du Plan

Mme Vonitsalama RALAMBO
Chef du Service des Analyses et de la Conjoncture
Direction Generale du Plan

15:00 Mr Joseph RANDRIANASOLO
Ministre de la Production Animale, de l'Elevage, des Eaux et Forets
Ministere de Production Agricole et de la Reforme Agraire

Wednesday, july 27, 1983

08:15 Mr Roland RAZAFINTSALAMA
Assistant
U.S. Cultural Center

09:00 Mme Cecile RAMANITRERA
Chef du Service de la Programmation
Direction de la Programmation
Ministere de la Production Agricole et de la reforme agraire

10:30 Mr Raphael RAMANANA RAHARY
Directeur de l'Institut National de la Statistique et de la reforme Economiq

Mr Guy RAZAFINONY
Chef du Service des Statistiques Generales

Mr Iharivony RANDRETSA
Chef du Service de la Population

Mr Bernard RANDRIANARISOA
Chef du Service des Enquetes et Menages

15:00 Mr Harison SENN
Directeur de la Population
Ministere de la Population et de la Condition Sociale

16:30 Mr Aubert ANDRIANTAVY
Directeur de la Plannification
Ministere de la Production Agricole et de la reforme agraire

Thursday, july 28, 1983

08:30 Mr Victor RAKOTOMANGA
Fonds National d'Investissements

16:30 Mr Elie RAMENASON
Directeur de l'Approvisionnement et du Conditionnement
Ministere de la Production Agricole et de la reforme Agraire

Friday, July 29, 1983

10:00 Guy RAZAFINONY
Chef du Services des Statistiques Générales
INSRE

10:30 Léonard RATOVONIRINA
Chef du Service des Prix, Direction du Commerce

Elie RAKOTOVAZAHA
Chef du Service de la Promotion
Direction des Echanges Extérieurs

Ministère du Commerce
1st Fl., Room 101
Ambohidahy

15:00 Meeting at the "Etablissement d'Enseignement Supérieur de Droit, d'Economie, de Gestion et de Sociologie (EESDEGS)" which will be led by Willy LEONARD, Responsable Pédagogique de la filière Economie.

Salle: Centre d'Etudes Economiques
Batiment A, 3è étage, Porte 407

Saturday, July 30, 1983

13:00 Depart Antananarivo to Mantasoa

Hotel reservations made at l'Ermitage
(three rooms including the chauffeur)
Reservations made under the name of Stuart, U.S. Embassy

Sunday, July 31, 1983

06:30 Depart Mantasoa to Perinet (Foret de Périnet)

Visit

11:30 Depart Perinet for Moramanga

13:00 Lunch at Le Grand Hotel, Moramanga

Back to Antananarivo

Monday, August 1st, 1983

10:00 François RAZATOVO
Secrétaire Général
Ministère de l'Industrie et des Mines

Blandin RAZAFIMANJATO
Directeur Général de l'Industrie et des Mines

Wilson RAKOTOARIVELO
Directeur des Mines et de l'Energie

Gérard ANDRIALEMIROVASON
Conseiller Technique

John ANDRIANASOLO
Conseiller Technique

15:00 Ministère de la Production Animale (Elevage) des Eaux et Forêts

Raphaël RABE
Secrétaire Général

Paul RANDRIAMBOLANORO
Direction des Eaux et Forêts

Jacques RAKOTOVAO
Service de la Machinisme Agŕicole

Dr. Henri Andriambololona
Direction de l'Elevage

Dr. Seth RAMAROSON
Directeur de l'Elevage

Pierre RAKOTOARISON

Mme. Marie-Claire RALI
Chef du Service de l'Artisanat

16:00 CENAM

Sebastien RAFARALAHY, Directeur Général

17:00 CETA

Odilon RABETSIMATOHODRIAKA, Directeur des Opérations

Tuesday, August 2, 1983

08:00 ONUDI Team, composed of

Gerardus TEUNISSEN
Permanent Resident
UNDP

ONUDI Team:
Mme. Beabrle CHAMBALU
(she leads the team)
Service de l'Elaboration et de
l'Evaluation des Programmes
ONUDI, Geneva

Patrick DEGROOTE
Consultant

Raymond RANDRIAMANDRATO
Conseiller Technique Principal
des Projets Pré-Investissements
UNDP

09:30 Directorate General df Plan

See attached for list of participants

15:00 Central Bank

See attached

..

Wednesday, Aug. 3, 1983

09:00 Rajaona ANDRIAMANANJARA
Directeur Général
IMaTeP

(You have to leave the Embassy at 08:40 and pass by the Cultural Center to take up Mr. Roland Razafintsalama who will accompany you)

Tuesday, August 2, 1983

09.30 Directorate General of Plan

Mr Andriantsoa RAJAOBELISON
Méthodes & Procédures

Mr Léon RAOELIKASY
Appui et Coordination Extérieurs

Mr Harivao Fils RAKOTOARINIA
Coopération Internationale

Mme Olga JESY
Service Contrôle des Projets Nationaux

Mr Edmond RAKOUTH
Service Appui et Coordination Extérieurs

Mme Sarah RAHAINGO
Service Coopération Internationale

Mme Idlao RAHARISOA
Service Coopération Internationale

MrDaniel RAKOTOMAVO
Directeur Adjoint du Plan, chargé de l'appui et de la Coordination

Mr Philippe RAJAOBELINA
Directeur Géneral Adjoint chargé de la Conjoncture et du Budget Economique

Mr Armand RAZAFINDRAKOTO
Directeur du Controle du Plan

Mr Rivo RAOBELINA
Directeur de l'Appui à la Plannification

Mme Vonintsalama RALAMBO
Chef du Service Analyse de la Conjoncture

Mr Eric RATSIMBAZAFY
Service de la Plannification de la Production des Investissements et du Commerce Extérieur

Mr Xavier R. RAKOTONIRINA
Service Analyse des Ressources

Mr Parfait RAVELOMANALINA
Service de la Plannification de la Construction

Mr René RAKOTO
Service des Etudes Générales

Mr Davidson RAMANANDRAIBE
Service de la Plannification de la Circulation

Mr Modeste RAVELOSON
Service de la Plannification de l'Agriculture

Mr Masiarivelo RAKOTOMAVO
Service de la Plannification Inter-Régionale

Mr Jean Pierre RAMDRIANASOLO
Service Information Statistique, documentation et Législation

Mr Félix RABEMANAMBOLA
Service de la Planification des Industries

Tuesday, Aug. 2, 1983

15:30 Central Bank of Madagascar

Robert RAMELINA
Directeur du Crédit

Claudine RATSIMBAZAFY, Mrs.
Directeur des Etudes

Louisette RAHAJARIVONY
Fondé de Pouvoir

MADAGASCAR: Gross Domestic Product by Industrial Origin, 1972-82 (FMG billions)

Sector	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
In current prices:											
Agriculture,Forestry & Fishing	82.4	96.2	54.0	162.4	169.2	185.7	187.6	212.5	249.1	324.9	414.7
Industry	52.3	60.2	66.7	70.6	76.2	89.9	93.6	114.5	124.3	119.4	158.2
Services	93.6	88.8	97.1	104.9	110.3	116.7	122.1	163.5	197.7	217.7	258.4
Pub.Admin.	40.9	40.6	41.8	42.4	48.9	52.5	59.6	72.6	83.6	93.0	110.0
Import Duties	13.9	11.0	13.2	14.9	14.3	23.3	23.7	32.0	35.1	25.1	24.1
GDP at Mkt Prices	273.1	297.6	372.8	395.2	421.1	468.1	486.6	595.1	689.8	780.1	965.4
In 1970 prices:											
Agriculture,Forestry & Fishing	73.7	74.5	81.3	80.9	73.9	76.3	71.3	76.4	78.3	74.8	77.8
Industry	49.2	48.2	51.4	51.4	46.7	48.1	50.1	56.5	53.0	42.4	37.0
Services	81.8	80.0	80.7	83.9	85.1	83.6	80.7	90.1	90.7	84.5	83.6
Pub.Admin.	38.2	36.3	32.6	32.2	35.3	35.5	37.3	40.0	41.7	42.6	43.5
Import Duties	13.0	10.2	8.2	9.0	8.5	9.9	9.3	10.1	9.6	5.1	4.8
GDP at Mkt Prices	253.9	249.2	254.2	257.4	249.5	255.4	248.7	273.1	275.3	249.4	246.7
Population 1000's	7100	7264	7432	7603	7815	8030	8250	8480	8714	8953	9199
Real GDP per cap.	36042	34306	34203	33855	31926	31806	30145	32205	31593	27857	26818
Percent Change		-4.8	-0.3	-1.0	-5.7	-0.4	-5.2	6.8	-1.9	-11.8	-3.7
Implicit Price Deflators:											
Agriculture,Forestry & Fishing	111.8	129.1	189.4	200.7	229.0	243.4	263.1	278.1	318.1	434.4	533.0
Industry	106.3	124.9	129.8	137.4	163.2	186.9	186.8	202.7	226.0	281.6	427.6
Services	102.2	111.0	120.3	125.0	129.6	136.3	151.3	181.5	218.0	257.6	309.1
Pub.Admin.	107.1	111.8	128.2	131.7	138.5	147.9	159.8	181.5	200.5	218.3	252.9
Import Duties	106.9	115.7	161.0	165.6	194.1	235.4	254.8	316.8	365.6	492.2	502.1
GDP at Mkt Prices	106.7	119.4	146.7	153.5	168.8	183.3	195.7	217.9	250.6	312.8	391.3

Sources: 1978-82--Directorate General of Plan; 1972-7--World Bank, Madagascar Economic Memorandum, 11/3/81, pp. 50-1, and World Bank, Madagascar Current Economic Situation and Prospects, 3/28/83, p. 34.

AID, REDSO/ESA: CSCallison, 9/1/83 (MADGDPIO)

MADAGASCAR: Gross Domestic Product by Industrial Origin, 1972-82 (~~FMG billions~~ percent)

SECTOR	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
	Percent Contribution to GNP:										
Agriculture,Forestry & Fishing	30.2	32.3	41.3	41.1	40.2	39.7	38.6	35.7	36.1	41.6	43.0
Industry	19.2	20.2	17.9	17.9	18.1	19.2	19.2	19.2	18.0	15.3	16.4
Services	30.6	29.8	26.0	26.5	26.2	24.9	25.1	27.5	28.7	27.9	26.8
Pub.Admin.	15.0	13.6	11.2	10.7	11.6	11.2	12.2	12.2	12.1	11.9	11.4
Import Duties	5.1	4.0	3.5	3.8	3.9	5.0	4.9	5.4	5.1	3.2	2.5
GDP at Mkt Prices	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Percent Annual Rate of Real Growth:										
Agriculture,Forestry & Fishing		1.1	9.1	-0.5	-8.7	3.2	-6.6	7.2	2.5	-4.5	4.0
Industry		-2.0	6.6	0.0	-9.1	3.0	4.2	12.8	-2.7	-22.9	-12.7
Services		-2.2	0.9	4.0	1.4	0.6	-5.7	11.6	0.7	-6.8	-1.1
Pub.Admin.		-5.0	-10.2	-1.2	9.6	0.6	5.1	7.2	4.3	2.2	2.1
Import Duties		-21.5	-19.6	9.8	-5.6	16.5	-6.1	8.6	-5.0	-46.9	-5.9
GDP at Mkt Prices		-2.6	2.0	1.3	-3.1	2.4	-2.6	9.8	0.8	-9.4	-1.1
	Annual Percentage Increase of Implicit Price Deflators:										
Agriculture,Forestry & Fishing		15.5	46.7	6.0	14.1	6.3	8.1	5.7	14.4	36.5	22.7
Industry		17.5	3.9	5.8	18.8	14.5	0.0	8.5	11.5	24.6	51.8
Services		8.6	8.4	3.9	3.7	5.2	11.0	19.9	20.1	18.2	20.0
Pub.Admin.		4.5	14.6	2.7	5.2	6.8	8.0	13.6	10.5	8.9	15.8
Import Duties		8.2	39.1	2.8	17.3	21.2	8.3	24.3	15.4	34.6	2.0
GDP at Mkt Prices		11.9	22.8	4.7	9.9	8.6	6.8	11.4	15.0	24.8	25.1

Source: Calculated from Table____.

AID, REDSO/ESA: CSCallison, 8/23/83 (MADGDPIO)

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MADAGASCAR: Gross Domestic Product by Expenditure, 1972-82 (FMG Billions)

Item	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
	In current prices:										
Consumption:											
Private	191.7	215.4	277.7	301.1	306.4	343.1	360.6	444.3	526.1	586.3	771.8
Government	52.6	51.4	58.9	60.4	66.6	72.8	81.6	103.0	117.8	130.0	146.7
Gross Dom.Capital											
Formation	37.9	42.6	50.8	50.6	53.9	60.2	70.4	150.8	162.4	149.7	136.0
Exports	46.3	50.4	68.8	74.5	78.9	97.6	96.1	95.3	96.8	96.4	123.2
Imports	-55.4	-62.2	-83.4	-91.4	-81.7	-105.6	-122.1	-198.3	-213.3	-183.6	-214.5
GDP at Mkt.Prices	273.1	297.6	372.8	395.2	421.1	468.1	486.6	595.1	689.8	780.1	965.4
									sum:	778.8	963.2
	In 1970 prices:								error:	1.3	2.2
Consumption:											
Private	178.3	172.9	168.8	167.2	162.9	167.2	163.6	175.1	175.8	154.9	159.5
Government	49.4	45.6	43.7	44.6	46.8	47.1	49.8	57.1	59.6	58.2	60.2
Gross Dom.Capital											
Formation	35.4	36.9	39.2	37.6	31.5	31.1	28.7	51.9	49.2	36.0	24.8
Exports	44.9	46.9	49.7	58.4	44.8	50.3	50.7	51.4	48.7	37.3	37.3
Imports	-52.1	-53.1	-47.2	-50.4	-36.5	-40.3	-44.1	-62.4	-58.0	-37.0	-35.1
GDP at Mkt.Prices	255.9	249.2	254.2	257.4	249.5	255.4	248.7	273.1	275.3	249.4	246.7
	Implicit Price Deflators:										
Consumption:											
Private	107.5	124.6	164.5	180.1	188.1	205.2	220.4	253.7	299.3	378.5	483.9
Government	106.5	112.7	134.8	135.4	142.3	154.6	163.9	180.4	197.7	223.4	243.7
Gross Dom.Capital											
Formation	107.1	115.4	129.6	134.6	171.1	193.6	245.3	290.6	330.1	415.8	548.4
Exports	103.1	107.5	138.4	127.6	169.4	194.0	189.5	185.4	198.8	258.4	330.3
Imports	106.3	117.1	176.7	181.3	223.8	262.0	276.9	317.8	367.8	496.2	611.1
GDP at Mkt.Prices	106.7	119.4	146.7	153.5	168.8	183.3	195.7	217.9	250.6	312.8	391.3

Sources: 1978-82--Directorate General of Plan
1972-77--World Bank, Madagascar Economic Memorandum, 11/3/81, pp. 52-53
AID, REDSO/ESA: CSCallison, 8/23/83 (MADGDPE)

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MADAGASCAR: Gross Domestic Product by Expenditure, 1972-82 (FMG-Billions)

Item	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
	Percent of GDP:										
Consumption:											
Private	70.2	72.4	74.5	76.2	72.8	73.3	74.1	74.7	76.3	75.2	79.9
Government	19.3	17.3	15.8	15.3	15.0	15.6	16.8	17.3	17.1	16.7	15.2
Gross Dom.Capital Formation	13.9	14.3	13.6	12.8	12.8	12.9	14.5	25.3	23.5	19.2	14.1
Exports	17.0	16.9	18.5	18.9	18.0	20.9	19.7	16.0	14.0	12.4	12.8
Imports	-20.3	-20.9	-22.4	-23.1	-19.4	-22.6	-25.1	-33.3	-30.9	-23.5	-22.2
GDP at Mkt.Prices	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Percent Real Change in Expenditure:										
Consumption:											
Private		-3.0	-2.4	-0.9	-2.6	2.6	-2.2	7.0	0.4	-11.9	3.0
Government		-7.7	-4.2	2.1	4.9	0.6	5.7	14.7	4.4	-2.3	3.4
Gross Dom.Capital Formation		4.2	6.2	-4.1	-16.2	-1.3	-7.7	80.8	-5.2	-26.8	-31.1
Exports		4.5	6.0	17.5	-23.3	12.3	0.8	1.4	-5.3	-23.4	0.0
Imports		1.9	-11.1	6.8	-27.6	10.4	9.4	41.5	-7.1	-36.2	-5.1
GDP at Mkt.Prices		-2.6	2.0	1.3	-3.1	2.4	-2.6	9.8	0.8	-9.4	-1.1
	Percent Change in Price Deflators:										
Consumption:											
Private		15.9	32.1	9.5	4.4	9.1	7.4	15.1	17.9	26.5	27.8
Government		5.9	19.6	0.5	5.1	8.6	6.0	10.1	9.6	13.0	9.1
Gross Dom.Capital Formation		7.8	12.3	3.8	27.1	13.1	26.7	18.5	13.6	26.0	31.9
Exports		4.2	28.8	-7.8	32.8	14.5	-2.3	-2.2	7.2	30.0	27.8
Imports		10.2	50.8	2.6	73.4	17.1	5.7	14.8	15.7	34.9	23.2
GDP at Mkt.Prices		11.9	22.8	4.7	9.9	8.6	6.8	11.4	15.0	24.8	25.1

Source: Calculated from Table _____.

AID, REDSO/ESA: CSCallison, 8/23/83 (MADGDPE)

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MADAGASCAR: Employment Trends by Sector, 1976-82

Economic Sector	1976	1979	1980	1981	1982
	In thousands:				
Agriculture	3360	3792	3839	3882	3977
Manufacturing	180	60	66	69	67
Construction	25	31	37	40	37
Handicrafts		24	26	27	29
Commerce, Banking & Insurance	105	94	100	103	100
Transport & Telecommunications	50	29	32	33	30
Domestics	30	36	38	39	38
Pub.Administration	105	131	144	153	158
Others	125	72	75	85	100
TOTALS:					
Labor Force	3980	4267	4357	4431	4536
Population	7760	8480	8714	8953	9200
	Percent of Total Employment:				
Agriculture	84.4	88.9	88.1	87.6	87.7
Manufacturing	4.5	1.4	1.5	1.6	1.5
Construction	0.6	0.7	0.8	0.9	0.8
Handicrafts	0.0	0.6	0.6	0.6	0.6
Commerce, Banking & Insurance	2.6	2.2	2.3	2.3	2.2
Transport & Telecommunications	1.3	0.7	0.7	0.7	0.7
Domestics	0.8	0.8	0.9	0.9	0.8
Pub.Administration	2.6	3.1	3.3	3.5	3.5
Others	3.1	1.7	1.7	1.9	2.2
TOTALS:					
Employment	100.0	100.0	100.0	100.0	100.0
% of Population	51.3	50.3	50.0	49.5	49.3
	Annual Percent Change:				
Agriculture			1.2	1.1	2.4
Manufacturing			10.0	4.5	-2.9
Construction			19.4	8.1	-7.5
Handicrafts			8.3	3.8	7.4
Commerce, Banking & Insurance			6.4	3.0	-2.9
Transport & Telecommunications			10.3	3.1	-9.1
Domestics			5.6	2.6	-2.6
Pub.Administration			9.9	6.3	3.3
Others			4.2	13.3	17.6
TOTALS:					
Employment			2.1	1.7	2.4
Population			2.8	2.7	2.8

Sources: 1976--World Bank, Madagascar: Recent Economic Developments and Future Prospects, 10/24/79, v. I, p.71
1979-82--Dir.of Employment & Labor, Ministry of Labor

AID, REDSO/ESA: CSCallison, 8/31/83 (MADEMPL)

Table 5. BREAKDOWN OF THE ACTIVE POPULATION 1/ 1976

	Urban Areas		Rural Areas		Total	%
	Modern 2/	Intermediate & Casual	Modern	Intermediate		
Agriculture	-	20,000	40,000	3,300,000	3,360,000	84.4
Industry and Construction	65,000	25,000	15,000	100,000	205 000	5.2
Industry	45,000	20,000	15,000	100,000	180,000	4.5
Construction	20,000	5,000	-	-	25,000	0.6
Services	54,000	115,000	15,000	80,000	264,000	6.6
Commerce	40,000	35,000	10,000	15,000	100,000	2.5
Transport	10,000	30,000	5,000	5,000	50,000	1.3
Banks and Insurance	5,000	-	-	-	5,000	0.1
Liberal Professions	-	20,000	-	-	20,000	0.5
Household Servants	-	30,000	-	-	30,000	0.8
Unallocated	-	-	-	55,000	55,000	0.1
Administration	80,000	-	25,000	-	105,000	2.6
Unemployed	-	50,000	-	-	50,000	1.3
Total	200,000	210,000	95,000	3,480,000	3,990,000	100.0
%	5.0	5.3	2.4	87.4	100.0	

1/ Classification by main source of income including part time jobs. See following tables for further details. The allocation between urban and rural areas is based on the 1975 census and Plan sectoral studies.

2/ Wage earners.

Source: Mission estimates

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MADAGASCAR: Balance of Payments, 1978-82 (Millions of SDR's)

Item	1978	1979	1980	1981	Est. 1982	Projec 19
Exports, f.o.b.	323.5	320.2	335.6	285.5	296.0	
Imports, f.o.b.	-308.7	-542.5	-620.3	-455.7	-442.9	
Trade Balance	14.8	-222.3	-284.7	-170.2	-146.9	
Service Receipts	31.5	42.2	43.6	40.0	31.2	
Service Payments	-143.7	-199.4	-223.2	-228.9	-212.9	
(Freight & Ins.)	-63.0	-86.6	-101.5	-78.7	-57.9	
(Investment Income)	-10.6	-19.3	-29.8	-68.7	-84.9	
(Other Services)	-70.1	-93.5	-91.9	-81.5	-70.1	
Services (net)	-112.2	-157.2	-179.6	-188.9	-181.7	
Private Unrequited Transfers (net)	6.4	5.5	0.7	7.2	9.3	
CURRENT ACCOUNT	-91.0	-374.0	-463.6	-351.9	-319.3	
in Bil. FMG	-25.7	-102.8	-127.5	-112.7	-123.0	WB
Public Unrequited as % of GDP	28.1	116.8	138.1	123.3	107.9	
Transfers (net)	41.8	48.8	48.0	50.0	57.1	
Nonmonetary Capital	27.0	142.7	223.8	265.0	207.8	
Other	21.6	23.5	8.6	-14.6	7.4	
OVERALL BALANCE	-0.6	-159.0	-183.2	-51.5	-47.0	
Financing	0.6	159.0	183.2	52.5	47.0	
IMF (net)	-2.6	-3.5	33.0	31.9	47.0	
Govt.BOP Financing	0.0	52.9	56.1			
Arrears (net)	0.0	0.0	174.5	35.5	-6.8	
(Changes)	0.0	0.0	174.5	-60.0	54.8	
--consolidations				-132.1	-6.2	
--repayments					-157.2	
--accumulations			174.5	72.1	218.2	
(Consolidations)	0.0	0.0	0.0	95.5	-61.6	
--new consolidation				132.1	6.2	
--repayments made				-28.7	-23.1	
--repayments not made				-8.4	-44.7	
Other Central Bank Reserves	3.2	109.6	-80.4	-14.4	6.8	
GDP in bil. FMG	486.6	595.1	689.8	780.1	965.4	
MEMORANDUM ITEMS:			-18.5	-14.4	-12.7	
Current Acct.Deficit as % of GDP	-5.3	-17.3	-18.5	-14.4	-12.2	-9
External Debt as % of GDP *	17.7	22.6	35.6	53.3	58.5	
Debt Service Ratio as % of exports *	5.8	9.9	14.5	32.4	33.6	76
					(25.1 w/arrears)	

* After debt rescheduling through June 1983, but excluding arrears except for 1983 projection, which includes arrears outstanding to banks.

Source: IMF reports dated 1982 and 1983

AID, REDSO/ESA: CSCallison, 8/25/83 (MADBOP)

MADAGASCAR: Real, Trade-weighted, Foreign Exchange Rate, 1970-83

Rate or Index	1970	1971	1972	1973	1974	1975	1976
MGF/US$	277.71	277.13	252.21	222.7	240.5	214.32	238.98
--Index	123.1	122.8	111.8	98.7	106.6	95.0	105.9
US$/MGF	0.0036009	0.0036084	0.0039649	0.0044903	0.004158	0.0046659	0.0041845
--Index	81.3	81.4	89.5	101.3	93.8	105.3	94.4
FC/US$ Ave	123.4	122.0	113.1	102.4	105.8	100.0	107.3
Index	124.3	122.9	114.0	103.1	106.6	100.8	108.1
FC/MGF Ave	101.0	100.1	102.0	104.5	100.0	106.1	102.1
MG CPI	64.1	67.6 5.6	71.4 5.6	75.7 6.0	92.4 22.1	100 8.2	105
	55.6	58.6	61.9	65.7	80.1	86.7	91.1
FC CPI Ave	65.7	69.2	73.1	79.1	89.8	100.0	109.1
	51.4	54.1	57.1	61.8	70.2	78.1	85.3
MG/FC CPI	108.2	108.4	108.4	106.3	114.2	111.0	106.8
RealFC/MGF	109.3	108.5	110.6	111.1	114.2	117.8	109.0

Rate or Index	1977	1978	1979	1980	1981	1982	APRIL 1983
MGF/US$	245.67	225.64	212.72	211.3	271.73	349.71	384.5
--Index	108.9	100.0	94.3	93.6	120.4	155.0	170.4
US$/MGF	0.0040705	0.0044318	0.004701	0.0047326	0.0036801	0.0028595	0.0026008
--Index	91.8	100.0	106.1	106.8	83.0	64.5	58.7
FC/US$ Ave	107.2	99.2	96.5	96.4	113.9	129.9	141.9
Index	108.0	100.0	97.2	97.1	114.8	130.8	143.0
FC/MGF Ave	99.2	100.0	103.1	103.7	95.3	84.4	83.9
MG CPI	108.2 3.0	115.3 6.6	131.5 14.1	155.5 18.2	203 30.5	266.9 31.5	316.8 +2
	93.8	100.0	114.1	134.9	176.1	231.5	274.7
FC CPI Ave	118.9	128.0	140.7	158.3	176.3	195.0	205.0
	92.9	100.0	109.9	123.7	137.7	152.4	160.1
MG/FC CPI	101.0	100.0	103.7	109.0	127.9	151.9	171.6
RealFC/MGF	100.3	100.0	107.0	113.1	121.9	128.3	144.0
		100.0	93.5	99.4	92.0	77.9	69.4

Sources: IMF, International Financial Statistics, updated with recent CPI data from the Directorate General of Planning. Average Foreign Currency (FC)/US$ exchange rates and FC Consumer Price Indices were calculated using 4-year total trade weights derived from Table ___.
Some indices are presented with both 1975 and 1978 as base years.

AID, REDSO/ESA: CSCallison, 9/1/83 (MADFXRT)

MADAGASCAR: Direction of Trade, 1976-80 (US$ millions)

Country	Total Exports 1976-80	Percent of Total Exports	Total Imports 1976-80	Percent of Total Imports	Total Trade 1976-80	Percent of Total Trade
United States	353.59	19.3	131.05	5.5	484.64	11.50
Japan	125.26	6.8	118.46	5.0	243.72	5.78
Belgium	14.26	0.8	47.48	2.0	61.74	1.47
France	439.77	24.0	850.95	35.8	1290.72	30.63
Germany	145.02	7.9	236.88	10.0	381.90	9.06
Italy	48.35	2.6	85.64	3.6	133.99	3.18
Netherlands	49.40	2.7	50.22	2.1	99.62	2.36
Spain	64.13	3.5	23.92	1.0	88.05	2.09
Switzerland	11.18	0.6	31.84	1.3	43.02	1.02
United Kingdom	41.03	2.2	55.07	2.3	96.10	2.28
Algeria	59.56	3.2	2.06	0.1	61.62	1.46
Indonesia	126.74	6.9	1.00	0.0	127.74	3.03
Iraq	0.00	0.0	133.79	5.6	133.79	3.17
Reunion	64.48	3.5	3.41	0.1	67.89	1.61
China,PeoplsRep	10.92	0.6	91.46	3.8	102.38	2.43
SUBTOTALS	1553.69	84.6	1863.23	78.3	3416.92	81.08
WORLD TOTALS	1835.47	100.0	2378.53	100.0	4214.00	100.00

Source: IMF, Direction of Trade Statistics Yearbook 1982.

AID, REDSO/ESA: CSCallison, 8/29/83 (MADXMDIR)

redo more like Table 3.2, p. 43 of WB '83 report also do M composition - see IMF '83 & WB '83

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MADAGASCAR: Export Composition, 1972-82 (FMG billions)
(This table is to be redone with exports organized by type.)

Product	1972	1973	1974	1975	1976	1977	1978	1979	1980	Prov. 1981	Proj. 1982
Coffee	11.65	13.30	15.60	14.07	28.33	40.46	36.58	38.07	45.11	31.8	42.6
Vanilla	3.92	2.22	4.48	2.97	4.73	8.75	8.65	3.11	3.95	8.1	12.7
Cloves	4.21	4.06	4.01	17.35	4.30	4.93	17.22	14.98	6.58	21.1	28.4
Pepper	1.00	1.03	1.05	1.36	1.52	1.83	1.07	0.97	1.12		
Cocoa	0.14	0.24	0.42	0.33	0.56	1.13	0.76	1.12	0.68		
Rice	1.65	0.56	1.07	0.57	0.50	0.38	0.17	0.16	0.22		
Lima Beans	0.78	0.82	1.64	1.23	1.13	1.11	1.16	0.67	0.59		
Bananas	0.10	0.23	0.25	0.20	0.30	0.25	0.34	0.25	0.15		
Sisal	0.92	1.55	2.55	2.13	1.24	1.50	1.21	1.77	1.71	1.6	
Fish	1.73	2.72	3.53	2.38	3.09	4.35	3.12	3.69	3.90	4.6	5.4
Meat	4.29	4.67	4.27	2.27	1.60	1.78	2.15	3.33	4.12		
Sugar	1.40	1.57	1.73	4.77	2.22	1.70	1.45	1.37	2.47	2.3	1.4
Cloves Oil	0.76	1.30	2.00	0.23	1.24	1.09	1.16	1.00	0.67		
CottonFab.	0.09	0.46	1.40	1.22	1.90	2.20	1.53	1.92	1.80	1.9	3.5
Chromite	0.84	0.57	1.60	1.27	2.41	2.54	3.15	1.83	1.98	1.3	1.7
Graphite	0.66	0.65	0.85	1.06	1.06	1.13	1.28	1.20	1.43	2.2	2.4
Mica	0.28	0.38	0.37	0.17	0.16	0.30	0.22	0.30	0.30	0.2	
Petroleum	1.67	2.28	5.64	5.55	4.32	2.35	1.37	2.24	1.37	3.0	4.7
SUBTOTAL	36.17	38.11	52.44	59.13	60.61	77.98	82.57	78.06	78.15	78.1	102.8
TOTAL	41.86	44.75	58.50	63.04	66.04	82.93	87.21	83.83	84.78	91.4	119.4
Percent of Total Exports:											
Coffee	27.8	29.7	26.7	22.3	42.9	48.8	41.9	45.4	53.2	34.8	35.7
Vanilla	9.4	5.0	7.7	4.7	7.2	10.6	9.9	3.7	4.7	8.9	10.6
Cloves	10.1	9.1	6.9	27.5	6.5	5.9	19.7	17.9	7.8	23.1	23.8
Pepper	2.4	2.3	1.8	2.2	2.3	2.2	1.2	1.2	1.3	NA	NA
Cocoa	0.3	0.5	0.7	0.5	0.8	1.4	0.9	1.3	0.8	NA	NA
Rice	3.9	1.3	1.8	0.9	0.8	0.5	0.2	0.2	0.3	NA	NA
Lima Beans	1.9	1.8	2.8	2.0	1.7	1.3	1.3	0.8	0.7	NA	NA
Bananas	0.2	0.5	0.4	0.3	0.5	0.3	0.4	0.3	0.2	NA	NA
Sisal	2.2	3.5	4.4	3.4	1.9	1.8	1.4	2.1	2.0	1.8	NA
Fish	4.1	5.9	6.0	3.8	4.7	5.5	3.6	4.4	4.6	5.0	4.3
Meat	10.2	10.4	7.3	3.6	2.4	2.1	2.5	4.0	4.9	NA	NA
Sugar	3.5	3.5	3.0	7.6	3.4	2.0	1.6	1.6	2.9	2.5	1.2
Cloves Oil	1.8	2.9	3.4	0.4	1.9	1.3	1.3	1.2	0.8	NA	NA
CottonFab.	0.2	1.0	2.4	1.9	2.9	2.7	1.8	2.3	2.1	2.1	2.9
Chromite	2.0	1.3	2.7	2.0	3.6	3.1	3.6	2.2	2.3	1.4	1.4
Graphite	1.6	1.5	1.4	1.7	1.6	1.4	1.5	1.5	1.7	2.4	2.0
Mica	0.7	0.8	0.6	0.3	0.2	0.4	0.3	0.4	0.4	0.2	NA
Petroleum	4.0	5.1	9.6	8.8	6.5	2.8	1.6	2.7	1.6	3.3	3.9
SUBTOTAL	86.4	85.2	89.6	93.8	91.8	94.0	94.7	93.1	92.2	85.4	86.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: World Bank, Madagascar Current Economic Situation and Prospects, 3/28/83, p. 43, and IMF, Madagascar-Staff Report for the 1982 Article IV Consultation and Request for Stand-by Arrangement, 6/11/82, p. 56.

AID, REDSO/ESA: CSCallison, 8/31/83 (MADXCOMP)

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MADAGASCAR: Real FMG Export Earnings , 1972-82 (FMG billions)

Product	1972	1973	1974	1975	1976	1977	1978	1979	1980	Prov. 1981	Proj. 1982
In Current Prices:											
Coffee	11.65	13.30	15.60	14.07	28.33	40.46	36.58	38.07	45.11	31.8	42.6
Vanilla	3.92	2.22	4.48	2.97	4.73	8.75	8.65	3.11	3.95	8.1	12.7
Cloves	4.21	4.06	4.01	17.35	4.30	4.93	17.22	14.98	6.58	21.1	28.4
Pepper	1.00	1.03	1.05	1.36	1.52	1.83	1.07	0.97	1.12		
Cocoa	0.14	0.24	0.42	0.33	0.56	1.13	0.76	1.12	0.68		
Rice	1.65	0.56	1.07	0.57	0.50	0.38	0.17	0.16	0.22		
Lima Beans	0.78	0.82	1.64	1.23	1.13	1.11	1.16	0.67	0.59		
Bananas	0.10	0.23	0.25	0.20	0.30	0.25	0.34	0.25	0.15		
Sisal	0.92	1.55	2.55	2.13	1.24	1.56	1.21	1.77	1.71	1.6	
Fish	1.73	2.22	3.53	2.38	3.09	4.55	3.12	3.69	3.90	4.6	5.4
Meat	4.29	4.67	4.27	2.27	1.60	1.78	2.15	3.33	4.12		
Sugar	1.48	1.57	1.73	4.77	2.22	1.70	1.43	1.37	2.47	2.3	1.4
Cloves Oil	0.76	1.30	2.00	0.23	1.24	1.09	1.16	1.00	0.67		
CottonFab.	0.09	0.46	1.40	1.22	1.90	2.20	1.53	1.92	1.80	1.9	3.5
Chromite	0.04	0.57	1.60	1.27	2.41	2.54	3.15	1.03	1.98	1.3	1.7
Graphite	0.66	0.65	0.83	1.06	1.06	1.13	1.28	1.28	1.43	2.2	2.4
Mica	0.28	0.38	0.37	0.17	0.16	0.30	0.22	0.30	0.30	0.2	
Petroleum	1.67	2.28	5.64	5.55	4.32	2.35	1.37	2.24	1.37	3.0	4.7
SUBTOTAL	36.17	38.11	52.44	59.13	60.61	77.98	82.57	78.06	78.15	78.1	102.8
TOTAL	41.86	44.75	58.50	63.04	66.04	82.93	87.21	83.83	84.78	91.4	119.4
MG CPI *	61.9	65.7	80.1	86.7	91.1	93.8	100	114.1	134.9	176.1	231.6
In Constant 1978 FMG:											
Coffee	18.82	20.24	19.48	16.23	31.10	43.13	36.58	33.37	33.44	18.06	18.39
Vanilla	6.33	3.38	5.59	3.43	5.19	9.33	8.65	2.73	2.93	4.60	5.48
Cloves	6.80	6.18	5.01	20.01	4.72	5.26	17.22	13.13	4.88	11.98	12.26
Pepper	1.62	1.57	1.31	1.57	1.67	1.95	1.07	0.85	0.83		
Cocoa	0.23	0.37	0.52	0.38	0.61	1.20	0.76	0.98	0.50		
Rice	2.67	0.85	1.34	0.66	0.55	0.41	0.17	0.14	0.16		
Lima Beans	1.26	1.25	2.05	1.42	1.24	1.18	1.16	0.59	0.44		
Bananas	0.16	0.35	0.31	0.23	0.33	0.27	0.34	0.22	0.11		
Sisal	1.49	2.36	3.18	2.46	1.36	1.60	1.21	1.55	1.27	0.91	
Fish	2.79	3.38	4.41	2.75	3.39	4.85	3.12	3.23	2.89	2.61	2.33
Meat	6.93	7.11	5.33	2.62	1.76	1.90	2.15	2.92	3.05		
Sugar	2.39	2.39	2.16	5.50	2.44	1.81	1.43	1.20	1.83	1.31	0.60
Cloves Oil	1.23	1.98	2.50	0.27	1.36	1.16	1.16	0.88	0.50		
CottonFab.	0.15	0.70	1.75	1.41	2.09	2.35	1.53	1.68	1.33	1.08	1.51
Chromite	1.36	0.87	2.00	1.46	2.65	2.71	3.15	1.60	1.47	0.74	0.73
Graphite	1.07	0.99	1.04	1.22	1.16	1.20	1.28	1.12	1.06	1.25	1.04
Mica	0.45	0.58	0.46	0.20	0.18	0.32	0.22	0.26	0.22	0.11	
Petroleum	2.70	3.47	7.04	6.40	4.74	2.51	1.37	1.96	1.02	1.70	2.03
SUBTOTAL	58.43	58.01	65.47	68.20	66.53	83.13	82.57	68.41	57.93	44.35	44.39
TOTAL	67.63	68.11	73.03	72.71	72.49	88.41	87.21	73.47	62.85	51.90	51.55

* 1983 Consumer Price Index is for April.
Sources: Same as for Table _____, Madagascar: Export Composition.

AID, REDSO/ESA: CSCallison, 8/31/83 (MADXRMGF)

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MADAGASCAR: Agricultural Export and Domestic Producer Prices, 1973-83

Crop and Price (FMG/kg)	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Real Foreign Exchange Rate:											
FC/FMG Index	111.05	114.24	117.77	109.04	100.27	100.00	107.00	113.05	121.89	128.76	131.23
FMG/FC Index	90.05	87.54	84.91	91.71	99.73	100.00	93.46	88.46	82.04	77.66	76.20
Lima Beans											
Domestic	35	37	38	40	45	48	55	65°	75	80	£N/A
Export	43	83	75	76	91	134	102	159	138	281	318
--Dom.% of Export	81.4	44.6	50.7	52.6	49.5	35.8	53.9	40.9	54.3	28.5	£N/A
X at real'78 rate	47.8	94.8	88.3	82.9	91.2	134.0	109.1	179.7	168.2	361.8	417.3
--Dom.% of above	73.3	39.0	43.0	48.3	49.3	35.8	50.4	36.2	44.6	22.1	£N/A
Coffee											
Domestic	135	165	165	170	180	180	185	215	250	260	280
Export	203	239	209	380	806	663	604	649	532	605	850
--Dom.% of Export	66.5	69.0	78.9	43.8	22.3	27.1	30.6	33.1	47.0	43.0	32.9
X at real'78 rate	225.4	273.0	246.1	423.1	808.2	663.0	646.3	°733.7	648.5	779.0	1115.5
--Dom.% of above	59.9	60.4	67.0	40.2	22.3	27.1	28.6	29.3	38.6	33.4	25.1
Cloves											
Domestic	280	320	320	320	340	340	385	395	430	435	£N/A
Export	650	791	779	978	1357	1166	1110	1510	2280	2790	3347
--Dom.% of Export	43.1	40.5	41.1	32.7	25.1	29.2	34.7	26.2	18.9	15.6	£N/A
X at real'78 rate	721.8	903.6	917.4	1066.4	1360.7	1166.0	1187.7	1707.1	2779.1	°3592.4	4392.3
--Dom.% of above	38.8	35.4	34.9	30.0	25.0	29.2	32.4	23.1	15.5	12.1	£N/A
Pepper											
Domestic	150	175	175	180	190	195	200	225	225	230	£N/A
Export	274	371	333	385	487	497	378	362	401	480	396
--Dom.% of Export	54.7	47.2	52.6	46.8	39.0	39.2	52.9	62.2	56.1	47.9	£N/A
X at real'78 rate	304.3	423.8	392.2	419.8	488.3	497.0	404.5	409.2	488.8	618.0	519.7
--Dom.% of above	49.3	41.3	44.6	42.9	38.9	39.2	49.4	55.0	46.0	37.2	£N/A
Vanilla (FMG/MT)											
Domestic	1012	1104	1104	1150	1200	1310	2300	2760	3220	3220	4600
Export	3079	3308	3457	4300	5109	5925	7126	9621	11018	18664	21849
--Dom.% of Export	32.9	33.4	31.9	26.7	25.2	25.6	32.3	28.7	29.2	17.3	21.1
X at real'78 rate	3419.2	3779.1	4071.3	4688.7	5122.8	5925.0	7624.8	10876.5	13429.8	24031.8	28672.4
--Dom.% of above	29.6	29.2	27.1	24.5	25.1	25.6	30.2	25.4	24.0	13.4	16.0
Sisal											
Domestic	59.6	74.3	70	65	74	74	83.5	86	140	150	£N/A
Export	66	121	92	76	88	79	115	127	129	145	151
--Dom.% of Export	90.3	61.4	76.1	85.5	84.1	93.7	72.6	67.7	108.5	103.4	£N/A
X at real'78 rate	73.3	138.2	108.3	82.9	88.2	79.0	123.1	143.6	157.2	186.7	198.2
--Dom.% of above	81.3	53.8	64.6	78.4	83.9	93.7	67.9	59.9	89.0	80.3	£N/A

Sources: World Bank, Madagascar Agriculture and Rural Development Sector Memorandum, 3/29/83, pp.180-199 (various tables), World Bank, Madagascar Economic Memorandum, 11/3/81, p. 85, and IMF, International Financial Statistics (CPI data) Updated with data provided by Ministry of Agricultural Production and Agrarian Reform and the Directorate General of Planning. Real foreign exchange rate indices are derived from Table ____.

AID, REDSO/ESA: CSCallison, 8/27/83 (MADAGXDP)

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MADAGASCAR: Agricultural Producer Prices, 1972-83, Nominal vs. Real

Crop or Index	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
MG CPI *	61.9	65.7	80.1	86.7	91.1	93.8	100.0	114.1	134.9	176.1	231.6	274.9
							6.6	14.1	18.2	30.5	31.5	18.7
Rice Paddy												
FMG/kg	15	15	25	30	35	35	35	39	43	47	60	65
Nominal Index	42.9	42.9	71.4	85.7	100.0	100.0	100.0	111.4	122.9	134.3	171.4	185.7
Real Index	69.2	65.2	89.2	98.9	109.8	106.6	100.0	97.7	91.1	76.3	74.0	67.6
Lima Beans												
FMG/kg	30	35	37	38	40	45	48	55	65	75	80	£N/A
Nominal Index	62.5	72.9	77.1	79.2	83.3	93.8	100.0	114.6	135.4	156.3	166.7	£N/A
Real Index	101.0	111.0	96.2	91.3	91.5	99.9	100.0	100.4	100.4	88.7	72.0	£N/A
Cotton												
FMG/kg **	58	60	68	78	78	80	80	86	94	104	129	152.5
Nominal Index	72.5	75.0	85.0	97.5	97.5	100.0	100.0	107.5	117.5	130.0	161.3	190.6
Real Index	117.1	114.2	106.1	112.5	107.0	106.6	100.0	94.2	87.1	73.8	69.6	69.3
Sugarcane												
FMG/MT							4600	5263	6376	7728	9420	9500
Nominal Index							100.0	114.4	138.6	168.0	204.8	206.5
Real Index							100.0	100.3	102.7	95.4	88.4	75.1
Tobacco												
FMG/kg	121	119	126	140	140	160	160	174	191	210	231	£N/A
Nominal Index	75.6	74.4	78.8	87.5	87.5	100.0	100.0	108.8	119.4	131.3	144.4	£N/A
Real Index	122.2	113.2	98.3	100.9	96.0	106.6	100.0	95.3	88.5	74.5	62.3	£N/A
Groundnuts												
FMG/kg	28	29	35	41	41	45	45	45	55	65	80	£N/A
Nominal Index	62.2	64.4	77.8	91.1	91.1	100.0	100.0	100.0	122.2	144.4	177.8	£N/A
Real Index	100.5	98.1	97.1	105.1	100.0	106.6	100.0	87.6	90.6	82.0	76.8	£N/A
Coffee												
FMG/kg	135	135	165	165	170	180	180	185	215	250	260	280
Nominal Index	75.0	75.0	91.7	91.7	94.4	100.0	100.0	102.8	119.4	138.9	144.4	155.6
Real Index	121.2	114.2	114.4	105.7	103.7	106.6	100.0	90.1	88.5	78.9	62.4	56.6
Cloves												
FMG/kg	280	280	320	320	320	340	340	385	395	430	435	£N/A
Nominal Index	82.4	82.4	94.1	94.1	94.1	100.0	100.0	113.2	116.2	126.5	127.9	£N/A
Real Index	133.0	125.3	117.5	108.6	103.3	106.6	100.0	99.2	86.1	71.8	55.2	£N/A
Pepper												
FMG/kg	150	150	175	175	180	190	195	200	225	225	230	£N/A
Nominal Index	76.9	76.9	89.7	89.7	92.3	97.4	100.0	102.6	115.4	115.4	117.9	£N/A
Real Index	124.3	117.1	112.0	103.5	101.3	103.9	100.0	89.9	85.5	65.5	50.9	£N/A
Vanilla												
FMG/kg	220	220	240	240	250	280	305	500	600	700	700	1000
Nominal Index	72.1	72.1	78.7	78.7	82.0	91.8	100.0	163.9	196.7	229.5	229.5	327.9
Real Index	116.5	109.8	98.2	90.8	90.0	97.9	100.0	143.7	145.8	130.3	99.1	119.3
Sisal												
FMG/kg	31	59.6	74.3	70	65	74	74	83.5	86	140	150	£N/A
Nominal Index	41.9	80.5	100.4	94.6	87.8	100.0	100.0	112.8	116.2	189.2	202.7	£N/A
Real Index	67.7	122.6	125.4	109.1	96.4	106.6	100.0	98.9	86.1	107.4	87.5	£N/A

* 1983 figure is for April. ** Average for Stoneville

Sources: World Bank, Madagascar Agriculture and Rural Development Sector Memorandum, 3/29/83, pp.180-199 (various tables), World Bank, Madagascar Economic Memorandum, 11/3/81, p. 85, and IMF, International Financial Statistics (CPI data)
Updated with data provided by Ministry of Agricultural Production and Agrarian Reform and the Directorate General of Planning

AID, REDSO/ESA: CSCallison, 8/29/83 (MADAGRP)

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Table ____. Madagascar: Capital Budget Expenditures, 1978-1981
(FMG billions)

Functional Classif.	1977	1978	1979	1980*	1981*
Public Admin.	4.0	10.0	9.9	13.3	13.4
Economic Services	13.5	17.7	26.6	26.3	12.1
Agriculture	5.9	6.4	14.0	13.3	5.6
Public Works	5.6	11.1	9.2	11.5	5.7
Social Services	3.0	5.4	7.3	6.7	2.4
Education	1.6	3.9	5.8	4.8	1.3
Health	0.3	0.5	0.3	0.4	0.3
TOTAL	20.5	33.1	43.8	46.3	27.9
Percent of Total:					
Public Admin.	19.5	30.2	22.6	28.7	48.0
Economic Services	65.9	53.5	60.7	56.8	43.4
Agriculture	28.8	19.3	32.0	28.7	20.1
Public Works	27.3	33.5	21.0	24.8	20.4
Social Services	14.6	16.3	16.7	14.5	8.6
Education	7.8	11.8	13.2	10.4	4.7
Health	1.5	1.5	0.7	0.9	1.1

*Provisional

SOURCE: World Bank, Madagascar: Current Economic Situation and Prospects, 3/28/83, p. 49.

Table ____. Madagascar: Recurrent Budget Expenditures, 1978-1981
(FMG billions)

Economic Classif.	1977	1978	1979	1980*	1981*
Salaries & Wages	35.6	48.2	50.0	59.8	68.0
Materials & Supplies	7.9	12.3	13.3	17.1	17.4
Interest Payments	1.8	1.9	2.2	2.1	2.5
Other	15.6	25.3	32.6	29.9	23.5
TOTAL	60.8	87.7	98.1	108.9	111.4
Percent of Total:					
Salaries & Wages	58.6	55.0	51.0	54.9	61.0
Materials & Supplies	13.0	14.0	13.6	15.7	15.6
Interest Payments	3.0	2.2	2.2	1.9	2.2
Other	25.7	28.8	33.2	27.5	21.1
Functional Classif.					
Public Admin.	20.8	34.5	39.4	47.3	46.9
Economic Services	10.2	13.4	14.0	10.4	8.6
Agriculture	6.1	7.1	8.4	5.0	4.4
Public Works	3.5	4.1	3.3	2.6	1.9
Social Services	22.0	30.7	33.1	42.5	41.3
Education	15.2	22.9	24.3	30.5	33.1
Health	6.1	6.7	7.1	10.2	6.8
Other	7.8	9.1	11.6	8.7	14.6
TOTAL	60.8	87.7	98.1	108.9	111.4
Percent of Total:					
Public Admin.	34.2	39.3	40.2	43.4	42.1
Economic Services	16.8	15.3	14.3	9.6	7.7
Agriculture	10.0	8.1	8.6	4.6	3.9
Public Works	5.8	4.7	3.4	2.4	1.7
Social Services	36.2	35.0	33.7	39.0	37.1
Education	25.0	26.1	24.8	28.0	29.7
Health	10.0	7.6	7.2	9.4	6.1
Other	12.8	10.4	11.8	8.0	13.1

*Provisional
SOURCE: World Bank, Madagascar: Current Economic Situation and Prospects, 3/28/83, p. 48.

Table . Madagascar: Monetary Survey, 1977-82 (FMG billions, end of period)

Item	1977	1978	1979	1980	1981	1982
Foreign Assets (net)	17.7	16.1	-40.8	-94.4	-133.3	-162.2
% Central Bank (net)	48.6	49.1	84.6	91.8	98.6	102.6
% State banks (net)	51.4	50.9	15.4	8.2	1.4	-2.6
Domestic Credit(net)	124.8	150.6	220.0	326.1	399.6	465.9
% Government (net)	23.2	33.1	45.0	53.9	59.0	57.9
% Private sector & state enterprises	76.8	66.9	55.0	46.1	41.0	42.1
On-lending	1.0	1.0	12.1	11.2	11.1	11.0
% to Government			19.8	23.2	22.5	24.5
% to state enterprises			80.2	76.8	77.5	75.5
Broad Money	122.0	143.0	172.9	205.8	249.8	275.2
% Money	81.6	78.9	79.6	80.0	82.9	81.1
% Quasi-money	18.4	21.1	20.4	20.0	17.1	18.9
Long-term foreign borrowing	3.3	3.0	14.5	31.7	42.4	75.1
% Central Bank	30.3	33.3	80.0	65.0	32.1	22.2
% State banks	69.7	66.7	20.0	35.0	34.7	21.6
% Rescheduling agreements					33.3	56.2
Other items (net)	18.2	21.7	3.9	5.4	-14.8	-35.6

SOURCES: IMF reports on Madagascar dated 6/23/80, 6/11/82 and 3/8/83

Madagascar: Proposed Agriculture Sector Strategy

1. Introduction

This report serves as a background paper for the FY 1986 Madagascar CDSS. It was prepared by Don Brown and David Atwood of AFR/TR/ARD as part of a CDSS mission to Madagascar from November 27 to December 11, 1983. The mission's terms of reference were to identify specific sectoral strategies for the three priority sectors chosen for AID assistance based on the Callison/Claude economic analysis of July-August 1983. The three sectors were agriculture, transport, and small and medium scale industry. Separate reports were prepared for the latter two sectors.

This report examines the most important agricultural subsectors in Madagascar, which include export and industrial crops, livestock, and rice. Particular attention is paid to the rice subsector. The report then describes general characteristics of Malagasy agriculture. Finally, the outline of and rationale for a strategy are developed, focused on policy and incentives, rehabilitation of irrigation infrastructure, and development of improved technology.

2. Cash Crops for Industry and Export[1] (See Table 1)

Coffee

Coffee is by far the most important cash crop, contributing 53% of merchandise export earnings and employing over 20% of rural farm families. A much higher percentage of farm families in the coffee area (the humid east coast area) produce coffee. Yields are low and research to improve yields is very limited. Marketing is officially the responsibility of the local administration (the Fokantany), which receives a commission for each ton collected. However, the Fokantany have been ineffective in marketing, and private traders continue to handle most coffee. The combination of an export tax, stabilization fund receipts which are passed on to the Treasury and therefore function as an additional export tax, and the overvalued exchange rate have served as a serious disincentive to coffee production. However, even without such disincentives, the scope for increasing exports is limited since current exports are well above Madagascar's quota assigned by the International Coffee Association. Coffee exports have fallen in recent years, without a corresponding decline in production, indicating that pricing and export policies may be encouraging greater domestic consumption to the detriment of exports. A major constraint to increasing production and exports is the road network.

Prospects for increasing coffee production and exports depend on export and pricing policies to increase production for export and decrease domestic consumption; rehabilitating the transport network in the coffee areas; and developing technology to increase yields.

Cloves, Pepper, Vanilla, Cocoa.

These four export crops are produced by 230,000 farmers on approximately 100,000 hectares mainly in parts of the humid eastern coastal area. Together they account for 15% of the value of all merchandise exports. Export prospects for cloves and vanilla are uncertain. The largest clove market, Indonesia, is about to make significant production increases, reducing world market demand. The world vanilla market may well shrink due to competition from synthetic substitutes. Prospects for increased pepper exports are much more favorable. Marketing and pricing for cloves, vanilla, pepper and cocoa are in general similar to those for coffee. The overvalued exchange rate is a disincentive to production.

Cotton

20,000 farmers, many of them smallholders, as well as 10,000 textile workers, are employed in the cotton subsector. Approximately 40% of area and 60% of production come from large mechanized private farms; small farms account for much or the rest, although a number of state farms also are involved in cotton production. Cotton has become an important cash crop only since the early 1970's. Production and area doubled between 1970 and 1977, then seriously declined as production costs rose faster than producer prices. In 1981, when producer prices rose significantly, cotton area and production rebounded.

Domestic cotton production is used in the six textile mills. Cottonseed oil and cake are valuable byproducts. All the oil and cake, and most of the fabric, are for the domestic market. Despite recent production increases, the mills have substantial excess capacity, even after importing several thousand tons of cotton fiber each year. HASYMA, a parastatal company, controls the subsector from production through ginning. It provides inputs and extension advice to farmers, buys their output, runs the ginning operation and administers the cotton subsidy fund. Insufficient cotton inputs and production as well as low margins are causing problems for HASYMA. HASYMA does some cotton research, but a sustained national capability in cotton research, and particularly pest control, is needed.

Prospects for increased production, and for export of some fiber, are promising. There are significant land resources suitable for cotton growing, and farmers have already shown

their interest when they have an incentive to enter or to increase production. The subsector's promise is subject to several conditions, however. Clear criteria and mechanisms must be established to insure continued rational pricing. Adequate foreign exchange must be allocated for the import of chemical inputs. A serious, sustained research program needs to be initiated. HASYMA's financial position needs correcting. Finally, as with other actual or potential exports, an exchange rate more in line with the Malagasy franc's real value would encourage greater production for export.

Sugar

The sugar subsector employs 14,000 people, most of them on four large complexes owned by two state firms. Smallholder production by outgrowers for the complexes is limited. Domestic demand absorbs almost all production. There is very little excess capacity in the four complexes. The Ministry of Commerce controls prices ex-factory and at retail. Over the past two decades declining real prices have prevented the complexes from investing in modern equipment. As a result production costs are quite high. Also, the complexes do not have adequate access to foreign exchange. Since sugar research has become the responsibility of the GDRM's agricultural research agency, FOFIFA, it has virtually come to a halt, with the effect of keeping Madagascar's sugar industry, and crop production, far below the current technological frontier, keeping yields low and raising production costs relative to other countries. The sugar stabilization fund has offerred to use a marketing levy previously earmarked for another purpose to finance FOFIFA research on sugar.

Prospects for sugar exports are limited by growing domestic demand, high production costs, and the overvalued exchage rate. Production at least for the domestic market could increase if pricing decisions are rationalized, investment in plant and equipment takes place, and research is renewed and makes available improved technology.

Tobacco.

Tobacco employs 30,000 smallholders, as well as a number of workers in the cigarette plant. The current marketing system may constrain production. The World Bank believes that current production conditions and world market projections make prospects bleak for increased tobacco production.

Groundnuts

Groundnut and cotton seed are the two major domestic sources of vegetable oil. Groundnut production has been highly variable over the past 10 years. Vegetable oil production in

the formal sector has declined significantly and consistently during this period. Madagascar now imports around 70% of its vegetable oil. Prices of oil on the informal market are almost double the official market prices. Groundnut production has not declined as much as oil marketed through official channels at the controlled price. It may therefore be -- as has been the case in the livestock and rice subsectors -- that a growing quantity of groundnuts are processed and marketed outside of officially recognized channels. Processing is done in about 20 small plants, most of which are artisanal operations. Capacity far exceeds utilization. (In addition, a plant to produce 15,000 MT of soy oil per year is nearing completion, although a number of problems have been encountered in trying to produce the soybeans for the plant.)

3. The livestock subsector.

There are approximately 10 million head of cattle in Madagascar. Sheep, goats, and pigs are of fairly minor importance. Estimates on cattle ownership vary from 15% of all rural households[2] to 50% (Janine). While there are important disease problems which reduce productivity, some of the most serious diseases found among cattle on the African continent do not occur in Madagascar. Per capita meat consumption is among the highest in the African region.

With the exception of the Central Plateau, traditional cattle systems are based on extensive grazing. Cattle are integrated with crop production in many areas. They consume crop residues and in turn provide manure and draft power for agriculture. The offtake rate, 9%, is low and is in part accounted for by the late age of sale of animals, the low calving rate, and the fact that male animals are not sold at a younger age (half of the herd is male). A more intensive husbandry system occurs on the Central Plateau, with several types of stall feeding and - close to the capital - some dairy. The Swiss aid agency is assisting in expanding the dairy industry on the Plateau; the IBRD is trying to introduce stall feeding in the Mahajanga area.

Pricing and marketing policies have changed several times over the past decade. In the early 1970's the GDRM, concerned about the adequacy of meat prices and supplies in the capital, sought to exert more control over the livestock subsector. The high level of exports (10% of all exports in the early 1970's) was a particular concern, and export quotas were established. Domestic controls over pricing and marketing failed to accomplish their objectives, but did result in a diversion of a substantial part of the market (especially in the capital) to unofficial channels. Domestic controls also increased marketing costs - and therefore prices - in these parallel market channels. In the 1960's the OMBI ranch, a state

enterprise, had been created to supply the export market. In the 1970's its mandate was changed to one of production for the domestic market, especially in the capital. In 1977 its task was no longer to meet the capital's needs only through production, but also to be the monopoly marketing entity through which all meat would pass which was destined for the capital. OMBY failed in these last two tasks, and much of the meat supply for the capital in the 1970's and into the 1980's has come through unofficial channels.

The result of state intervention in pricing and marketing during the 1970's was a serious excess capacity in officially sanctioned (and 90% state-owned) slaughterhouses. Because the marketing controls forced more and more meat into informal channels, the modern slaughterhouses were underutilized. In 1981 the main abattoir in the capital was opened to private butchers who were not hindered from selling their meat on the parallel market at the going price. The result was that most of the informal butchering around the capital ceased, and capacity utilization at the abattoir increased significantly to 71% in 1983. In 1982 official meat prices were increased and later in the year suspended entirely. Prices have continued to rise since then and are now above import parity at the official exchange rate. The cattle trade is almost entirely in the hands of private traders, who are required to pay for various permits and taxes. As with other commodities, the fokonolona institutions are supposed to have official marketing responsibility, altough in fact they have very little. Mahajanga has a unique system, where the government meat parastatal has set up a network of buying stations to buy from traders and directly from producers.

The Ministry of Animal Production, Water and Forests appears to be taking a sensible approach to increasing production and offtake. In addition to the significant marketing and pricing reforms mentioned above, the Ministry appears to have lost many illusions about state-run ranching operations. The Ministry's approach is to intensify production through various small herder stall feeeding and dairy efforts. The Ministry's efforts in animal health are to shift over vet agents' responsibilities for the sale of veterinary drugs to the private sector.

Increasing livestock production and offtake in Madagascar encounters problems similar to those experienced elsewhere in the African region. Late age of sale and the high percentage of males in the herd are partly due to cattle's role as a bank account and an indicator of social prestige. The experience of AID and other donors in overcoming these constraints to increased production and offtake elsewhere in the African region has been disappointing. Nevertheless, there may be some possibilities for increasing production. A cross of Afrikaner,

French Limousin, and local Zebu has produced a powerful animal with high quality meat suitable for export. The French FAC plans to initiate an artificial insemination program in the near future. It may be possible to increase milk marketing, especially on the Central Plateau. Finally, the IBRD stall feeding experiments may show promise.

Increased exports can only come about through significant increases in production. To increase exports at the expense of domestic production would likely increase meat prices beyond politically tolerable levels. Promising export markets are the other Indian Ocean States as well as Europe (up to Madagascar's quota under the Lome convention). Exports are constrained not only by production, but also by the overvalued exchange rate which makes current domestic prices higher than world market prices Cattle hides also offer scope for increased exports, although marketing and licensing requirements first need to be rationalized.

Current donor assistance in the livestock subsector accounts for only about 5% of overall donor assistance. One possible medium term goal of further donor-funded livestock efforts would be to increase production to the point of full utilization of installed meat processing capacity. An analysis of this goal follows: Current capacity is 350,000 head per year. About half of cattle slaughtered are marketed outside of villages. This is equal to about 450,000 head. Current capacity in officially sanctioned abattoirs and processing plants is 350,000 head, but actual utilization is only 250,000 head, or 71% capacity utilization. Increasing offtake by 100,000 to insure full capacity utilization would therefore require an 11% increase in offtake, a 22% increase in marketing beyond the village, or a 29% increase in production in officially recognized abattoirs and factories. If all of the increased production (100,000 X .115 MT/head = 11,500 MT) were exported, meat exports would triple.

4. The rice subsector

Production Systems

Rice is grown by 80% of smallholder farmers throughout most of the country. It accounts for around half of all land under cultivation. Paddy yields average 1.7 tons/ha. Rice production technology varies throughout the country. Tables 2 and 8 describe rice production methods by region and by kind of irrigation. A number of traditional methods of wet rice production exist, some of them based on rainfed, bunded fields, others (particularly on the Central Plateau) based on irrigation. Most of these traditional methods are of relatively modest scale (less than 100 ha). Because most of the land cultivated by these methods is not officially recorded or counted, it is

considered "unclassified." Rice land per farm family varies using these traditional methods from .6 ha to 1 ha. These traditional, small, non-classified riceland areas account for approximately 80% of cultivated riceland. The GDRM has little direct involvement in rice production in these areas. Land is held and allocated according to custom, and maintenance and repairs of the bunds, canals, and other infrastructure are done by the farmers. In the past twenty years there have been several donor projects to increase yields on these traditional ricelands by improving the degree of water control through changes in physical infracture.

In addition to the traditional non-classified riceland, there are two other categories of riceland. These are both "classified" riceland, with substantially more government monitoring and control than the traditional systems. They consist of large irrigated perimeters (3,000 to 35,000 ha) and small to medium irrigated perimeters (100 to 3,000 ha). Most of these perimeters were established by the French colonial administration, the GDRM, or donors over the past several decades. They are different from traditional riceland and when properly maintained, they have more water control. There is much greater state involvement than on the traditional, non-classified ricelands. Often land is allocated by government technicians. Government technical services are responsible for maintaining some of the irrigation infrastructure (primary and secondary canals). The remaining infrastructure maintenance is the responsibility of farmers. Farm size tends to be larger than on the non-classified systems.

Rice growing technology varies with region and method of water control. Land preparation is done by ox-drawn implements, spade, or tractor; in the first two cases, land preparation is completed with oxen walking on the field to break up the soil structure. Much rice is transplanted, but in some areas (particularly on those classified lands where large farm size results in a labor constraint at planting) seed is broadcast. There is some double cropping, but in many areas this is impossible (with existing varieties) due to low winter temperatures, late maturing varieties, or inadequate water control.

<u>High production growth in 1960's</u>.

GDRM in 1965 was concerned that it was on the brink of a crisis, with rice production falling behind consumption. With donor assistance, the GDRM launched a $62.5 million[3] investment program the following year, with the goal of increasing annual paddy production by 400,000 tons at the end of five years. This money was invested primarily in infrastructure to improve water control, fertilizer delivery, and extension of a number of improved husbandry recommendations (e.g., transplanting in rows). The goal was almost achieved 5 years later, when in 1971, annual paddy production had increased approxi-

matly 300,000 tons over the mid-60's level. The 400,000 ton goal was achieved after 10 years in 1976. The investment program resulted in an impressive annual compounded growth rate of 4.3% in paddy production during the 1960's and early 1970's.

Approximately one third of the investment program was devoted to improved water control and irrigation works on classified perimeters as well as on some of the small unclassified areas. This infrastructure investment accounts for 47% of the production growth during the 1970's.[4] An additional 14% of the growth in production is attributable to fertilizer use, even on traditional varieties whose fertilizer response is somewhat limited. Three percent of the growth is attributable to provision of improved seed, which even at the height of the 1960's effort was fairly small. Extension, unanalyzed factors, and the combined interaction of all rhe other causal factors account for another 35% of production growth in the 1960's. All of these factors together increased yields from 1,470 kg/ha in 1960 to 1,950 kg/ha in 1970.

Stagnation in the 1970's.

During the 1971-1982 period, annual growth in rice production has stagnated at 0.4%, well below the rate of population growth. Imports have increased to make up the shortfall, and now soak up approximately 20% of export earnings. Despite the very modest increase in aggregate rice production many of the irrigated perimeters have seen absolute losses in production. (See Tables 3 and 8) Approximately 50% of irrigable land served by canals is not now in production.[5] Much of this land is served by canals which have deteriorated enough to impede the water control needed tc grow a crop. More than half of the irrigated land which was double cropped in the late 1960's is now producing only a single crop.[6]

Aggregate rice production has increased only as a result of marginal expansion of low-yield rainfed systems with very limited water control. Average yields have declined from 1,950 kg/ha in 1970 to 1,720 kg/ha in 1982. The stagnation of the 1970's is explained by three main factors, the decline in the quality of irrigation infrastructure and water control, in farmer incentives, and in agricultural services.

Deterioration of irrigation infrasturucture

The deterioration in irrigation infrastructure accounts for much of the stagnation in the rice subsector. It appears that many of the investments in infrastructure made in the late 1960's were never adequately maintained. Maintenance of irrigation works in Madagascar is a straightforward set of tasks on the technical level. But the administrative and social mechanisms to insure that it takes place are extremely complex. Maintenance of irrigation works requires collaboration

and mutual understanding of two groups of people, on the one hand government technical services, and on the other farmers and local communities. In the 1970's, both groups failed to work together and carry out their responsibilities.

On the traditional unclassified ricelands, there is no government involvement in repair and maintenance. These systems have been sustained since well before the creation of the modern state, and the social mechanisms to insure their maintenance and repair on the local level continue to exist. However, there are reports (that we have not been able to verify) that even on some of these systems maintenance has begun to break down due to the failure of the local community to mobilize labor and maintain community purpose and discipline. In general, however, the non-classified systems are probably much better maintained than the classified systems, where the state has a major role in maintenance.

The one important area of outside involvement in local systems is in areas where donors or the state replace traditional small dams with more permanent structures. These activities are referred to as micro-hydro. Often these micro-hydro activities take place in areas where cyclones have destroyed a traditional small dam, which is then replaced with a more permanent one. There are as many as 2,000 potential micro-hydro sites in the country, mainly on the Central Plateau. The FAO and the Micro-Hydro Service have prepared designs for 164 of them, some of which are already being funded. The Micro-Hydro Service may have limited absorptive capacity for the supervision of construction given the demands already being made on it by a number of donors funding micro-hydro activities. The service will shortly become part of MPARA's Rural Infrastructure Department, although it is currently an independent agency attached to the Office of the President.

One ambiguity with respect to micro-hydro concerns state involvement after the more permanent structure is built. Repair and maintenance of the permanent structures (unlike the traditional temporary structures) will sometimes require skills and material not available in the local community. These skills and materials are available in rural areas, however. Much of the micro-hydro construction to date has been done by artisanal firms with three or four employees. With proper organization and modest training, these firms - at the request of local communities who knew what to ask for - could also do any repairs and maintenance beyond the capacity of local people. This would also require new organizational forms at community level to mobilize financial resources for the repairs. It remains to be seen whether the Micro-Hydro Service will encourage the establishment of such a sustainable, private sector system, or if the Micro-Hydro Service itself will be

responsible for repair and maintenance of micro-hydro structures, which would be a serious mistake and would prevent the Micro-Hydro Service from accomplishing its other tasks.

For the most part, the permanent small dams do not increase the amount of land under water control. Rather, they reduce demands on community labor for frequent repair and rebuilding of the traditional dams. At the same time, they provide the potential for double cropping, something that was impossible with the traditional dams. However, little or no land served by micro-hydro permanent structures is currently being double-cropped. The reason for this is that current long duration varieties do not permit two crops a year. Micro-hydro's benefits will not be realized until shorter cycle varieties are developed and disseminated. In the meantime, since financial resources are much scarcer than community labor, investments in micro-hydro should be much lower priority than investments to bring more riceland into production. These latter investments will increase rice production; micro-hydro will not until new varieties are developed to permit double cropping.

On the small and medium classified perimeters of all sizes, and the larger ones under its authority, MPARA's Rural Infrastructure Department is responsible for repair and maintenance of primary and secondary canals. Farmers are responsible for tertiary and quarternary canals and other downstream works. The Rural Infrastructure Department's budget has shrunk in real terms over the last ten years, and almost all of it now goes to pay salaries, reducing GDRM financing for operating costs, maintenance and repair to almost zero.[7] In addition to budgetary problems, the continued reorganization of MPARA, as well as the GDRM's vacillation between decentralization and centralization of technical services, can only have had a deleterious effect on the effectiveness of the Rural Infrastructure Department.

Several of the largest perimeters are administered by parastatal organizations (e.g., FIFABE, SOMALAC). These parastatals also face serious budgetary problems, though probably not as severe as the Rural Infrastructure Department. For FIFABE, these budgetary problems are compounded by the fact that user charges go directly to the GDRM treasury, and FIFABE's budgetary allocation from GDRM has little relationship to the user charges paid by farmers. On the parastatal scemes, the division of maintenance responsibilities between farmers and the parastatals is similar to that on other classified perimeters. In addition, on some of them (e.g., FIFABE) farmers are responsible for cleaning the primary and secondary canals. In earlier years at FIFABE, farmers would all work on the canals for three days before planting season. Now, however, they delay their participation further and

further into the planting season. Several factors explain this. First, due to the deteriorated state of the system, the real requirements are closer to a week of maintenance work than three days, and farmers aren't eager to do this. Second, FIFABE itself is always behind on its responsibility, both for maintenance and land preparation. Farmers know that even if they perform their maintenance tasks on time, planting will still have to be delayed by from several weeks to two months until FIFABE completes its tasks. FIFABE's insistence on mechanized land preparation (when FIFABE actually is able to use its deteriorating tractor fleet on only 10% of land under cultivation) appears to be a serious impediment to timely maintenance and planting by farmers. Without such insistence, farmers themselves could do their own land preparation using draft power.

FIFABE's problems are symptomatic of those on many of the classified perimeters of all sizes. First, the state cannot afford to carry out all the tasks it is presently responsible for. Second, there is no relationship between farmers contribution to maintenance (in cash or kind), the implementing agency's financial resources, and the maintenance needs of the perimeter. Third, insistence by the implementing agency on performing tasks which are the clear responsibility of farmers prevents it from properly performing those tasks which no one else can do.

On the farmer's side as well, maintenance responsibilities are not fully carried out. On many perimeters, farmers do not adequately clean and weed the canals. Or when they do, they leave the silt where it will wash right back into the canal. (This is due in part to poor design: Many major canals do not have roads next to them where the silt could be put. Farmers, therefore, put it on the canal embankment, where it is slowly washed back into the canal.) When a deteriorating system is not able to provide water to some farmers, they will break through a nearby canal embankment and divert water onto their own field. Many farmers allow their cattle, or those of herders, to walk over canal embankments, often breaking them. There are exceptions to these patterns, and some perimeters are adeuately maintained by the Rural Infrastructure Service and by farmers.

There are several factors discouraging farmers' participation in maintenance. First, as at FIFABE, farmers know that for their own downstream maintenance tasks to be effective, the state must fulfill its upstream maintenance and repair responsibilities. When the state does not fulfill its tasks, farmer's tasks become less effective and (as at FIFABE) more time-consuming. Second, the lack of production incentives for farmers reduces their interest in production for the market and may have an effect on their motivation to maintain the infra-

structure which allows them to produce a surplus. Finally, it may be that the new institutions created by the 1972 Revolution on the local level, especially local elective government, have not yet matured enough to assure discipline in the provision of local community services and tasks, such as farmer maintenance of irrigated perimeters.

GDRM and MPARA are rethinking their approach to the maintenance problem and the division of responsibilities between the state and farmers. Legislation recently passed will permit greater recovery of irrigation costs from water users. The legislation is fairly general, however, and the manner of its application is not yet clear. FED and FAO have been involved in activities exploring new ways to increase community and farmer involvement in maintenance (especially for micro-hydro). The World Bank and the French Caisse Centrale have each commissioned studies to examine both technical and organizational approaches to irrigation maintenance.[8] In our discussions with GDRM officials concerned with the maintenance issues, two things stand out. First, some GDRM technicians in the field are unaware of basic principles of rural education and community organization which might be useful and workable in approaching the maintenance problem. For example, field level people tend to see the rehabilitation of infrastructure simply as an engineering task rather than as one step in a process by which farmers will take increasing responsibility for a sustainable maintenance system. Field technicians do not appear to realize the potential of the engineering task as a catalytic and educational force in changing how farmers conceive of their own responsibility and capacity for maintenance. Second, we have been struck by the openness of MPARA decision-makers to consider new ideas and experimental approaches to solving the maintenance problem. The Rural Infrastructure Department even has a team in the field examining the social, economic, and engineering aspects of the problem.

The challenge is to transfer this openness and flexibility to the field level technicians. Technical people will have to be able to try new approaches and honestly monitor the results, to explain to farmers the changing role of the state in maintenance, to guide farmers to find their own technical solutions to problems (especially for micro-hydro), and to be generally sensitive to farmers' concerns. Without these skills, which many field technicians of the Rural Infrastructure Service do not presently possess, developing and implementing a more rational maintenance system will be impossible. (It should be noted here that the Secondary School for Agriculture has been closed and is not graduating students. We do not know what the effect of this will be on the technician ranks of the Rural Infrastructure Department over the next few years.)

There is one final factor to consider with respect to maintenance. GDRM policy in all sectors including agriculture is to rehabilitate existing capacity, rather than to create new capacity. In the rice subsector, this means bringing land where water control has broken down back into cultivation by rehabilitating water control infrastructure. The choice of priority areas for rehabilitation, and certainly any decision to expand water control onto new areas, must verify local demand for additional irrigated land. Also, benefit/cost ratios need to be carefully calculated and considered. On many deteriorated perimeters it may be possible to get a higher return per dollar spent by implementing and distributing fertilizer than by rehabilitating infrastructure.

Decline in Producer Incentives

The decline in producer incentives has been critical in causing the stagnation in rice production. GDRM increased its control over rice marketing and pricing in the 1970's. GDRM was never able to accomplish its objectives or enforce official prices, but the result of heavy state intervention in the rice market was to reduce producer incentives. Parallel market prices declined in surplus production areas due to increased marketing costs caused by GDRM's pricing and marketing policies, in particular by the enforcement, by "economic barriers" on access roads, of marketing controls. Marketing costs also rose, reducing producer prices, as the road network deteriorated due to poor maintenance. The explanation of poor road maintenance is similar to that for poor irrigation maintenance: declining budgets, foreign exchange, and possibly local participation. Parallel market prices also faced downward pressure from the sale of large volumes of rice imports on major markets at low prices. An additional cause of reduced incentives for farmers has been the reduced availability of consumer goods in rural areas. This itself is partially a result of the deteriorating balance of payments situation; it was further exacerbated by controls in the rice market, since rice and consumer goods are traditionally marketed by the same traders. Increasing rice marketing costs indirectly raises the cost of getting consumer goods to rural areas. The incentive problem may have led farmers to reduce their participation in the maintenance of irrigation works.

Significant changes in pricing and marketing have occurred over the past year. In March 1983, MPARA published a preliminary report, prepared with the assistance of US Consultants (MPARA/AIRD report by Ahlers et al) detailing the disincentive effects that current policies were having on production.[9] The report recommended significant liberalization, removal of economic barriers, and the use of a rationally set retail price for imports as the primary means to affect prices on the

domestic market. Many of the recommendations have already been implemented. The retail price of imports has increased. There are no economic barriers. The government rice marketing parastatal (SINPA) and the local fokontany administration, which had previously had monopoly purchasing rights, are no longer involved in rice marketing. (This could have posed problems for the Fokontany, since their major revenue source was the marketing margin on every kilogram of rice they sold to SINPA. The solution to this revenue problem is that the Fokontany now collects a per kilogram marketing tax from rice traders, who are free to buy from and sell to anyone, anywhere).

To date, the results of the liberalization have not been satisfying. For producers, market prices are at about the same level they were at prior to liberalization. In part, this is the result of downward pressure on prices resulting from SINPA dumping on the market large quantities of luxury imports at a low price. For consumers in Antananarivo, the price of imports of ordinary rice sold by SINPA (which imports account for most of the consumption in the city) has increased, and supplies are short. For the liberalization to have the desired effect will require SINPA to exercise discipline in the quantity of imports and the price and timing of their sale.

There is some question as to whether concessional rice imports have had a negative direct or indirect effect on incentives. Responding to the question requires conjecture about what would have happened in the absence of imports. A direct disincentive effect would exist if concessional imports result in a higher overall supply of all rice imports than would have been the case without concessional imports. That is, if in the absence of concessional imports the GDRM would have increased commercial imports by an equivalent amount there is no direct disincentive effect. Looking at the evolution of imports over the past five years on Table 4 leads one to believe that concessional imports may well have had a direct disincentive effect. The last two years, with large amounts of concessional imports, have also been the years with highest overall imports by far. There is general agreement that 1982 imports far exceeded needs; concessional imports accounted for a substantial portion of 1982 imports. Some of the luxury rice dumped on the market in 1983 which depressed parallel market prices came from 1982 concessional imports which were beginning to deteriorate.

The indirect disincentive effect occurs when concessional imports allow a government to postpone making needed policy reforms. That is, if bad government policies lead to ever-increasing imports, concessional food aid can allow a government not to pay the foreign exchange costs of those policies, and thereby make it easier to postpone needed policy reform. It appears that this indirect disincentive effect has not

occurred in Madagascar. Bad policies were initiated and sustained during a period of rising imports, all of which were paid for with scarce foreign exchange since there were no concessional imports. On the other hand, the staggering growth in concessional imports coincided with a major positive redirection in rice policies.

While concessional imports may have had a direct disincentive effect over the past two years, conditions have changed enough so that this disincentive effect can be prevented in the future. The changed conditions are that the IMF and the GDRM are likely to agree to limit all rice imports to 100,000 MT per year. If the GDRM abides by this agreement, then producer incentives are unaffected by whether or not concessional imports make up part of the 100,000 MT. If donors can manage their imports so that the total import level, commercial plus concessional, remains below 100,000 MT, then there will be no direct disincentive effect, and food aid donors will be in a strong position to encourage continued policy reform in the rice subsector.

One alternative to rice imports which has been suggested is concessional vegetable oil imports. However, this alternative would simply shift the incentive problem to a different subsector. Domestic vegetable oil production has been declining due to very low official prices for oil. Increasing concessional vegetable oil imports might have an indirect disincentive effect by allowing the government to postpone serious policy reforms in the subsector. The only way to prevent such an indirect disincentive effect would be to condition the imports on annual increases in prices which exceed the inflation rate by enough to encourage increased domestic production.

There are two areas where the 1983 rice marketing reform did not apply. These are the very large perimeters managed by the parastatals FIFABE and SOMALAC. These two parastatals continue to have monopoly purchasing rights on the two perimeters, and they purchase at the official producer price, which remains very low compared to production costs.[10] Both parastatals are in a position where it might be fairly easy to devolve their rice marketing functions to the private sector. The major incentive in the past for FIFABE to purchase rice from its growers was to insure that it had enough control over growers' revenue that it could take its water user charges "off the top" before paying them for their rice. Beginning this year, however, water user charges are no longer paid to FIFABE but to the government treasury. FIFABE no longer has what was its primary incentive to purchase rice. SOMALAC is in a different situation. This is only its second year in the rice market, SINPA having previously purchased rice from SOMALAC

farmers. SOMALAC has had some difficulty in managing its stocks, and selling them for a profit, and might be willing for this reason to cast off its marketing functions.

Other agricultural services

Apart from irrigation infrastructure and maintenance, the most important services in the agricultural sector are provision of chemical inputs, tools and seeds. Chemical inputs, especially fertilizer, and to a lesser extent pesticide, were a major factor in the impressive growth rate of rice production in the mid to late sixties, accounting for 14% of that growth. Fertilizer availability declined precipitously in the late 1970s and early 1980s due, in part, to foreign exchange rationing and in part to transportation bottlenecks. Recently, donors have provided foreign exchange for fertilizer, and some fertilizer has been delivered to rural areas despite the transportation bottlenecks. Many farmers are willing to purchase fertilizer, even at unsubsidized prices, having already used it and seen its effect in the late 1960s. There is scope for substantial increases in production from increased fertilizer availability in rural areas.

The GDRM is currently constructing a urea plant whose capacity far exceeds projected Malagasy needs. In addition, production costs will be above world market prices. If the plant does begin to function, at least the foreign exchange requirements for fertilizer will be reduced. At this point, however, a new problem will need resolution. The problem is whether or not domestically produced fertilizer should be subsidized, or should farmers pay its real cost, which exceeds the world market price for fertilizer? Fertilizer transportation problems are the same as those for rice marketing; improved rural roads will substantially alleviate these problems. Table 5 shows officially recorded fertilizer sales by region. The Antananarivo region accounted for between half and two-thirds of sales in 1977. The two regions of Antananarivo and Fianarantsoa accounted for almost all sales. This is an indicator of the relative intensity of rice farming on the Central Plateau, but also of the distribution problems encountered as one gets farther away from the capital. The extremely low average nationwide application rate on riceland (less than 1 kg per ha.) demonstrates the potential production increases to be obtained with increased fertilizer use.

Tool use and availability varies by region. Animal traction is widely used for land preparation on the Central Plateau; its use also occurs in other regions, but among a smaller percentage of farmers. Animal traction for transportation appears to be widely used in many regions. Fabrication and maintenance of plows and harrows on the Central Plateau is a healthy artisanal industry. In addition, there are

parastatals which make animal traction equipment. Despite a 75% subsidy which has made the parastatal equipment price cheaper than that sold by artisans, farmers have preferred the artisanal equipment because it is heavier-duty. The subsidy was lifted this year on the parastatal equipment, so farmers' demand for artisanal equipment will probably increase. It appears that on the Central Pleateau animal traction equipment is easily available. In other areas, where there has been less experience and demand, and therefore fewer, if any, artisanal production operations, availability may be more of a problem. Also, in areas not well served by artisanal production, transport bottlenecks may impede the distribution of the parastatals' equipment. Table 6 describes the existing on-farm stocks of animal traction equipment as well as 1974-76 parastatal sales. As with fertilizer, the Central Plateau accounted for close to half of all equipment stocks on-farm. But, most of the parastatal sales were off the Pleateau, which may indicate the extent to which the Plateau area's needs are met by artisanal production.

The other widely used tool in rice cultivation is a long handled spade used in land preparation and other operations. This tool appears to be widely available throughout the country. It is likely that its fabrication is largely in the hands of local artisans, although we have been unable to verify this.

Availability of improved seed through formal channels has never been an important factor in Malagasy rice production. Improved seed accounted for only 3% of the production growth in the mid and late 1960s. UNDP is currently assisting the GDRM to establish a national seed production capability. As agricultural research in Madagascar is revitalized and delivering results, and as the national seed production capacity improves, attention to the distribution channels for seed will be needed. This is all several years away, however, and seed distribution is not at present a priority concern in the rice subsector. The recent ISNAR and IRRI reports detail priority criteria to be used in the selection of new varieties for Madagascar.

5. General observations on the agricultural sector

Farming systems

We have found little readily available information on Malagasy farming systems. We suspect that there is a wealth of information in publications going up to 10 years ago from ORSTOM, IRAT, and the rest of the French GERDAT group, but we have not found these publications. In general, Malagasy farming systems are rice-based. Cattle and small stock are fairly common and often are complementary with the cropping

enterprises (providing manure and draft power, and consuming crop byproducts). Other food crops, especially cassava and corn, are an important part of many farming systems. Many farmers grow at least one cash crop.

In some of the more intensive rice production systems, hired labor appears to be an important factor. Labor constraints appear to prevent some farmers from preparing a nursery and transplanting. Also, various forms of sharecropping are common in the Central Plateau and other areas of intensive rice cultivation. Land availability is variable even in the Central Plateau area, with inadequate land resources being widespread but not universal in that area. There is significant migration from the Central Plateau to other areas, and migrants frequently become hired laborers or sharecroppers. It is unclear to what extent their outmigration is due to land shortages in the Central Plateau, and to what extent to social problems they want to escape (in particular their former slave status). The mechanisms by which migrants to a new area become laborers, sharecroppers, or landowners are also not well understood.

Research and technology

In general, technology development has been at a standstill for ten years. The limited agricultural research which has taken place has in general been ad hoc and within the context of projects. There is no viable, sustainable system to insure the continued delivery of a stream of productive technology to the agricultural sector. In particular, technology development for rice, maize, cassava, coffee, sugar and livestock practically does not exist.

The national agricultural research agency, FOFIFA, has been plagued by loss of experienced technical assistance, disorganization, fragmentation, continued changes of ministerial authority and inadequate budgets. A competent core of thirty Malagasy research scientists assisted by a number of other professionals, have been unable to produce new technology due to the problems mentioned above. The GDRM, with the help of the International Service for National Agricultural Research (ISNAR), has begun to consider how best to reorganize FOFIFA to make it a viable productive research institute. FOFIFA recently became a part of the newly created Ministry of Scientific Research. The new Minister is looking for innovative ways to insure that FOFIFA scientists are more productive. FOFIFA continues to have close ties with MPARA, and FOFIFA's Director is a close advisor to MPARA's Minister. It is not yet clear what will be the exact nature of the changes to be made in FOFIFA's organization, management and personnel incentives. It is likely, however, that over the next year or two, based on the ISNAR report and with donor encouragement, FOFIFA will be reorganized to become a viable research institute.

The medium-term development of Malagasy agriculture requires that FOFIFA's reorganization to develop viable technology take place in the immediate future. It will take several years after reorganization for a stream of viable technology to be produced by FOFIFA.

Effects of policy on the agricultural sector.

There is a striking uniformity of policy effects on agriculture across many subsectors. During the 1970s, GDRM tried to control the pricing and marketing of most of the major argicultural commodities. Its attempts were unsuccessful in that most consumers did not pay officially declared prices because the state was able to procure only limited quantities to sell at those prices; most consumers had to pay much higher prices on the parallel market.

The GDRM's pricing and marketing policies had a number of unintended, undesirable effects across subsectors. First, parallel market retail prices were higher than market prices would have been in the absence of controls, since marketing costs increased as a result of the costs of avoiding state marketing and enforcement mechanisms. Second, these higher marketing costs also lowered produced prices. These price effects took place in both the rice and livestock subsectors. In addition, the overvalued exchange rate has led to low producer prices in all the export subsectors. As various policies have depressed producer prices, a number of perverse effects have been seen. Coffee exports have been declining, but domestic coffee consumption has been increasing as a result of low retail prices. While rice production in general stagnated in the 1970s, land planted to rice in the coffee areas increased, due to rice prices that were declining less than coffee prices in real terms. At the same time, in other areas of the country riceland was taken out of production, and a major expansion of cassava and maize cultivation was taking place.

Another set of unintended effects of policies is that increasing quantities of commodities were diverted from formal sector processing facilities. There is now a very large overcapacity in rice milling which grew up only since 1981, as SINPA's pricing led it to collect less and less of marketed rice. As a result, less and less rice was processed in government sanctioned mills, and there was an explosive growth in artisanal milling firms, which continue to thrive. The same diversion to unofficial channels took place in the livestock subsector -- as state prices failed to keep up with inflation a growing percentage of beef was slaughtered illegally, outside of modern slaughterhouses. In both subsectors, recent reforms have been enacted, but there remains over-capacity in proces-

sing facilities. Other subsectors with similar problems have as yet seen no reforms. Groundnut oil prices have failed to keep up with inflation. As a result, groundnut oil sold through official channels has declined far more than has groundnut production.

In those areas where reforms have taken place -- both the livestock and rice sub-sectors -- neither consumers, producers, nor government decisionmakers are satisfied with the results. It is important that the reforms be fully implemented (as they have not yet been) if they are to have the intended result. It is also critical for donors encouraging such reforms to be aware of and sensitive to the short-term effects of the reforms. Consumer prices in Antananarivo are, of course, the most important short-term effect. Another politically sensitive effect is the financial position of the Fokantany. The Fokantany's main revenue source has been the marketing margin it received when it was supposed to be the monopsony buyer of livestock, rice, coffee and other commodities. As marketing of these commodities is freed up, the Fokantany lose an important revenue source.

6. AID goals and strategy in the agriculture sector

AID's goals in agriculture are three-fold: to increase domestic production, reverse the deteriorating balance of payments situation, and increase smallholder income. These three goals lead to a strategy of increasing rice production.

Choice of subsector.

The three most important agricultural subsectors by far in terms of both numbers of smallholders and potential to reverse the balance of payments decline are the livestock, coffee and rice subsectors. For the reasons described in Section 3 above, the majority of the export potential for livestock is only long term, and must await the development of successful approaches to increase offtake or intensify production. The World Bank is financing pilot approaches in these two areas. In Africa, AID has had a remarkable lack of success in both areas, and it would be unwise to begin a program in agriculture in a subsector where our experience to date has been less than satisfactory. In addition, it appears that in many settled farming areas where livestock are important, cattle distribution may be skewed towards the better-off minority of rural people.

Coffee accounts for 80% of export earnings and is clearly a priority sector in addressing the balance of payments crisis. However, US expertise in tropical tree crops is limited. In addition, there is some question as to how much Malagasy coffee

exports can be expanded beyond the quota allocated by the International Coffee Organization, since exports already exceed the quota.

The rice subsector offers a number of advantages. Increasing rice production is a critical element in alleviating the balance of payments crisis. It is also a task in which AID and US contractors have a great deal of experience and expertise. Promoting food production is a major element of Africa Bureau's strategy and the Agency's policy for agricultural development. AID involvement in the rice subsector could ultimately affect the livelihood and incomes of 80% of all rural producers, since rice is the staple crop grown by almost all farmers. Finally, AID is already working in the rice subsector. Current PL 480 imports and self-help measures as well as the DA funded IRRI rice research activity have involved AID in the rice subsector at the policy and operational level. Also, roads and irrigation infrastructure being repaired with PL 480 local currently are in some of the more productive rice areas in the country.

Major constraints and the "new development paradigm"

The paradigm described in Annex 1 seeks to identify constraints on agricultural development in the following priority order: technology, policy, services. In Madagascar's rice subsector, this paradigm leads us to results which are different from those found in many other parts of the African region. Technology is not now the primary constraint in Madagascar. A number of effective water control systems exist. Fertilizer is used when available, and increases the yields of existing varieties by enough to justify its use. Improved varieties and cultural practices will of course lead to significant increases in yield, but in their absence, growth in production could still increase as it did in the 1960s for several years before approaching a technology constraint. Such growth would require attention to the two factors which are major constraints at present, incentives and policies; and infrastructure. However, it should be noted that the development of improved technology available in the medium term requires attention to rice research now.

A number of policies have been partly responsible for the current stagnation, and will impede growth until they are changed. Policies affecting pricing and marketing as well as exchange rates have reduced real prices for farm output and greatly increased the cost of getting consumer goods in rural areas. In addition, a range of policies regarding public finance, cost recovery from users, and local administration has resulted in serious decline of the road and irrigation infrastructure, further eroding incentives as well as the productive base of the rice subsector.

The critical agricultural services in Madagascar are closely linked to policies regarding public finance and local administration, as discussed above. And, unlike many other countries in the African region, agricultural services do represent a key constraint to increasing production. In particular, the current state of irrigation and road services is preventing substantial increases in production in many areas of the country. Extension and input distribution services are much less of a constraint, although farmers in the past have seen enough value in using fertilizer to pay black market prices, and it is now unavailable in many areas. There appears to be no shortage of farm tools and implements in some areas, while other areas such as Majunga may have shortages.

The strategy of assistance to the rice subsector will, therefore, concentrate on the areas of policy and incentives; water control, and technology development.

Policy and incentives.

There will be three areas of activity under the policy and incentives rubric. These are pricing, marketing and exchange rate policies; reducing transport costs; and local administration/public finance policies affecting rice production.

In the area of pricing, marketing and exchange rate policies, project negotiations for PL 480 CIP, and relevant DA projects will be used to focus attention on the need for more rational policies, and to encourage such policies in particular (in the short-term) in the area of rice market liberalization. Second, an attempt will be made to increase the demand by MPARA decision makers for analytical skills development and for sound analysis in the agricultural policy area. After better understanding of the appropriate institution in which to work (IMATEP, Direction Generale du Plan, MPARA's Program Department) institutional strengthening in the policy/analysis area will be undertaken to meet MPARA's increased demand. In the short-term, various short and long-term training courses and in-country seminars will take place both to increase the demand for analytical capacity and to begin to meet it. Finally, selected studies of mutual interest to AID and the GDRM in the area of pricing, marketing and exchange rates will be funded.

The GDRM attitude to the kinds of activities sketched here appears to be cautious but interested and open to new ideas. GDRM does not want studies done in isolation by outside consultants, but GDRM is interested in improving the information base on which it makes decisions, if this can be done in a collaborative way. (The recent MPARA/AIRD report provides a

good example.) GDRM also appears to be interested in improving the skills of its personnel in analysis, primarily through short-term training.

The absorptive capacity of the GDRM in the area of policy analysis is fairly large. An impressive number of staff in MPARA, IMATEP, and Direction Generale du Plan are already involved in policy analysis activities. UNDP is already providing assistance to IMATEP. The IMF and IBRD are strongly supporting a number of policy reforms. Tables 7 and 10 show that this general area accounts for $14.6 million, or 4% of overall donor assistance. More particularly, the policy areas discussed here account for $8.2 million of donor assistance. AID proposed assistance would by and large work with existing personnel, increasing their skills and making them more productive. The increased skills levels will actually increase the beneficiary agencies' absorptive capacity for later assistance.

The second area of activity under policy and incentives is to reduce rural transport costs, thereby leading to increased producer prices. Rural transport activities will be mainly focused on support to rice production activities. The GDRM is eager for assistance in this area. Currently, $85 million or 24% of donor assistance is going into the transport sector. Most of this, $68 million, is going into rural roads, and the World Bank accounts for the lion's share of assistance here. Because of the very large nationwide World Bank investment, absorptive capacity in rural transport (both for GDRM and construction contractors) is quite limited. AID's assistance approach will be an incremental program to fill the gaps in those geographical areas where GDRM and local personnel and agencies are sufficiently underutilized so that they can take advantage of AID assistance without becoming overextended.

The third area under policy and incentives relates to public finance and local administration policies for irrigation infrastructure. This is a complex and sensitive area where AID will work thoughtfully and carefully, but it must be paid attention to for the irrigation maintenance problem to be solved. AID's involvement in this area will be to undertake pilot irrigation rehabilitation activities to develop effective administrative and financial mechanisms to insure local participation in maintenance. The results of these pilot activities will be discussed on an ongoing basis with GDRM decision makers and technicians involved in the irrigation area. Seminars and short-term training in the administration and social organization of maintenance will be conducted, perhaps with technical assistance experienced in establishing self-sustaining irrigation maintenance systems under similar conditions in Asia. Some of these training/seminar activities might be done through IMATEP.

As in the pricing policy area, the GDRM is cautious here, but realizes it has critical problems in maintaining irrigation infrastructure, and is open to new ideas if they might help solve its problems. IRBD and FAC are both involved in new approaches to maintenance on the large perimeters, FED and FAO on some smaller perimeters and unclassified irrigated areas. While GDRM absorptive capacity in rehabilitation of infrastructure is limited (see next section) its absorptive capacity for assistance in analyzing and establishing new ways to organize maintenance is large. Personnel are in place and -- at all levels, through the country -- are groping for solutions. There are some basic questions that for political reasons AID cannot get involved in here, such as the role of the local fokonolona institutions established after the 1972 Revolution.

Water control

As discussed above, AID strategy is to first undertake limited pilot activities, training and seminars to assist the GDRM in developing solutions to the administrative and social problems involved in maintaining the water control infrastructure. If promising solutions are developed, AID will expand beyond pilot activities and use significant amounts of resources to rehabilitate deteriorated infrastructure and to establish viable maintenance systems for that infrastructure. As discussed above, the GDRM attitude is cautious but interested concerning pilot activities and developing new approaches to the maintenance problem. It is quite enthusiastic about resources going into actual physical rehabilitation activities.

All major donors are involved in rehabilitating irrigation infrastructure, which is seen as a priority need. Most resouces are going to rehabilitation on the Central Plateau or on the large irrigated perimeters in other areas. Approximately $84.7 million (84% of donor assistance to agriculture and 24% of all donor assistance) is being spent on irrigated agriculture, a large portion of it on the rehabilitation of irrigation infrastructure. There is very limited absorptive capacity in this area, due to the demands on GDRM personnel and management being made by other donor projects. However, as with rural feeder roads, there are geographic and functional areas where GDRM personnel are underutilized and could profit from AID assistance in rehabilitating infrastructure. There is probably no capacity to effectively absorb more donor assistance on large perimeters run by parastatals, and absorptive capacity is extremely limited for the Micro-Hydro service on the Central Plateau. The Micro-Hydro service in other areas may be able to effectively absorb more assistance now, although a reexamination will be needed when it is merged with MPARA's Rural Infrastructure Department. The greatest absorptive capacity

(although it is still limited to specific regions, e.g., Mahajanga) is in the Rural Infrastructure Department for the rehabilitation of small and medium perimeters. Again GDRM absorptive capacity would have to be reexamined when Micro-Hydro and Rural Infrastructure are merged. AID strategy on rehabilitation of perimeters will be to pay close attention to costs and returns since at some point, delivery of fertilizer (despite the high internal transport costs) will have a greater benefit/cost ratio than continued rehabilitation of irrigation works.

Technology Development and Agricultural Research.

AID strategy is to lay the basis now on which new technology can be developed for the medium term when it will be a critical factor in Malagasy agricultural development. Given the time it takes to produce viable technology, and the disarray in the current research system, a medium-term need for new technology requires that assistance be initiated immediately. Assistance will be in two areas, rice research and research organization and management affecting all crops.

Rice research will be focused on selection of varieties from Malagasy and external sources which can be grown using existing cultural practices, and then on developing improved cultural practices. Support through IRRI for technical assistance and training will be continued. In addition, some support to current rice seed multiplication efforts will be given.

Rice research as well as that for other crops will be successful only if the research system is reoganized and rehabilitated. Assistance in this area will involve enccouragement of a complete reorganization of FOFIFA (as recommended by ISNAR), development of a farming systems approach to research, rehabilitation of physical infrastructure, recurrent cost funding, and training and technical assistance in technical areas as well as in research management and administration.

The GDRM appears to be enthusiastic about donor support to FOFIFA, and about reorganizing FOFIFA. Other donor involvement, by the FAC and IBRD, is just in its initial stages, and both donors are eager for US participation. The UNDP is assisting to develop a GDRM seed production capacity, and the FAO is helping GDRM rationalize its quarantine system. Absorptive capacity is high. FOFIFA has a large staff of scientists and professionals receiving no guidance and working with no budgetary support. The guidance and support to be provided by AID and other donors will be effectively used.

Notes

1/ This section abstracts from Annex I of the IBRD's Madagascar Agriculture and Rural Development Sector Memorandum.

2/ IBRD, p. 166 estimates that half the national herd is in herds of 15 to 70. If each herd is owned by a single household, and if the average herd size is 28, then half the national herd is held by 178,571 households (5 million divided by 28). The other half is divided among much larger herds, often in the hundreds. If the average herd size for this half is 100, then an additional 50,000 households own cattle. The total of 228,571 represents 15% of total farm households (approximately 1.5 million).

3/ 30 billion FMG (1960s current FMG) by 480 FMG (Nov. 1983 exchange rate) = $62.5 million.

4/ Based on AIRD/MPARA, Le Secteur Rizicole a Madagascar, Feb. 1983, p. 24. Analysis in this report indicates that 47% of the increase is attributable to irrigation development. Most such development was part of the investment program.

5/ ibid, p. 26. Also, IBRD, Madagascar Argiculture and Rural Development Sector Memorandum, June 30, 1983, p. 328.

6/ AIRD/MPARA, p. 25. The intensity of cultivation has declined from 1.10 to less than 1.05.

7/ IBRD, June 1983, p. 318.

8/ One of these reports is being prepared by the consulting firm Euroconsult, the other by the firm GERSAR in consultation with the local firm Mpamukatra.

9/ Ahlers, et al. IBRD funded the foreign exchange costs. Local currency generations from US PL 480 sales were used to pay the local costs of the study.

10/ Ahlers, et al., pp. 29-33

ANNEX 1

Notes on a Paradigm for Donor Involvement in Agriculture Development

The following paradigm provides a way of looking at the agricultural sector of a developing country in developing a strategy for its agricultural sector. This paradigm is the result of recent evaluations of some 30 years experience by donors and governments in supporting agricultural development.

1. Agricultural development requires a number of interrelated activities focused on the farm production unit to occur simultaneously.

2. Within this number of simultaneous requirements for agricultural growth and development, donors (and governments) should put priority on assuring adequacy of two of them - technology and policy environment.

   A. Technology

   Technology is the basic element in agricultural development. Technology can be defined as an efficiency factor in the production process, i.e., greater output from a given amount of resources. To be effective technology must be adapted to the human, financial and resource capabilities of the user and the environment it occurs in. In agriculture, technology is usually site specific.

   Technology is dynamic. Once on the technology path, a continued stream of new technology is required to continue to move ahead. It is imperative, therefore, that an institution (s) to develop this stream of technology be created. Without technical means to increase output efficiency, no long-term agricultural growth can occur.

   B. Policy Environment

   Once technology is assured, the next issue to focus on is how to motivate the farmer and the required production supportive structures to make the effort necessary to use that technology to actually increase production. This motivation is largely determined by the policy environment this effort occurs in. The key in this policy area is

incentives. Not only to farmers but to traders, transporters and others that support the production process. While price policy plays a major role in this regard, there are also a number of other policy areas that need to be properly adjusted. These include investment policy for supportive infrastructure and services; foreign exchange policies for export of production and import of factors of production; marketing policies to remove barriers to the free flow of commodities, labor, capital and information; and financial and fiscal policies to assure adequate availability of credit at a realistic market rate. As with technology, a proper policy environment requires continued modification to adapt to changing internal and external markets. Adequate institutional capacity in the host government to do policy analysis and planning must be assured or created.

3. If there is farmer acceptable technology available within a policy environment that encourages its use, donors then need to look at the other supporting factors required for agricultural growth and development. These supporting factors include extension, credit, input supply and commodity marketing (transport, storage and processing).

   In looking to assist these supporting factors, donors (and governments) need to pay special attention to three major issues: 1) management constraints, 2) recurrent cost and long-term economic viability, and 3) incorrect incentives signals that result in perverse program effects.

   These three issues not only relate to the supportive factors of agricultural production, but also affect the two priority areas of technology and policy. It is important, particularly in the policy area, for example, that donors do not encourage the establishment of large central planning, policy and statistical offices not directly proportional to a definable productivity increase in the economy. Nevertheless, unlike much of the supportive factors, institutions for technology and policy are (in the developing world) almost exclusively public sector responsibilities, whereas the use of both the public and the private sector in developing and assisting the supportive factor institutions provides greater opportunity for creativity to develop cost-effective mechanisms to deliver required services.

A. Management Constraints

Management capability, or lack of it, has been the basic fundamental constraint on African long-term developmental efforts. The literature seems to indicate this is also the case in Madagascar. While there are a number of highly qualified African managers, there are not enough of them at the right levels for the type of developmental tasks most African governments (often with donors' encouragement) have undertaken. At the same time management capability is one of its most limited resources, government programs and policies often waste an important pool of management resources in their country - the small farmer and small entrepreneur. Too often donors and governments have chosen the most management intensive method to deal with a given problem, i.e., centralized state corporations, multi-faceted integrated rural development programs or large capital intensive state institutions.

Several approaches appear promising to deal with the management problem: 1) put the management burden at the lowest possible level linked to the activities to be managed, 2) utilize the private sector whenever possible, and 3) seek the simplest and most efficient organizational form to carry out the task desired. Examples of these approaches include: giving farmers the authority, responsibility and ability to maintain farm related agricultural infrastructure and equipment; encourage the development of an efficient information system rather than a classical extension system to transfer technology to farmers; develop a market information system for traders on real price differentials of food crops among regions instead of a state storage and transport system to equalize food stocks within a country.

B. Recurrent Cost

Recurrent cost constraints reflect much of the same considerations as the management problem and have much of the same answers. Most African economies are so financially weak that they can barely cover government salaries let alone other recurrent costs. Without materials, vehicles or gas, overstaffed government bureaucracies and

parastatals can do nothing except become additional recurrent cost burdens. Donors make this problem worse by creating even more non-productive institutions requiring additional recurrent cost funding.

The long term solution to this problem is to have a closed circle whereby increased productivity caused by government institutions can be tapped through taxation for revenue to pay for that institution. Unfortunately, most government institutions do not result in increased productivity and most government taxing and budgeting processes do not provide adequate funding for those few potentially productive governmental institutions.

There are a few public institutions that are special costs. These institutions may have a long gestation period before the action of the institution can create productive output in the economy. Agricultural research is an example of one of these. Donors may have to be willing to cover recurrent costs of these institutions until the productive results of the institution can be tapped by taxation sufficient to cover their costs.

Additionally, both donors and host governments must look at what services and institutions are the state's responsibility and what is better served by the private sector. Shifting a number of services to the private sector and reorganizing other services into light efficiency-oriented structures linked, where appropriate, to increasing productivity in the economy are two steps required to get a hold of the recurrent cost problem. Once the economy is strong enough, the government can then provide to the needy the non-directly productive social welfare services they deserve.

C. Unintended Results of Development Actions

In several developmental areas over the past 30 years, particularly concerning the development of supportive services, there are a number of cases of well intended programs producing sharply different outcomes than had been intended.

The best documented cases where such perverse or unintended consequences of donors' or governments' development efforts have occurred is in the area of credit, particularly subsidized credit. Dale Adams and associates have developed extensive documentation on how government and donor efforts to provide cheap credit have resulted instead in limiting of credit to the economy; increasing the difficulty of poor, small farmers to obtain credit; and, where credit is available, channeling it to the more powerful, well-to-do farmers and businessmen often for non-agricultural uses. All of these are the opposite of what the programs were intended to do. In addition to these perverse effects, these credit program usually burden the economy with large centralized inefficient government agencies.

In many cases, the answer to the credit question is an indirect one - establish an efficient locally-based rural financial institution with an initial focus not on credit but on mobilization of savings. There are many other, mostly less dramatic, examples in development literature of this type of unintended effect of government and donor efforts in agriculture development.

No one can tell the future, but in developing projects certain guidelines can help to predict outcome. Among these is a more indepth focus on incentives and who receives economic gain. While the marketplace has a number of excesses, it does provide, if kept free to act, a self-correcting mechanism that can be used to achieve desired results.

Implication of the Paradigm

The paradigm put together here differs from previous approaches to donors' efforts in agricultural development in several ways. First, where in the past there has been a focus on such support activities as developing extension services, credit systems or other governmental-based farm services, these activities under this paradigm are much less likely to receive high priority. Before launching such efforts, consideration must first be on assuring that both technology and the policy environment are appropriate for increased production and that other more efficient means have been explored to achieve the same ends. In Africa, these conditions are often difficult to meet and developing such government-based services will require extensive justification.

Second, the large integrated rural development (IRD) programs so popular a few years ago do not fit well into this paradigm. These projects are management intensive, create major recurrent costs and in most of Africa have had neither the necessary technology nor proper policy environment to increase production enough to pay for the service system established by the IRD project.

General Notes for CDSS From Don Brown

Taking this paradigm and following it through with the information we have to date on the agricultural sector in Madaguscar suggests the following list of short-term and long-term constraints (needs) in the agricultural sector.

1. Short-Term Needs

Technology - OK for the moment with proper water control (rice)

Policies - The area of major difficulty in the sector. May be cause of much of the other problems. Need to encourage and expand present policy of liberalization.

Services - (1) Rehabilitate water system
(2) Rehabilitate road network
(3) Expand input supply

2. Mid-Long-Term Needs

Technology - Need to rebuild research system

Policies - Need to build a light production-orientated policy analysis and data collection system

Services - (1) Maintenance of infrastructure
(2) Privatization of most input and commodity marketing
(3) Establish effective information service for farmers

From these needs, I would recommend the following strategy for development of the agricultural sector.

1. Short-Term

- Support major policy reform and liberalization thru:

  - o Policy analysis short course at IMATEP
  - o Additional studies such as AIRD
  - o Use of ESF to encourage GDRM to continue policy reforms (liberalization)

- o Work to support IMF/WB in policy reform areas
- o Other short-term efforts.

- Support Research Through

  - o IRRI project with possible expansion
  - o Additional training of researchers

- Services

  - o Use ESF to address rehabilitation effort through purchase (CIP) spare parts and equipment while using local currency to pay for labor, training, etc. to rebuild infrastructure.

2. Long-Term

- Develop with the World Bank and the French a major program to revitalize and reorientate the ag. research system

- Contract with PVO to begin work on establishing a self-sustaining maintenance system on irrigation infrastrucutre (may have to be linked to policy reform)

- Encourage policies and legal statutes that support and provide incentives for private sector efforts in input supply and commodity marketing.

BIBLIOGRAPHY

(Parentheses indicate where the document is available)

Ahlers, Theodore H. et al. Le Secteur Rizicole a Madagascar, Rapport de la Premiere Phase. GDRM, Ministere de la Production Agricole et de la Reforme Agraire/Associates for International Resources and Development, 1983. (USAID/Tana)

FAO. Preparation de Dossiers de Microhydraulique, Madagascar: Conclusions et Recommandations du Projet. Rome, 1980. (UNDP documentation center)

FAO. Reconstruction d'Amenagements Hydro Agricoles: Conclusions et Recommandations du Projet. Rome, 1983. (UNDP documentation center)

GDRM. Ministere du Developpement Rural. Bilan et Perspectives de la Politique Rizicole. Tananarive, 1972. (Statistiques Agricoles, MPARA)

GDRM. Ministere du Development Rural. Politique Rizicole. Tananarive, 1973. (Statistiques Agricoles, MPARA)

GDRM. Ministere de la Production Agricole et de la Reforme Agraire. Le Secteur Rizicole a Madagascar: Essai vers une Future Strategie et Une Nouvelle Dynamique. Antananarivo, 1982. (Statistiques Agricoles, MPARA)

International Service for National Agricultural Research. La Recherche Agricole a Madagascar: Bilan et Perspectives du FOFIFA. The Hague, 1983. (USAID/Tana)

LeBoureillec, Francoise. La Culture du Riz de Madagascar. (FAC, Mr. Leger)

Pathak, M. D., et al. Rice in Malagasy Republic. Manila: International Rice Research Institute, 1982 (USAID/Tana)

Rakotobe Rabehevitra, Eugene. Etude du Secteur Rizicole, Phase 1: Description du Milieu Agronomique. GDRM, Ministere de la Production Agricole et de la Roforme Agraire/Associates for International Resources Development, 1983. (the author, OMIPRA)

Razafindratovo-Ramamonjisoa, Janine. Riz: Rapport Socio - Economique. (MPARA/Service du Coordination du Sectour Riz)

World Bank. Madagascar Agriculture and Rural Development Sector Memorandum. 1983.

World Bank. Madagascar Second Village Livestock Project Appraisal Report. 1979

TABLE 1: FARM ENTERPRISES (1980)

	Farm Families (000)	Hectarage (000)	Production (000 MT)	Export Revenue (FMG Million)	% Total fob Merchandise Exports
Rice [1]	1,178	1,178	2,109	(11,700)[7](import cost)	(14%) (Import Cost)
Livestock (cattle)[2]	228 to 1,750[9]	10,100 (head)	115 (meat)	4,122[6]	5%
Cassava[3]	—	315	1,600	0	0
Maize[3]	—	135	145	0	0
Coffee[4]	350	218	80	45,110	53%
Cloves[4]	80	63	12	6,583	8%
Pepper[4]	80	8	2.8	1, 22	1%
Vanilla[4]	70	20 to 30	2.6	3,945	5%
Tobacco[4]	30 (approx.)	—	1.2 (approx.)	0	0
Cotton[4]	20	17	23	1,800[5]	2%
Sugar[4]	4 estates,	30	109	2,470[6]	3%
Cocoa[4]	2	4	1.6	677	1%
Lima beans	—	—	5.9	590[6]	0.7%
Groundnuts	—	—	34	(2,600)[8](Import cost)	(3%) (Import Cost)

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NOTES FOR TABLE 1

1 IBRD, p. 181; Ahlers, p. 22; approximate average ha per family = 1 ha.

2 IBRD, p. 166; Approximate 900,000 head slaughtered yielded 115,000 T meat.

3 IBRD, p. 139.

4 IBRD, Annex 1.

5 Data from Callison.

6 Data from Callison.

7 IMF, Madagascar Staff Report for the 1982 Article IV Consulation and Request for Stand-By Agreement. 1981-83 imports were significantly higher.

8 Import cost of vegetable oil, 1977, for which increased domestic groundnut production could substitute.

9 See Section 3, The Livestock Subsector.

TABLE 2: RICE CULTIVATION METHODS

MODES DE CULTURES DES EXPLOITATIONS RIZICOLES

As % of total riceland

En % de la superficie rizicole totale

PROVINCE Préfecture	METHODE DE MISE EN VALEUR Cultivation method		MODE DE PLANTATION Planting method		
	IRRIGUE (Bacs et gradins) Wetrice	PLUVIAL (Tanety et Tavy) dryland	SEMIS DIRECT Broadcast	REPIQUAGE Transplant	
				Foule random	Ligne line
MADAGASCAR.....	72,76	27,24	44,36	51,33	4,31
TANANARIVE.....	97,27	2,73	33,80	59,46	6,74
FIANARANTSOA.....	70,83	29,17	30,59	62,87	6,54
TAMATAVE.....	56,49	43,51	60,05	38,25	1,70
MAJUNGA.....	76,37	23,63	42,30	54,94	2.76
TULEAR.....	86,00	14,00	39,57	52,80	7,63
DIEGO-SUAREZ.....	51,57	48,43	64,26	28,47	7,27
Imerina Centrale	98,23	1,77	43,42	50,30	6,28
Vakinankaratra...	96,79	3,21	46,70	46,67	6,63
Itasy.....	96,19	3,81	4,91	87,54	7,55
Fianarantsoa.....	90,83	9,17	23,91	72,84	3,25
Manamanjary.....	42,10	57,90	42,74	41,27	15,99
Farafangana.....	84,73	15,27	26,19	73,41	0,50
Tamatave.....	14,40	85,60	71,06	28,43	0,51
Ambatondrazaka...	78,80	21,20	57,87	38,88	3,25
Fenerivo-Est.....	52,28	47,72	49,57	50,43	-
Majunga.....	88,70	11,30	28,79	71,12	0,09
Antsohihy.....	63,63	46,37	60,99	38,62	0,39
Maintirano.....	85,71	14,29	10,15	73,96	15,89
Tuléar.....	86,20	13,80	67,39	27,95	4,66
Fort-Dauphin.....	88,00	12,00	48,25	51,02	0,73
Morondava.....	85,03	14,97	13,18	73,53	13,29
Diego-Suarez.....	35,40	64,60	86,69	8,69	4,62
Antalaha.....	58,77	41,23	50,32	40,76	8,92

Source : Service de la Statistique Agricole (MPARA)
Enquête Rizicole, Campagne 1973/74

From: GDRM/MPARA. Le Secteur Rizicole à Madagascar = Essai vers une Future Strategie et une Nouvelle Dynamique, 198

TABLE 3: FUNCTIONING OF IRRIGATED AREAS

FONCTIONNEMENT DES RESEAUX HYDROAGRICOLES

	1. AREA SERVED BY CANALS SUPERFICIE DOMINÉE (Ha)			2. AREA IRRIGATED SUPERFICIE IRRIGUÉE (Ha)			2/1	3 OVERALL LAND AREA SUPER. PHYSIQUE (Ha)		2/3	Sup. (77-78)/77 %
	classés / classified	Non classés / unclassified	Total	classés / classified	Non classés / unclassified	Total	SI/SD %	1977	1978	Sup. irriguée / Sup. phys.	
MADAGASCAR.....	260.363	152.602	412.965	138.420	39.755	178.175	43,15	1.144.265	1.100.770	15,57	- 3,80
TANANARIVE.....	59.554	66.204	125.758	29.660	30.897	60.557	48,15	185.580	200.625	32,63	+ 8,11
FIANARANTSOA...	11.601	19.113	30.714	6.675	3.978	10.653	34,68	261.910	243.405	4,07	- 7,07
TAMATAVE.....	63.979	29.643	93.622	40.448	1.434	41.882	44,74	268.275	275.015	15,61	- 2,51
MAJUNGA.....	46.125	10.600	56.725	25.921	720	26.641	46,97	218.360	175.270	12,20	-19,73
TULEAR.....	44.370	19.107	63.477	20.226	1.844	22.070	34,17	100.325	98.600	22,00	- 1,72
DIEGO-SUAREZ...	35.774	4.687	40.461	15.800	752	16.552	40,91	109.815	107.855	15,07	- 1,78
Imerina Centrale	21.750	19.998	41.748	18.402	9.656	28.058	67,21	74.775	83.930	37,52	+12,24
Vakinankaratra.	33.150	38.341	71.491	7.700	21.241	28.941	40,48	50.650	52.280	57,14	+ 3,22
Itasy.....	4.654	7.865	12.519	3.558	-	3.558	28,42	60.155	64.415	5,91	+ 7,08
Fianarantsoa...	5.091	12.472	17.563	3.395	410	3.805	21,66	109.135	94.635	3,49	-13,24
Mananjary.....	950	3.298	4.248	720	3.298	4.018	94,59	78.840	77.055	5,10	- 2,26
Farafangana....	5.560	3.343	8.903	2.560	270	2.830	31,79	73.935	71.665	3,83	- 3,07
Tamatave.....	800	3.025	3.825	370	425	795	20,78	73.525	70.265	1,08	- 4,43
Ambatondrazaka.	53.651	7.190	60.841	37.410	-	37.410	61,49	120.440	125.450	31,06	+ 4,16
Fenerive-Est...	9.528	19.428	28.956	2.688	1.009	3.677	12,70	74.310	79.300	4,95	+ 6,72
Majunga.....	28.050	2.400	30.450	18.197	-	18.197	59,76	68.185	58.485	26,69	-14,23
Antsohihy.....	14.755	4.650	19.405	6.990	720	7.710	39,73	113.000	86.285	6,82	-23,64
Maintirano.....	3.320	3.550	6.870	734	-	734	10,68	37.175	30.500	1,97	-17,96
Tuléar.....	25.100	8.570	33.670	13.155	650	13.805	41,00	31.565	30.810	43,74	- 2,39
Fort-Dauphin...	7.720	7.407	15.127	2.436	1.194	3.630	24,00	25.265	25.670	14,37	+ 1,60
Morondava,.....	12.050	3.130	15.180	4.635	-	4.635	30,53	43.495	42.120	10,66	- 3,16
Diégo-Suarez...	34.624	792	35.416	14.700	42	14.742	41,63	32.915	34.305	44,79	+ 4,22
Antalaha.....	1.150	3.895	5.045	1.100	710	1.810	35,88	76.900	73.550	2,35	- 4,36

Source : Recensement Service de l'Irrigation.

SI = Superficie irriguée
SD = Superficie dominée

From: GDRM/MPARA. Le Secteur Rizicole à Madagascar : Essai vers une Future

TABLE 4: CONCESSIONAL AND COMMERCIAL IMPORTS OF RICE AND VEGETABLE OIL, 1979-1983 (Metric tons)

Year	Commercial	Concessional	Total Imports	Concessional as % of Total Imports
RICE[1]				
I979	155,950	0	155,950	0%
1980	176,838	0	176,838	0%
1981	178,724X	13,191	191,465X	68%
1982	268,599	88,827	357,426	25%
1983	96,975	97,703	194,678	50%
VEGETABLE OIL[2]				
1979	13,219	514	13,733	4%
1980	14,775	70	14,845	0.4%
1981	9,474	619	10,093	6%
1982	6,203	554	6,757	8%
1983	12,855	1,400	14,255	10%

Notes

1/ Cable 1983 Antan 2550

2/ Cable 1983 Antan 2832

X Cable 1984 Antan 310

TABLE 5: FERTILIZER SALES (1977)

VENTES D'ENGRAIS C.P.A.A. 1977 (en Tonne)

	SIMPLE FERTILIZER / ENGRAIS SIMPLES			COMPLEX FERT / C O M P L E X E S		
	AZOTES N	POTASSE K	PHOSPH. P_2O_5	Bin	Ter	Dol
MADAGASCAR.....	764,61	112,72	363,37	953,64	513,97	152,57
Imerina Centrale	193,51	26,70	81,46	425,75	279,34	11,44
Vakinankaratra...	127,13	38,77	33,29	65,28	71,00	18,84
Itasy.....	56,87	7,24	93,19	0,64	18,32	6,08
Fianarantsoa.....	145,39	31,94	143,33	442,55	113,44	91,01
Mananjary.....	14,19	-	1,02	5,67	3,18	0,31
Farafangana.....	13,61	-	4,49	13,57	-	-
Tamatave.....	88,58	-	-	e	e	18,08
Ambatondrazaka...	18,81	1,85	e	-	19,31	6,26
Fenerive-Est.....	2,39	0,13	e	0,14	2,37	-
Majunga.....	4,65	0,90	2,80	-	2,27	-
Antsohihy.....	e	-	-	-	-	-
Maintirano.....	1,01	-	-	-	-	-
Tuléar.....	-	-	-	-	-	-
Fort-Dauphin.....	11,27	e	-	-	1,60	-
Morondava.....	1,36	3,50	-	-	-	-
Diego-Suarez.....	85,84	1,69	3,69	-	3,11	0,55
Antalaha.....	-	-	-	-	-	-
TANANARIVE.....	377,51	72,71	207,97	491,67	368,66	36,36
FIANARANTSOA.....	173,19	31,94	148,84	461,79	116,62	91,32
TOAMASINA.....	109,78	1,98	0,10	0,18	21,71	24,34
MAJUNGA.....	5,66	0,90	2,80	-	2,27	-
TOLIARY	12,63	3,50	-	-	1,60	-
DIEGO-SUAREZ.....	85,84	1,69	3,69	-	3,11	0,55

% of fertilizer use by region

% de consommation d'engrais par type au niveau des Faritany

TANANARIVO.....	49,37	64,50	57,23	51,56	71,73	23,84
FIANARANTSOA.....	22,65	28,34	40,95	48,42	22,69	59,85
TOAMASINA.....	14,36	1,75	0,03	0,02	4,22	15,95
MAJUNGA.....	0,74	0,80	0,77	-	0,44	-
TOLIARY.....	1,65	3,11	-	-	0,31	-
DIEGO-SUAREZ.....	11,23	1,50	1,02	-	0,61	0,36

Bin = Binaires Ter = Ternaires Dol = Dolomie (Amendement calcaire)
e = Résultat de valeur inférieure à l'unité choisie
Source = Service de la Statistique Agricole
Annuaires des Statistiques Agricoles 1977

From: GDRM/MPARA. Le Secteur Rizicole à Madagascar: Essai vers Une Future Strategie et Une Nouvelle Dynamique, 1982

TABLE 6 : USE OF ANIMAL TRACTION EQUIPMENT

UTILISATION DE MATERIEL ATTELE

Enquête Rizicole, campagne 1973/74

	EFFECTIF DE MATERIEL / ON-FARM MATERIAL				VENTE DE CHARRUES C.P.A. / PLOW SALES					
	PLOWS Charrues		WEEDERS Sarcleuses	HARROWS Herses	PLOWS 30-35 Kg CHARRUES 30 Kg - 35Kg			PLOWS 45 Kg CHARRUES 45 Kg		
	B. D.	S. V.	rotatives		1974	1975	1976	1974	1975	1976
MADAGASCAR.....	19.800	130.280	55.055	144.565	5.279	6.669	6.443	384	481	372
TANANARIVE.....	4.170	55.435	30.620	90.000	803	919	1.146	194	106	183
FIANARANTSOA.....	1.775	12.990	11.495	8.045	1.056	688	1.213	94	80	30
TOAMASINA.....	7.880	13.840	3.580	24.165	228	233	259	28	52	82
MAJUNGA.....	5.555	31.570	2.815	13.890	1.071	2.491	1.668	22	164	61
TOLIARY.....	140	9.735	545	2.025	1.753	1.670	1.454	44	57	10
DIEGO-SUAREZ.....	280	6.710	-	6.440	368	668	703	2	22	6
Imerina Centrale'	1.330	24.655	18.295	35.785	324	288	463	42	25	78
Vakinankaratra...	1.800	9.510	11.040	24.290	279	282	167	152	62	45
Itasy.....	1.040	21.270	7.285	29.925	200	349	516	-	19	60
Fianarantsoa.....	1.520	10.120	4.245	7.705	1.056	688	1.174	66	80	30
Mananjary.....	-	470	7.250	145	-	-	13	28	-	-
Farafangana.....	255	2.400	-	195	-	-	26	-	-	-
Tamatave.....	505	1.105	-	-	-	-	11	-	-	-
Ambatondrazaka...	7.375	12.115	3.580	23.955	228	233	248	28	52	76
Fenerive-Est.....	-	620	-	210	-	-	-	-	-	-
Majunga.....	445	11.405	445	6.565	568	773	1.297	-	4	8
Antsohihy.....	5.110	19.235	2.370	7.060	457	1.591	236	22	160	53
Maintirano.....	-	930	-	265	46	127	135	-	-	-
Toliary.....	-	2.290	305	190	541	686	339	44	-	-
Fort-Dauphin.....	-	4.580	-	1.580	1.138	876	1.020	-	-	8
Morondava.....	140	2.865	240	255	74	108	95	-	57	2
Diégo-Suarez.....	280	3.110	-	280	146	381	160	2	22	3
Antalaha.....	-	3.600	-	6.160	222	287	543	-	-	3

B. D. = Brabant double

S. V. = Simple ...

From: BDRM/MPARA. Le Secteur Rizicole à Madagascar: Essai Vers une Future Stratégie et Une Nouvelle Dynamique 1977

TABLE 7: OVERALL DEVELOPMENT ASSISTANCE TO MADAGASCAR, 1982[1]
($000)

	1. Technical Assistance	2. Investment	3. Total (1 + 2)	4. Total sectoral as percentage of total assistance. (3/D3)
A. Agriculture	23,717	75,395	99,112	27%
B. General development, planning and policy	3,834	10,742	14,576	4%
C. Transportation	6,624	78,503	85,127	24%
D. Total Assistance	94,868	267,299	362,167	100%

[1] From UNDP, Les Aides au Developpement: Madagascar, 1982. Costs of a major World Bank transport project not included in he UNDP document were added to this table.

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MADAGASCAR

ANNEX VII
Table 2

AGRICULTURAL SECTOR MEMORANDUM

IRRIGATION SUB-SECTOR — LE SOUS-SECTEUR IRRIGATION

Classification of the Irrigation Schemes 1/
Classification des Périmètres d'Irrigation 1/

Schemes (a) and (b) are Classified Schemes
Les Périmètres (a) et (b) sont des "Périmètres Classés"

Types of Schemes/ Types de Réseaux	Schemes/Réseaux			Total Area (ha)/Superficie totale (ha)		
	Number/ Nombre	Present average size (ha)/ Superficie moyenne actuelle (ha)	Present maximum size (ha)/ Superficie maximum actuelle (ha)	Controlled by irrigation canals/ Dominée par des canaux	Actually irrigated/ Réellement irriguée	Total estimated potential/ Potentiel estimé total
(a) Large schemes(1st class 1st Category)/Grands Périmètres (1ere Classe, 1ere Catégorie)		(Between (3,000ha (and 10,000ha (Entre 3,000 (ha et 10,000 (ha				
Already implemented/ Déjà créés			35,000	110,000	80,000	330,000
New projects/ Nouveaux projets	3 1/			-	-	35,000
Sub total/Sous-total	10			110,000	80,000	365,000
(b) Medium Scale Schemes(1st Class, 2nd Category and 2nd Class)Périmètres Moyens dits "Petits Périmètres" (1ere Classe, 2eme Catégorie et 2eme Classe)	130	600 - 1,200	2,000	200,000	80,000	n.a.
(c) Small Schemes(3rd Class, 1st Category)Petits Périmètres(3eme Classe, 1ere Catégorie)	)))					
(d) Micro-hydraulics/3rd Class, 2nd Category/Micro-hydraulique/3eme Classe, 2eme Catégorie	) 900 2/)))	100 - 150	1,000	n.a.	300,000 2/	n.a.
		5 - 10	100			
(e) Family Rice Fields/ Rizières Familiales	n.a.	1 - 5			500,000 2/	
Total					960,000	

1/ The number of schemes are tentative as well as the areas mentioned (except for the large schemes)/Le nombre de réseaux ainsi que les superficies indiquées est approximatif (sauf pour les grands périmètres).

2/ Very tentative/Très approximatif.

June 6, 1983

From: Madagascar Agriculture and Rural Development Sector Memorandum, IBRD

TABLE 1

MADAGASCAR

AGRICULTURAL SECTOR MEMORANDUM

ANNEX VII
Table 5
Page 1

IRRIGATION SUB-SECTOR — LE SOUS-SECTEUR IRRIGATION

Comparison of Average Investment Costs per Annual Additional Ton of Paddy for the Different Types of Irrigation Schemes
Comparaison des Coûts d'Investissement Moyens par Tonne Additionnelle de Paddy pour les Différents Types de Périmètres d'Irrigation

	Units/ Unités	New large irrigation schemes/ Nouveaux grands périmètres d'irrigation	Rehabilitation of medium irrigation schemes/ Réhabilitation des périmètres de moyenne hydraulique	Very small irrigation schemes (Micro-hydraulics)/ Petits périmètres d'irrigation (Micro-hydraulique)	
A. Investment Costs/ Coûts d'Investissement		——— including costs of roads ——— ——— y compris le coût des routes ———		Without costs of roads/ Sans coût des routes	With costs of roads/ Avec coût des routes
1. Irrigation and Road Works/ Travaux d'Irrigation et Routiers	FMG/ha	1.5 m to 2.5 m	550,000 to 850,000 1/	110,000 3/	350,000 4/
Of which roads infrastructure/ Dont infrastructure routière	FMG/ha	n.a. 5/	(from 10,000 to 340,000 2/ plus all roads along the main canals)/ 10,000 à 340,000 2/ plus routes longeant les canaux principaux)		(240,000)
2. Costs for Additional Actions/ Coûts des Actions Supplémentaires					
Stores, equipment, revolving funds for inputs, extension services, etc./Magasins, équipement, fonds de roulement pour les intrants, vulgarisation, etc.	% of/de 1.	Around 50%/ Environ 50%	Around 50%/ Environ 50%	6/	
Total investment costs/ha/ Total coûts investissements/	FMG/ha (US $/ha)	2.2 m to 3.7 m (5,700 to 9,600)	820,000 to 1.3 m (2,100 to 3,400)	110,000 (300)	350,000 (900)
B. Additional Production of Paddy/ Production Additionnelle de Paddy					
1. Wet Season Crop/Saison Humide					
Present/Actuellement	t/ha	Negligible	0.7 ha 8/ @ 1.6 t/ha = 1.1		
With project/Avec projet	t/ha	1 ha @ 3 t/ha = 3.0	1 ha @ 3.0 t/ha = 3.0		
Additional production/ Production additionnelle	t/ha	3.0	1.9		
2. Dry Season Crop/Saison Sèche					
Present/Actuellement	t/ha	Negligible	Negligible		
With project/Avec projet	t/ha	0.3 ha 7/ @ 3 t/ha = 2.4	0.5 ha 9/ @ 3 t/ha = 1.5		
3. Total Additional Production/ Production Additionnelle Totale	t/ha	5.4	3.4	0.4 10/	0.4 10/
C. Investment Costs per Additional Ton of Paddy/Coûts d'Investissement par Tonne Additionnelle de Paddy	FMG/t	400,000 to 690,000	240,000 to 330,000	275,000	875,000

From World Bank, Madagascar Agriculture And Rural Development Sector Memorandum

TABLE 10A: DONOR ASSISTANCE IN AID STRATEGY AREAS ($000)

Policy and Incentives		$76,395
Negotiation on pricing, marketing, and exchange rate policies		
Training in policy analysis/ information	8,185	
Rural Transport	68,210	
Policy on public finance and local administration of irrigation		
Water Control		84,724
Agricultural Technology and Research		948

Notes

Table based on UNDP, Les Aides au Developpement: Madagascar, 1982. July 1982. Financing is life-of-project financing. Some activities appear twice, once for technical assistance costs and once for other costs.

TABLE 10B: POLICY & INCENTIVES

Negotiation on pricing, marketing, and exchange rate policies:
CCCE, FAC, IBRD, IMF

Training in policy analysis/information:

UNDP - IMATEP	82
UNDP - IMTP	2,403
IRBD - MPARA/Ag. Institutions	5,700
Subtotal	8,185

Rural Transport

UNDP - Importing road const. material	313
France (coop) TA Ministry Pub Works	372
FAC - Feasibility Study - (Maintenance Mahajanga)	775
France (coop)- Transport Plan	54
U.K. - Inventory of Damaged Roads	50
FED - Technical supervision for road construction (Manakaralando)	350
China - Construction Maramargo-Andranorampago	---
FAC - Material for Public Works	171
CCCE - Rehabilitation - Maramanga-Vehidiala	1,480
NORAN - Rehabilitate secondary roads, Vakinakaratra	175
FED - Studies for Sambra/ Samieram-Ivango	920
FED - Manakam-Irondo	18,550
IBRD - 6th Highway Project	45,000
Subtotal	$68,210

Policies on public finance and local administration of irrigation:
FAC, IBRD, CCCE, FED, FAO

TOTAL $76,395

TABLE 10D: AGRICULTURAL TECHNOLOGY AND RESEARCH

FAO - Support to Quarantine Sevice	85	
FAC - FSR Late Alaotra	853	
IBRD - Support to Ag. Institutions (counted under 10B above)		
FAC - FSR Lake Alaotra	10	
FAC - 5 TA for FOFIFA		
TOTAL		948

TABLE 10C: WATER CONTROL

FED - Micro-Hydro (Antanamarivo & Fianarantsoa)	770
UNDP - Rehabilitation of Savoka, (Antrakata, Fotobahitra, Tsaramaindndro)	585
UNDP - Infrastructure for second crop, Lake Alaotra	64
FAO - Rehabilitation of perimeters (Antamanarivo, Fianarantsoa, Mahajanga)	250
FAO, BADEA - Rehabilitation of perimeters	1,031
FAC - Study for Lake Alaotr	434
FAC - Study of valleys south of Lake Alaotra	853
FAC - Hydrology study for agriculture	388
France (coop) - Scholarships Genie Rura	171
FAC - TA for SOMALAC	98
FED - Improvement cyclone damage on perimeters (Antan, Antsiranana, Mahajanga, Fianarantsoa)	200
CCCE - Rehabilitation of Lake Alaotra perimeters	1,380
CCCE - Rehabilitation of perimeters on Antananaviro plain	1,799
FED - Micro-hydro	7,000
FAD - Repair irrigation/road infra-structure (Antan, Fianarantsoa, Mahajanga)	12,000
FED - Improvement of Andapa Basin	5,400
FED - Study for a perimeter at Maintirano	
FED - Repair perimeters damaged by cyclones	4,100
IBRD - New lands on Mangoky plain (mic/cotton)	12,000
BAD - Project Rice II (Ifanja - Marianrivo and Antsaparana-Moramanga)	10,000
BAD - Water control for rice	6,100
Germany - Rehabilitation FIFABE	1,185
TOTAL	84,724