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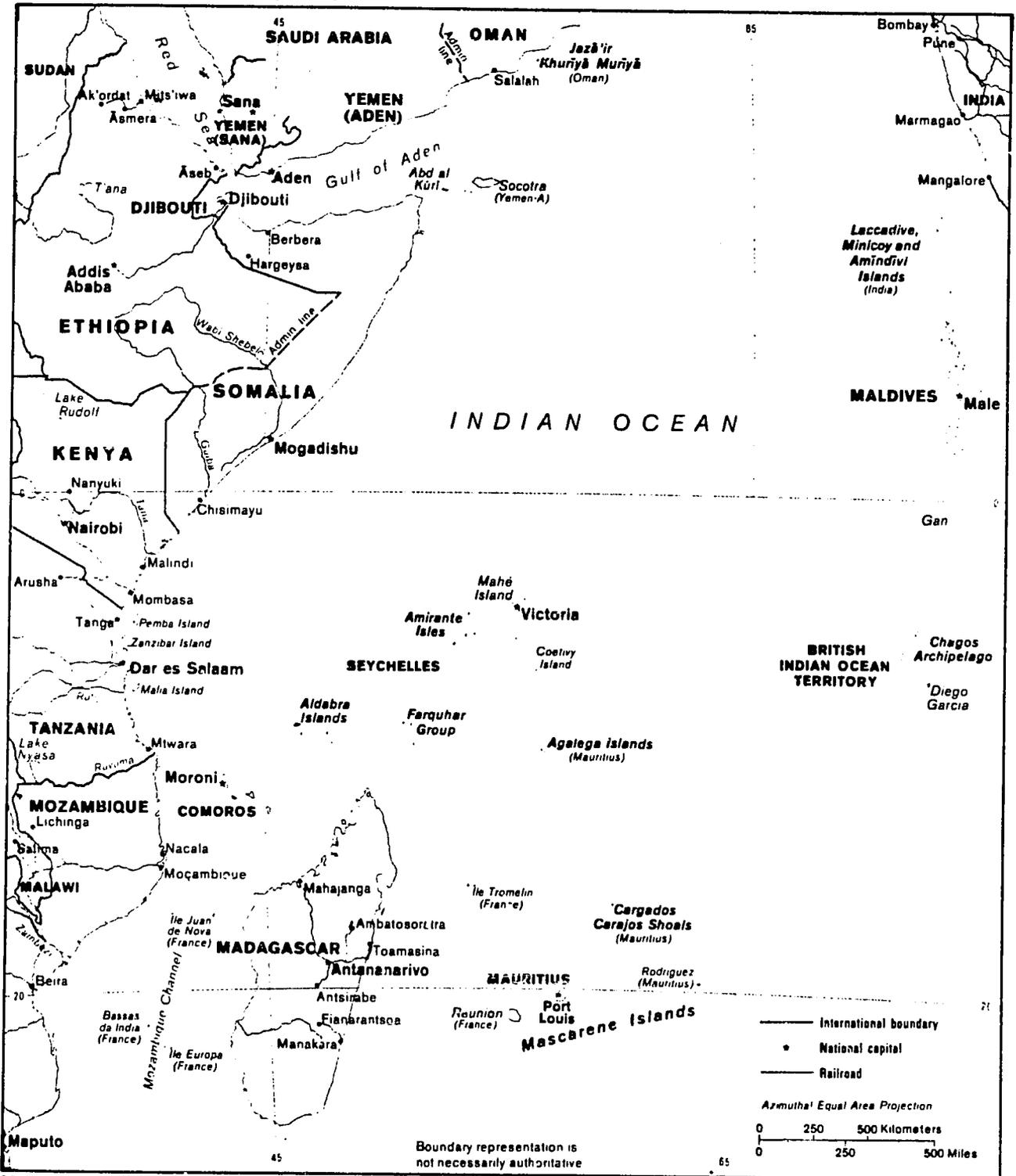
Island Countries of the Indian Ocean

A Regional Profile

July 1980

**Office of Foreign Disaster Assistance
Agency for International Development
Washington, D.C. 20523**

Western Indian Ocean



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INDIAN OCEAN

Island Countries of the
Indian Ocean

* In preparation

ISLAND COUNTRIES OF THE INDIAN OCEAN: A REGIONAL PROFILE

prepared for

The Office of U. S. Foreign Disaster Assistance
Bureau for Private and Development Cooperation
Agency for International Development
Department of State
Washington, D. C. 20523

by

Evaluation Technologies, Inc.
Arlington, Virginia
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The profile on the Indian Ocean countries is one in a series designed to provide baseline country data in support of the planning, analysis and relief operations of the Office of U. S. Foreign Disaster Assistance (OFDA). Content, scope and sources have evolved over the course of the last three years, and no doubt will continue to do so. The relatively narrow focus is intentional. To avoid redundancy, some topics one might expect to find in a "country profile" are not covered here.

If the information provided can also be useful to others in the disaster assistance and development communities, so much the better. Every effort is made to obtain current, reliable data; unfortunately it is not possible to issue updates as fast as changes would warrant. A cautionary note, therefore, to the reader: statistics are indicators at best, and if names and numbers matter, the bibliography will point to a current source.

We invite your comments and corrections. Address these and other queries to OFDA, AID, as given above.

July 1980

TO:

COUNTRY PROFILE USER Dear _____

Please use this form to note any changes, additions, corrections or suggestions you think would update and improve this country profile. Since our aim is to make these profiles as relevant as possible, your critique is essential and very much wanted. Return comments to Lucy Drobot, OFDA Country Profiles, Room 1262A.

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INTRODUCTION

Although spread over a vast ocean area and diverse in many respects, the six island countries of the Indian Ocean discussed in this profile--Comoros, Madagascar, Maldives, Mauritius, Reunion, and Seychelles--have many characteristics and problems in common. Ranging in size from the "Great Island" of Madagascar with 226,657 sq. mi., to the far-flung archipelago of the Maldives with a land area of only 115 sq. mi., the island countries are of three geological types. The Maldives and more than half of the 90 Seychelle Islands are flat coralline; the remaining Seychelles are high granitic with a rugged topography. Madagascar, Comoros, and the Mascarenes (Mauritius, Rodriguez, Reunion) are mountainous volcanic, located at the edge of the great meridian fractures across the West Indian Ocean. The mountains are raised, tilted, and cut by faults. The highest peaks are volcanoes, two of which, Mt. Katala on Grande Comore and Piton de la Fournaise on Reunion, are still active. All of the countries have a tropical climate with altitude and exposure accounting for temperature and rainfall variations. A system of monsoon winds dominates the climate of the Maldives; the other islands are influenced by a trade winds system south of the equator. Heavy precipitation and periodically devastating cyclonic storms are associated with the northwest monsoon (December to March), affecting southern Seychelles, Comoros, Madagascar, and the Mascarenes.

Ethnic origins are diverse. Descendants of Indonesian, African, and Arab settlers have largely intermingled in Madagascar and Comoros, while the populations of Mauritius, Reunion, and Seychelles, descended mainly from a plantation society, are composed of Africans, Indians, and various mixtures of the two with a European admixture; Sinhalese, Dravidian, and Arab strains predominate in Maldives. Due to French colonization in all but Maldives (a British protectorate after 1887), French cultural influence has been strong, even in Seychelles and Mauritius which became British colonies after 1814. With the exception of Reunion and the island of Mayotte in Comoros (still French dependencies) the countries have all gained independence since 1960. Less conservative and European-oriented than formerly, many governments follow a policy of non-alignment and support efforts to have the Indian Ocean declared a "zone of peace."

The population growth rate is high in the region, but has declined significantly in Mauritius in recent years. Emigration has lowered growth rates in Reunion, Comoros, and, to a lesser extent, Mauritius; rural to urban migration is growing in many of the islands. Population densities range from 13/sq. km. in Madagascar to 434/sq. km. in Mauritius and 479/sq. km. in Maldives. Malnutrition and inadequate health care systems contribute to a poor state of health in some countries but conditions vary, with the health status of the people of Seychelles approaching that of industrialized countries. Malaria, virtually eradicated in Seychelles, Mauritius, and Reunion, and declining in Maldives, is still a serious health problem in Comoros and Madagascar. Waterborne diseases take a high toll in several countries, especially Maldives.

Agriculture is the leading economic activity in the region, accounting for 85% of employment in Madagascar, a large proportion of exports in Mauritius and Madagascar, and virtually all in Reunion and Comoros. Output, however, is generally low; the use of traditional farming methods, a shortage of cultivable land, land tenure arrangements, and the growing disinclination on the part of young people to work in agriculture are among the causes. Foodcrop production (rice, tubers, fruit, maize, etc.) is significant only in Madagascar. Export crops have been given priority--sugar in Mauritius and Reunion, coffee in Madagascar, vanilla, perfume plants, spices, and coconuts in many of the Islands, but especially in Comoros where those crops predominate. Dependence on food imports is consequently high, especially for rice, the staple grain in all the countries. Fishing is the traditional economic mainstay in Maldives, though tourism has become the leading foreign exchange earner there and in Seychelles and is growing in Mauritius. Industry is relatively undeveloped, limited mainly to agricultural processing and textiles except in Mauritius where the establishment of export processing zones has encouraged some diversification. Only Madagascar has significant mineral deposits. The mountainous Islands have considerable hydroelectric potential, but all the countries depend primarily on imported fuel oil for power generation. Further development of infrastructure and transportation systems is required in most of the Islands to facilitate economic and social development.

1. General Information1.1 Geographic Codes

AID 602
 State region AF

1.2 Country Names

Legal Federal and Islamic Republic of the Comoros
 Local Republique Federale et Islamique des Comoros
 Short The Comoros

1.3 Calendar and Holidays

New Year's Day	January 1
Easter Monday	*
Ascension Day	*
Whit Sunday and Monday	*
Comoro Independence Day	July 6
National Holiday	July 14
Assumption Day	August 15
All Saints' Day	November 1
Victory of 1918	November 11
Reconnaisance de l'Etat Comorien a l.O.N.U.	November 12
Christmas Day	December 25
Idi-El-Kabir	*
Maoulida	*
Miradji	*
Idi-El-Fitre	*

*variable dates

Fiscal year: January 1 - December 31

1.4 Currency

The Communauté Financière Africaine franc (CFA fr) is a nonconvertible currency
US \$1 = 209.05 francs CFA (May 1980)
French currency replaced the CFA franc in Mayotte in February 1976

US \$1 = 4.1811 francs (May 1980)

1.5 Time Zones

GMT + 3; EST + 8

1.6 US Mission to the Comoros and Staff

Embassy of the United States (Madagascar)
14-16 Rue Rainitovo, Antsohavoia
P.O. Box 620
Phone: 212-57

Robert S. Barrett, Charge d' Affaires in Tananarive, Madagascar, was accredited to the Comoran Government in 1977.

1.7 Host Country Mission and Staff in US

No diplomatic representation in US.

1.8 Treaties and Agreements

None.

1.9 International Organization Memberships

UN (Comoros defined by UN as consisting of entire archipelago), OAU, G-77, NAM, European Development Fund, World Bank, IMF, African Development Bank.

1.10 Travel and Visa Information

Passport and visa required. Visa obtainable through Embassy of Senegal. Smallpox vaccination required.

1.11 Ethnic and Sociocultural Groups

The majority of Comorans are descendants of early invaders and immigrants, mainly of African, Arab, Persian, and Malagasy origin. Later settlements of Portuguese, Dutch, French, and Indians added to the complex racial pattern. Arab culture is predominant influence throughout the islands.

1.12 Languages

Comorian, related to Swahili and generally written in Arabic script, is the common language. French was the official language before independence when the country returned to Arabic.

1.13 Education

At the time of independence in 1975, only half of all children received any modern schooling and only one in five entered secondary school. After the withdrawal of French personnel, teachers from Belgium, Senegal, and Tunisia were recruited in order to reopen secondary schools.

1.14 Religion

The vast majority of Comorians are Muslims; Christians, mostly Roman Catholics, make up a small minority on Mayotte.

2. Government

2.1 National Government

France granted independence to Grande Comore, Anjouan, and Moheli in December 1975, following a referendum in which those islands voted in favor of independence. 64% of those voting in Mayotte favored remaining French, a position upheld in a subsequent referendum in 1976. Less than a month after the vote for independence, the new government under President Ahmed Abdallah was overthrown in a coup led by Ali Soilih, later elected President by the newly created National Revolutionary Council. In attempting to carry out a revolutionary socialistic program of political and economic reform, Soilih alienated wealthy landowners and Islamic traditionalists and was himself ousted in a coup in May 1978. A Military Directorate was established with Abdallah elected President in October 1978.

The Constitution of October 1978, provides for a Federal Islamic Republic headed by a President elected by direct suffrage for a 6-year term. A Prime Minister, appointed by the President, and not more than 9 other ministers make up the Council of Government on which the islands' governors have non-voting seats. A Federal Assembly of 38 members directly elected for 5-year terms is the legislative branch.

2.2 Main Political Parties and Issues

In preparation for independence, two traditional parties merged in the Parti pour l'Independance et l'Unité des Comoros (PIUC). The National United Front (FNU), a coalition of four parties, was the principal political organization under the Soilih government. The Mayotte Movement Party advocates department status for the island of Mayotte (so far rejected by France). Though the question of Mayotte remains unresolved, relations between France and the State of Comoros had improved sufficiently to permit the signing in November 1978 of a series of military and economic accords.

2.3 Regional Organization

The Constitution provides that each island shall have an elected Governor who appoints not more than four commissioners as assistant administrators. The islands also have elected councils.

The French system of prefectures and cantons was being replaced under Soilih by a more decentralized system which would divide the islands into districts or bavous and smaller units called maudirias, economically self-sufficient communities of about 6000 persons. Details on present government organization below island-level are not available.

2.4 Major Government Figures (July 1980)

President.....	Abdallah, Ahmed
Prime Minister.....	All, Salim Ben
Min. of State Charged with Justice, Muslim Affairs, Transports, Tourism & External Commerce Regulation.....	Mohamed, Abdellah
Min. of Civil Service & Labor Regulation.....	Moustakim, Abdou
Min. of Equipment & Environment.....	Affane, Attoumane
Min. of Finance, Economy & Planning.....	Kafe, Said Madi
Min. of Foreign Affairs & Cooperation.....	Mroudjae, Ali
Min. of Health, Social Affairs, Education, Youth & Sports.....	Maecha, Mtara
Min. of Production & Agricultural Industry.....	Charif, Mouhtar Ahmed

3. Disaster Preparedness

3.1 Host Disaster Plan

No National plan. Comoran President coordinated relief effort following the volcanic eruption in April 1977.

3.2 US Mission Plan

No Mission plan.

3.3 International Organizations and Volags

WHO, World Food Program, UNDR0, League of Red Cross Societies; the latter channelled contributions from 15 National Societies, two governments, and two UN organizations to provide food, blankets, medicine etc., following the eruption of Karthala and the concurrent repatriation of several thousand Comorians in early 1977. The LICROSS relief action was expanded to include a temporary milk distribution program in view of the serious nutrition situation in the islands.

3.4 Disaster Types and History

Disaster types: tropical cyclone, volcanic eruption, drought, displaced persons.

The volcano Karthala (Kartala) on Grande Comore erupted April 5, 1977, destroying several villages, the small town of Singani, and cutting off main north-south road. No casualties resulted from the eruption due to early evacuation of population from endangered areas.

A major cyclone occurred in December 1950, killing 524 people and uprooting 750,000 coconut trees.

4. Population

4.1 National Demographic Characteristics

Latest census figures are for 1966 when there was an enumerated population of 243,948; a recent estimate puts total at 370,000 (World Bank, mid-1977). A census in Mayotte in July/August 1978, recorded a population of 47,246 for that island.

In the absence of reliable demographic data, population growth rate can only be estimated and varies according to basis of calculation: 2.6% if derived from birth/death rates recorded in 1966 census and 3.7% if based on difference between 1958 and 1966 census figures. The World Bank suggests latter figure is too high to be explained by natural increase alone or even by the addition to the population of returned migrants. Better coverage in the latest census is probable explanation. Either figure suggests rapid population growth and, if present trends continue, it is estimated that the population could reach 800,000 by the year 2000. About 44% of the population is under 15 years of age and only 6% over 60 years.

4.2 Regional Distribution

Anjouan, most densely populated of the islands, is threatened with serious overcrowding. The 1966 census reported 32% of Anjouanais living in settlements of over 1,000 compared with 14% and 13%, respectively, for Grande Comore and Mayotte. Maroni au Grande Comore and Matsamudu on Anjouan, the two largest towns, had respective populations of about 22,000 and 14,000 in 1977.

Population by Island, mid-1976

<u>Island</u>	<u>Population</u> ('000)	<u>Density</u> per sq. km.	<u>Density per</u> <u>sq. km. cultivable land</u>
Anjouan	121	285	448
Grande Comore	164	143	410
Mayotte	46	123	192
Moheli	13	59	100

Source: 1966 Comoros Census Report and IBRD estimates as cited in The Economy of the Comoros, 1977.

4.3 Migration

Emigration was actively encouraged during the colonial period to relieve population pressure. Statistics are lacking but it is believed that some 80,000 to 100,000 Comorians live abroad, mainly in Madagascar and East Africa. Of the 60,000 Comorians estimated by Malagasy officials to be living in Madagascar in 1976, approximately 18,000 were repatriated following ethnic clashes in Majunga in 1977. Considerable inter-island migration has occurred, especially from the more densely populated islands of Anjouan and Grande Comore, to Mayotte and Moheli. The political climate on the islands since independence has reportedly influenced inter-island migration but figures are unavailable.

5. Health, Nutrition, and Housing

5.1 Overall Health Status and Common Diseases

Widespread malnutrition, contaminated water supplies, inadequate health services are major factors in the population's poor state of health as reflected in a life expectancy of about 50 years and an infant mortality rate estimated at 200 per 1000 live births. In 1974 one fourth of the islands' people were treated for malaria, which is the most serious health problem and still a leading cause of death. An estimated 80% of the population carry malaria parasites in their blood. Other common serious illnesses include tuberculosis, leprosy, venereal disease, gastroenteritis, and parasitic diseases.

Medical Cases by Main Illness Officially Reported in 1974

	<u>Grande Comore</u>	<u>Anjouan</u>	<u>Mayotte</u>	<u>Moheli</u>	<u>Archipelago</u>
Malaria	55,309	9,652	8,339	2,419	75,719
Helminthiasis	14,222	8,795	3,297	1,014	27,328
Syphilis	319	7	4	1	331
Gonorrhoea	9,232	1,816	1,361	875	13,284
Pulmonary Tuberculosis	128	17	16	24	185
Leprosy	5	106	18	-	129
Measles	2,296	15	1	-	2,312

Source: World Bank, The Economy of the Comoros, 1977.

5.2 Vital Statistics

Birth rate	46.6/1000 population
Death rate	21.7/1000 population
Annual rate of growth*	3.7%
Life expectancy at birth	50
Infant mortality	200/1000 live births
Population under 15 years	44.3%

* Due to immigration, population growth rate is higher than the rate of natural increase.

5.3 Health Services and Facilities

The withdrawal of French assistance at the time of independence resulted in virtual collapse of health services, reduction in patient admissions to hospitals, neglect of building, vehicle and equipment maintenance, and near elimination of public health services. Since that time, a WHO team has been largely responsible for running health services while assisting the government in reorganizing the medical delivery system with higher priority on preventive medicine. Several external agencies have donated medicines.

Each island has a small, simply equipped hospital with a maternity wing. Grande Comore has 3 health centers, Anjouan, one. There were 45 health posts, each staffed by an auxiliary nurse or medical aide, serving rural areas in 1977.

Selected Data on Health Care, 1972

	<u>Grande Comore</u>	<u>Anjouan</u>	<u>Mayotte</u>	<u>Moheli</u>	<u>Archipelago</u>
Main hospitals	1	1	1	-	3
Rural hospitals	2	1	1	1	5
Health clinics	1	1	-	-	2
Rural maternity centers	2	-	-	-	2
Rural health posts	20	10	10	10	50
Hospital beds	296	150	120	46	612
Hospital patients	6,987	3,527	1,965	1,634	14,113

Source: World Bank, *The Economy of the Comoros*, 1977.

5.4 Health Personnel

The departure of French health personnel in 1975 left health facilities seriously understaffed. Eight full-time doctors (including two surgeons) served the Islands (excluding Mayotte) in 1977, giving approximate ratio of one doctor/40,000 persons. There were no dentists and only 14 fully-trained nurses and nurse-midwives. Forty Comorians studying abroad in the areas of medicine, dentistry, and pharmacy were

expected to complete their courses in 1977 and some may have returned to the Comoros to practice. The local training of medical and paramedical personnel was to be given special emphasis under the health services reorganization.

5.5 Diet Summary and Nutrition

Rice, once considered a luxury food, has become a dietary staple despite the low level of domestic production. About 50 kg. per inhabitant must be imported annually to meet demand. Malnutrition is widespread because the diet is especially lacking in animal protein. A high incidence of kwashiorkor in children has been observed.

5.6 Staple Foods

The following list is based on available information and imported foods.

Cereals and starches:	rice (preferred grain), maize, wheat flour, cassava, sweet potatoes, yams, taros.
Cooking oil:	coconut.
Fruits:	bananas, coconuts, pawpaws, avocados, mangos, breadfruit.
Vegetables:	tomatoes, others.
Legumes:	peas (Ambrevades), beans.
Meat/fowl:	beef, mutton (average per capita consumption of meat about 5 kg. per year); probably some poultry and eggs.
Fish:	annual per capita consumption about 10 kg.; most consumed fresh by coastal populations.
Liquids or beverages:	condensed milk, coconut milk, possibly coffee and cocoa which are export crops.
Spices and condiments:	cinnamon, cloves, ginger grown for export may also be used domestically; sugar; peppers.

5.7 Housing

The main villages are small, Arab-style settlements with stone houses, narrow streets, and open markets. Homes in the scattered rural communities, established where fertile soil supports farming, may be of stone construction but more likely have wood frames and walls, and roofs of thatch.

With no year-round streams, Grande Comore has serious water problems. For most settlements, main water sources are wells or rainwater storage tanks, the latter generally poorly maintained and of inadequate capacity to meet needs of a growing population. Moroni is supplied by public and private reservoirs, but few urban houses have piped water.

6. Economy

6.1 Overview of Economy

Due to its small size, isolation, and lack of resources, the Comoros is among the world's poorest and least developed countries. Prior to independence, the country was heavily dependent on French aid, which in 1974 financed 22% of the territorial budget, 54% of current expenditures and a large part of public investment as well as a consumer rice subsidy. The withdrawal of all French technical and financial assistance in 1975 left the country virtually bankrupt, dependent on emergency shipments of food and medical supplies for survival during the early critical period. The influx of 18,000 returning Comorians from Madagascar in early 1977 and a volcanic eruption on Grande Comore the same year, leaving 20,000 homeless, placed an added burden on the economy. The Comoran state has since received international recognition and considerable external aid, especially from the Arab countries and the People's Republic of China. France is supplying some assistance again with the improvement in relations following the May 1978 coup.

Agriculture, the main economic activity, contributed about 40% of GDP and nearly all export earnings in 1976, while industry accounted for 7%, and wholesale and public services for less than 10%. Manufacturing, employing fewer than 1,000 persons, is based almost entirely on agricultural processing: distillation of essential oils, preparation of vanilla and copra for export. Handicrafts, soap and furniture manufacture, soft drink bottling are among the few other activities aimed at the internal market. There appears to be some room for industrial diversification but little for the development of tourism due to lack of infrastructure and sandy beaches.

With few sources of domestic revenue and added financial responsibilities for services since independence, the central government's budgetary situation has been critical, requiring drastic cuts in expenditures. Unless much of future external aid is in the form of grants or concessionary loans, the debt service, only 5% of export earnings in 1976, could become burdensome.

6.2 GNP/GDP

GNP at market prices was \$70 million in 1977 and about the same for 1978. GNP per capita was \$180 in 1977; the real growth rate of GNP per capita (1970-1977) was - 5.2%.

6.3 Balance of Payments

The Comoros has a chronic foreign trade deficit though the gap has fluctuated. When external financing was at a peak in the 1960's and early 1970's, permitting increased imports, the ratio of export earnings declined, falling to a third in 1974. In 1977, the value of exports was just over half that of imports. The irregularity of shipping services and the uneven flow of aid has also adversely affected the balance of payments.

6.4 Imports

Foodstuffs and consumer goods make up bulk of imports, the former over 40% of total during the last two decades and the latter only slightly less. Rice imports, mainly from Pakistan, Thailand, Taiwan and the People's Republic of China, constitute about 20% of imports by value. Since few ocean-going ships call at Comoro ports during the cyclone season, considerable storage of rice is necessary with resulting heavy losses caused by rodents. Most meat imports are from Tanzania. France continues to be principal supplier and buyer. Other partners: PRC, Kenya, Tanzania, Madagascar, Pakistan.

Value of imports (excluding Mayotte) totaled 81.1 million French francs (1 French franc = 50 francs CFA) in 1977. Rice was the largest single import item at 11.3 million francs, followed by petroleum products, transport equipment, metal products, machinery and electrical equipment, cotton yarn and fabrics, chemical products, cement, and meat.

Mayotte imports totaled 12 million francs in 1976 including 5.9 million in foodstuffs, 1.2 million of clothing, 2.2 million in building materials and hardware, and smaller amounts of cement and transport equipment.

6.5 Exports

Four commodities--perfume essences, vanilla, cloves and copra--account for 95% of domestic exports. Coffee, cocoa, coconuts, cinnamon, wood and wood products make up remainder. Re-exports of petroleum products amounted to about 6% of total exports in 1976. Besides France, buyers include the Federal Republic of Germany, Madagascar, USA (principal customer for vanilla exports).

7. Agriculture

7.1 Overview of Agriculture

Over 80% of the population is engaged in agriculture which accounts for about 40% of GDP and practically all export earnings. Despite the economic importance of agriculture, Comoros is far from self-sufficient in food production, the subsistence sector having been neglected by French authorities in favor of cash crop development. Productivity is low in both areas, as it is in livestock, due to primitive farming methods and the absence of agricultural services. The lack of arable land, a feudal system of land tenure (land reform has been emphasized since independence and company holdings on about 20% of cultivable land were being transferred to small farmers in 1977), the misuse of land (food crops planted on land better suited to tree crops and vice versa) have also been factors in low productivity. An average of 0.4 ha of agricultural land of all types per inhabitant, theoretically more than sufficient to meet food needs with suitable crops and improved methods, is in practice inadequate. Although Comoran cash crops, grown by both estates and small farmers, can be cultivated on all four islands, specialization has developed: vanilla on Grande Comore, cloves and perfume trees on Anjouan, cinnamon on Mayotte, and copra on Moheli.

7.2 Crops and Production

Cash Crops

Ylang-ylang: Comoros is world's leading producer of ylang essence. Trees can be grown on land unsuitable for food crops, but Anjouan's more fertile soil accounts for its higher yield. Production 1970-75: 57 to 100 MT annually.

Vanilla: About 14 million vines grow on 4,192 ha. of which 3,500 ha. are on Grande Comore. This highly labor intensive crop is grown almost entirely by small farmers with low yields - about 50 grams per vine. It is generally interplanted with food crops under coconut and other trees. Planted in September; pods picked between July and September.

Coconut: The island's principal crop is obtained from an estimated 3 million trees on about 20,000 ha. (one-tenth total land area) grown along coast and inland to maximum altitude of 500 m. Some 90 million nuts are produced annually of which 35 million are consumed, 25 million converted into copra, and the remainder destroyed by rodents.

Cloves: Production has increased rapidly in recent years and clove is considered best cash crop prospect. Of the 140,000 trees on a total of 900 ha. In 1973, 100,000 were on Anjouan and 30,000 on Moheli. Harvesting is between July and November with average annual yield of 1 to 2 kg. per tree.

Minor cash crops: coffee, cocoa, cinnamon, essential oils other than ylang, sugar, sisal.

Foodcrops

Rice: Annual production of about 3,000 tons is about one-fifth quantity imported. Deforestation and erosion result from attempts to expand cultivation on too steep slopes.

Other: cassava, sweet potatoes, yams, maize. Production of these crops and a variety of vegetables, fruits, and legumes could be expanded to replace imported rice in diet with change in food habits.

Livestock

Though numbers are small, stocking rate (1.35/ha. of pasture) is about twice that recommended. 1977 ('000 head): cattle 75; sheep 8; goats 84; asses 3; chickens 250.

Fishing

Coastal waters' environment is not favorable for fish except within Mayotte's coral lagoon, and potential is estimated at only 6,500 MT annually. Present yearly catch of about 3,500 MT is obtained by 3,500 fishermen using outrigger canoes.

Forestry

The rapid depletion of forests for construction timber, and especially for firewood, has resulted in destruction of catchment areas and soil erosion. Only about 20,000 ha. of forests remain, with reforestation occurring at slow pace.

7.3 Agricultural Imports

The food situation in Comoros remains difficult due to the high dependence on imported foodstuffs and the lack of foreign exchange. 1977 (excludes Mayotte) (million F fr): rice 11.3; wheat flour 0.8; meat 2.9; dairy produce 1.3; cotton yarn and fabrics 3.7; sugar 1.7; tobacco 1.1.

7.4 Agricultural Exports

See General Exports, section 6.5.

8. Physical Geography8.1 Climate

The climate is tropical marine, the seasons largely determined by monsoon winds. Maximum rainfall and temperatures occur during the hot, humid northeast monsoon season, November through April, as do periodically devastating cyclones. A relatively cool, dry season lasts from May to November when southwest winds prevail. Variations in temperature and humidity are greater with altitude and exposure than between seasons. Average monthly temperature varies between 23°C and 28°C along coast; average annual rainfall is over 2 m.

Selected Meteorological Data Averages, 1970-1974
Moroni (Grande Comore)

	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
Temperature C°												
Max.	32.6	32.8	32.8	32.3	31.9	30.8	30.4	29.9	30.1	31.6	32.8	32.3
Min.	21.4	21.7	21.4	20.7	19.2	17.1	16.1	15.5	16.9	18.5	19.7	21.1
Rainfall												
mm.	399	321	227	260	287	238	134	83	67	145	58	199
No. of days	16	14	16	16	9	9	8	9	7	10	7	14
Average (%)												
Humidity	82	83	83	87	88	76	77	79	79	82	79	77

Ouaní (Anjouan)

	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>
Temperature C°												
Max.	32.1	32.0	32.1	32.2	32.0	31.0	30.7	29.7	29.5	30.1	31.6	32.1
Min.	21.3	22.1	21.9	20.9	19.3	16.7	17.0	16.8	16.7	19.2	20.1	20.8
Rainfall												
mm.	405	255	399	184	33	66	13	26	50	40	84	207
No. of days	17	13	20	13	6	4	2	5	7	13	10	12
Average (%)												
Humidity	84	84	83	65	78	74	74	76	76	84	79	80

Source: World Bank, *The Economy of the Comoros*, 1977.

8.2 Topography

Situated in the northern entrance of the Mozambique Channel between the eastern shore of the African continent and the island of Madagascar (298 miles to SE), the Comoros archipelago consists of four main islands and several small islands with total surface area of 2,166 sq. km. Lying along a NW-SE axis, the main islands are: Grande Comore with slightly over half of total area (1,148 sq. km.), Moheli (220 sq. km.), Anjouan (424 sq. km), and Mayotte (374 sq. km). With no geological links to Madagascar or nearby coastal Africa, the islands are all of relatively recent volcanic origin. Coastlines of rocky black lavas and basalts provide few beaches or natural harbors.

Grande Comore: 67 km. long and 27 km. wide. Most recently formed of the islands, Grande Comore has two volcanic mountain groups dominating the topography: the extinct and eroded La Grille in the north and the still active Kartala (2,361 m.), which last erupted April 1977, in the south. A wide plateau (600 to 700 m. high) joins the two. The islands' thin soils and rocky surface support tree crops and an abundant rainforest on Kartala.

Moheli: 30 km. long and 12 km. wide. A central mountain range extending northwest-southeast and reaching a height of 860 m. is the most prominent feature of the topography otherwise characterized by rolling hills and wide, fertile valleys. There are several small islands off the southern coast and a few sandy beaches. Shipping is discouraged, however, by strong sea swells.

Anjouan: triangular shape; 40 km. at widest point. From a central peak, Mtingui (1,575 m.), 3 mountain chains extend into well-defined peninsulas: Sima to the west, Nioumakele to the south, and Jimilime to the north. Older than Grande Comore, the island has good clay soils which have been severely eroded. The land slopes sharply to the sea.

Mayotte: 39 km. long, 22 km. wide. Oldest of the islands and considerably weathered, Mayotte has a low mountain range extending north-south with four main summits between 500 and 600 m., and two sizable fertile plains, one in the northeast and one in the center of the island. An encircling coral reef has had time to form, creating a well protected stretch of coastal water. The islet of Pamanzu (10 sq. km.) just east of Mayotte, is connected by dike to the 5 ha. rocky outcrop which the town of Dzaoudzi occupies.

8.3 Land Use

According to recent land capability surveys, about half of total land area is suitable for agriculture while most of remainder should be in forest. Considerable misuse of land has resulted from over exploitation.

Actual Land Use by Island, 1965 (percentages)

	<u>Cultivated Land</u>	<u>Pasture</u>	<u>Forest</u>	<u>Land with No economic use</u>
Grand Comore	35	9	11	45
Anjouan	64	-	24	12
Mayotte	64	6	19	11
Moheli	59	7	21	14
Archipelago	48	7	16	29

8.4 Rivers

With shallow, permeable soils, Grande Comore has no year-round streams. The other islands have no navigable rivers but perennial streams provide adequate water supplies and some hydroelectric potential. The Tatinga River on Anjouan and the M'ro Duambimbini on Moheli are possible power sources.

8.5 Mountains and Volcanos

The differences in geological and topographic features in each of the four main islands are in part attributable to major volcanic phases. Though each island has a central mountainous core, only Kartala on Grande Comore, the islands' highest peak at 2,361 m., is an active volcano. Its eruption in April 1977 was the first destructive activity since 1918. The central massif on Anjouan has the second highest peak, Mtingui (1,575 m.). See also section 8.2, Topography.

9. Transportation and Logistics9.1 Road Network

Many villages are not linked to the main road system and where they exist, feeder roads to the interior are generally tracks suited only to 4-wheel drive vehicles. In 1970 the only paved roads were a stretch of highway along the northwestern coast of Grande Comore (62 km.), a road on Anjouan linking Mustsamudu and Domoni (40 km.), and a 3 km. road on Mohelli. By 1977, when loan assistance from Kuwait had permitted resumption of works halted by the withdrawal of French financing, completed additions to the all-weather main road network were expected to include: a new portion of coastal road on the eastern side of Grande Comore, a main cross-island road (76.5 km.), the extension of a coastal road along the southwest coast of Anjouan (22 km.), and the continuation of Mohelli's coastal road (13.5 km.). Paved roads are generally well maintained but construction standards are low and gradients of more than 10' and as many as 10 curves per km. are not uncommon. Road widths are less than 8 m. including shoulders. Earthroads, maintained by hand, tend to be in poor condition. Priority has been given to the construction of a coastal ring road on each island.

Road Network, 1972/76
(kilometer)

<u>Island</u>	<u>1972</u>			<u>1977</u>			
	<u>Paved</u>	<u>Earth</u>	<u>Total</u>	<u>Paved</u>	<u>Being Paved</u>	<u>Earth</u>	<u>Total</u>
Grand Comore	125	136	261	143	67	199	409
Anjouan	79	55	134	79	21	87	187
Mohelli	3	85	88	30	-	88	118
Sub-Total	207	276	483	252	88	374	714
Mayotte	30	82	112	30	n.a.	109	139
Total	237	358	595	282	88	483	853

Source: World Bank, The Economy of the Comoros, 1977.

9.2 Vehicles

Grande Comore has 4 times more vehicles per 10,000 population than the other islands; a light utility car is most common type.

There were nearly 4,000 registered vehicles in 1975; 720 vehicles in Mayotte in 1979.

9.3 Railroad Network

None.

9.4 Ports

Ocean transport is major mode for both imports and exports despite poor infrastructure. With no natural, deep water port of sufficient size to accommodate large ships, Comoros depends on ports of neighboring countries, mainly Madagascar, for transshipment services which often result in delays and cargo losses. Anjouan and Grande Comore have small artificial harbors. Dhows are used when lighterage is required. Present traffic volume low at all ports: less than 50% utilization rate at both Mutsamudu and Moroni; 4,000 tons cargo a year at Fomboni (1977). Calls by ocean-going vessels are especially infrequent during cyclone season.

Dzaoudzi, Mayotte Island

Coordinates: Lat. 12° 50' S.; long. 45° 0' E.

Accommodation: Deep water at Dzaoudzi. Anchorage by south entrance available, with tide restrictions, for oceangoing ships but not for small feeders. No port charges and no pilots. Discharge and loading by lighters and dhows.

Fomboni, Moheli Island

Coordinates: Lat. 12° 16' S.; long. 43° 15' E.

Accommodation: Visited by small coasters only, discharge and loading by local dhows.

Moroni, Grand Comoro Island

Coordinates: Lat. 11° 41' S.; long 43° 15' E.

Accommodation: Anchorage zone very narrow for ocean liners. Only a feeder ship with draft not exceeding 3 m. may go alongside single pier at Moroni. 3,342 sq. m. warehouse capacity; 632 sq. m. open storage; 2,911 cubic m. for petroleum products.

Airport: Local airline services operated by Air Comores, who make daily connections between the four islands, and twice a week to Dar Es Salaam and Madagascar.

Mutsamudu, Anjouan Island

Coordinates: Lat. 12° 10' S.; long. 44° 23' E.

Accommodation: Some oceangoing liners call at port, but most of the traffic is operated by a coaster, which can work alongside pier if its draft does not exceed 3 m. 1,883 sq. m. warehouse capacity; 2,464 sq. m. transit shed; 917 sq. m. open storage.

9.5 Shipping

The Societe Comorienne de Navigation: Moroni; inter-island services and services to Madagascar.

Four international shipping companies (one Norwegian, one German, two French) provided irregular service in 1977, with most cargo delivered either to Majunga (Madagascar) or an East African port for transshipment.

9.6 Airports

Each island has a small airport with a surfaced runway adequate for Air Comores' DC4's which provide inter-island flights several times weekly. About 85% of passenger traffic between islands is by air, though most cargo is transported by ship. Anjouan's airport at Ouani near Mutsamudu has a 1400 m. long, 25 m. wide runway able to take Boeing 737's. There is also a terminal building and control tower. Mohelli's airport, south of Fomboni, has a 1200 m. long, 25 m. wide runway but no terminal. Grande Comore has

two airports: Iconi near Moroni, with 1500 m. runway takes 737 jets, although they cannot take off with full load; a new international airport at Hahala with 2800 m. runway is capable of handling jumbo jets.

NB: For up-to-date information consult latest issue of weekly International Notams, International Flight Information Manual, and/or ICAO's Air Navigation Plan for appropriate region.

DZAOUDZI/Pamanzi
Mayotte I.
REG-GA

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>			<u>CL</u>	<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
		<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>			
12°48'S 05°17'E	10 28.5	16/34	n.a.	1350	n.a.	SW 10; DW 17; DTW 28	None

MORONI/Hahal
REG-S

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>			<u>CL</u>	<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
		<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>			
11°31'58"S 43°15'43"E	27 27.8	02/20	0.36	2900	n.a.	n.a.	None

Remarks: alternate aerodromes - Majunga/Amberovy.

Aids: ILS (02-1), VOR, L, LVA(02), LR, LTX, LO, STOPWAY 02 & 20-60.

See Appendix for Airport Key.

9.7 Personal Entry Requirements**Comoros (Including Reunion)**

Passport: Required.

Visa: Required. Available at aerodrome for visits of three to ten days. Visas for visits of longer duration are available through any French Embassy or Consulate.

Vaccination: Smallpox. Cholera and yellow fever for arrivals from infected areas.

Embassy

Address: None established in U.S. for the Republic of Comoros. However, the Embassy of France, which retains jurisdiction over Reunion Island, may be able to assist with inquiries.

9.8 Aircraft Entry Requirements

Private and non-scheduled commercial aircraft overflying or landing for non-commercial purposes need not obtain prior approval. However, a flight plan must be on file at least 48 hours in advance.

Non-scheduled commercial aircraft landing for commercial purposes must request prior permission from the Secretariat General a L'Aviation Civile, Direction des Transports Aeriens, Sous-Direction des Affaires Internationales, 93 Blvd du Montparnasse, Paris, 6eme, France (telegraphic address: AVIACIVIL PARIS/TELEX: None) at least one month in advance of flight.

All requests must include (a) name of aircraft operator and owner, if different, (b) type of aircraft and registration marks, (c) complete route of flight, (d) date, time and airport of arrival, (e) purpose of flight (f) number of passengers, (g) for contributory group charters and air travel clubs, the name and address of charterer, cost per passenger and if passengers have been members of the club, firm, or association for more than 6 months, (h) for inclusive tour charters, include the itinerary for the entire trip from point of origin to final destination, the total duration of the trip and length of stay in each territory under French jurisdiction, (i) type and amount of cargo to be off-loaded or loaded, if applicable. All requests must include the name, address and signature of the person initiating the request.

Additionally, all non-scheduled commercial flights landing for commercial purposes must provide advance notification to the territory of landing at least 10 days prior to arrival. Notifications should include (a) name of operator, (b) type of aircraft and registration marks, (c) route of flight, (d) date and time of arrival, (e) number of passengers, (f) type and amount of cargo. Notifications are to be addressed to, as applicable:

1. Service de L'Aviation Civile, B.P. 72, Moroni, Grand Comoros Islands (telegraphic address: AVIACIVIL MORONI/TELEX: None).
2. District Aeronautique de la Reunion, 97489 Saint-Denis, Reunion Island (telegraphic address: AVIACIVIL LA REUNION/TELEX: None).

9.9 Airlines

Air Comores: B.P. 417, Moroni; services to Anjouan, Moheli and Dzaoudzi, and to Dar es Salaam, Mombasa, Antananarivo and Mahajanga; fleet of 4 DC4.

The Comoros are also served by Air France, Air Madagascar and Air Tanzania.

9.10 Air Distances (statute miles)

Moroni (Iconi) to :	Paris (Orly) 4858
	Tananarive 570

10. Power and Communications

10.1 Energy Sources

Electricité des Comores (EDC), a government owned statutory corporation, provides public power by means of thermoelectric stations on Grande Comore (1500 KW in 1976), Anjouan (320 KW in 1976) and, before independence, Mayotte (190 KW in 1975). A 450 KW central generating station on Moheli was not yet operational in 1977. A private company, Societe Bambao, operates three hydroelectric plants (560 KW installed capacity) for its own needs on Anjouan. Airports, hospitals, telecommunications services on Grande Comore, Mayotte and Moheli (but not on Anjouan) are frequently supplied with power by means of small generators. The total network on Grande Comore extends over 104 km., serves most of western and southern coasts and some interior settlements; Anjouan's network is only 22 km., concentrated in Mutsamudu and Domoni.

Grande Comore is entirely dependent on diesel generation, having no hydroelectric potential. A second 2400 KW thermoelectric station on that island, at Voidjou, was expected to be completed mid-1978. The government has proposed construction of a 3 MW station on the Tatinga river in Anjouan which has estimated hydroelectric potential of 10 MW. Moheli has hydroelectric potential of about 460 KW. At present, electricity is used almost entirely for lighting.

10.2 Telephone Network

The telecommunications installations fell far short of demand for services in 1977. Grande Comore's central exchange at Moroni had 800 lines, that at Mitsamiouli 50 lines; Fombouni was linked to Moroni by VHF radio. Three exchanges on Anjouan had only 150 lines: 100 in Mutsamudu and 25 each in Quani and Domoni. Mayotte and Moheli had 50 and 60 lines, respectively. Inter-island communication, by means of radio and telegraph, is of poor quality. A one-way radio link with Paris, both operating only a few hours daily, provides only communication with outside world.

10.3 Radio

In the absence of local newspapers, radio plays a major role in the dissemination of information.

Radio-Comoros: B.P. 250, Moroni (Grande-Comoro); formerly controlled by France-Regions 3, the radio was taken over by the Comoran state in November 1975.

In 1974 there were 36,000 radio receivers.

10.4 Television

None.

1. General Information1.1 Geographic Codes

AID	687
State Region	AF
FIPS	MA

1.2 Country Names

Legal	Democratic Republic of Madagascar
Local	Repoblika Demokratika n'i Madagaskar (Malagasy)
	Republique Democratique de Madagascar (French)
Short	Madagascar

Consistent with the policy of Malagasization, many place names have been changed since 1975. Though former names are still used by many sources and are generally used in this report, the following list of new names of main towns and provinces may be useful.

Antananarivo	(Tananarive)
Mahajanga	(Majunga)
Toamasina	(Tamatave)
Antseranana	(Diego-Suarez)
Toliary or Toliara	(Tulear)
Taolanaro	(Fort Dauphin)

1.3 Calendar and Holidays

New Year's Day	January 1
Commemoration of March 29, 1947	
Easter Monday	*
Labor Day	May 1
Ascension Day	*
Whit Monday	*
Independence and National Day	June 26
Assumption	August 15
All Saints' Day	November 1
Christmas	December 25
Anniversary of the Republic	December 30

* moveable religious holidays. Fiscal year: January 1 - December 31

1.4 Currency

Malagasy francs 209.05 = 1 US dollar (May 1980)

1.5 Time Zones

GMT + 3; EST + 8

1.6 US Mission to Madagascar and Staff (May 1980)

Antananarivo (E), 14 and 16 Rue Rainitovo
Antsohavola; B.P. 620
Tel. 212-57
Telex TANA 22202

Ambassador	(vacancy)
Charge d' Affaires Economic/Commercial	Robert S. Barrett
Consular Section	Kenneth H. Kolb
Labor Section	Charles R. Hare (resident in Nairobi)
Administrative Section	Robert B. Nolan
Public Affairs Officer	Frederick G. J. Mason

1.7 Host Country Mission and Staff in US (February 1980)

Embassy of the Democratic Republic of Madagascar
Chancery: 2374 Massachusetts Ave. NW, 20008
(265-5525 and 5526)

Counselor	Mr. Norbert Rakotomalala
Attache (Cultural Affairs)	Mr. Petera Rekany
Attache	Mrs. Suzanne Ravonimanansoa
Attache	Mr. Remi Gontar
Attache	Mr. Robert Rakotomanandro
Attache (Consular Affairs)	Mrs. Yolande Bezaka
Attache (Financial Officer)	Mr. Edward Andrianasolo

1.8 Treaties and Agreements

Treaties concerning aviation, economic and technical cooperation, investment guaranties, trade and commerce, visas.

1.9 International Organization Memberships

EAMA, FAO, G-77, GATT, IAEA, IBRD, ICO, IFC, ILO, IMF, ISO, ITU, NAM, OAU, OCAM, UN, UNESCO, WHO, WMO, WTO.

1.10 Travel and Visa Information

Passport and visa required. Visa for stay up to 72 hours, 1 entry, \$2.05. For stay up to one month, 1 entry, \$6.10, 2-3 entries, \$12.20, 4 photos, plus return postage for registry. No personal checks. All travelers must have onward/return ticket. Check Embassy, Wash. D.C. 20008; for specific requirements.

Smallpox vaccination required of all travelers over 3 months of age; cholera certificate required of travelers over 6 months of age arriving from infected area; yellow fever certificate required of travelers over 1 year arriving from infected area.

1.11 Ethnic and Sociocultural Groups

The Malagasy people are descendants of Indonesian, Arab, and African immigrants. There is no pure racial type and the broad classification of coastal people as mixed Negroid and highlanders as predominantly of Malayo-Indonesian origin is misleading. There are 17 or 18 tribes that can be identified.

The largest groups are as follows: almost 2 million Merina (also called Hova) comprising nearly the entire population of Tananarive (25% of total population); the Betsimisaraka, predominantly cultivators and the principal inhabitants of Tamatave (15% of total); the Betalio, farmers and craftsmen in Fianarantsoa province (12%); the Tsimihety in Majunga and Diego-Suarez provinces (7%); the Sakalava in Tulear and Majunga provinces (470,000); the Antaisaka in southern Fianarantsoa (406,000); the Antandroy, primarily pastoralists in the southern tip of the island; the Bara, herders in Tulear and Fianarantsoa; and the Tavola, hunters and woodsmen in the eastern mountains.

There were also over 100,000 foreigners, mainly French and Comorians, whose numbers are declining; of 60,000 Comoro Islanders, about 18,000 were repatriated in 1977; also 18,000 Indians, and 10,000 Chinese.

1.12 Languages

Malagasy, of Malayo-Polynesian origin, is the official language. The Merina dialect is the written form. Others: French and English are understood and taught in schools.

1.13 Education

In keeping with the aim to "Malagasize, decentralize and democratize" the educational system, the government has made primary school attendance compulsory, and enrollment of that age group (6-10) now exceeds 90%. Secondary and technical education is less developed. Literacy rate of population age 10 and over is 45%.

1.14 Religion

Ancestors are considered originators and guardians of customs. Innumerable taboos, the commands of ancestors, are precise proscriptions for which foods not to eat, which words and actions to avoid, etc. They apply to individuals, families, kinship and ethnic groups. Different taboos make it impossible at times to unite inhabitants for a common task.

2. Government

2.1 National Government

The government is headed by Didier Ratsiraka who is described as the chief architect of Madagascar's "turn to the left." Ratsiraka took control of the country after a period of political instability marked by personal and ethnic rivalries in the army and government. A referendum held on December 21, 1975, confirmed Ratsiraka for a 7-year presidency, approved a constitution, and approved the Little Red Book, the charter of Malagasy Socialist Revolution.

The 1975 constitution provides for the following government institutions: a President elected for 7 years by universal suffrage; the Supreme Revolutionary Council (SRC), "the guardian of the Malagasy Socialist Revolution", of which the President is chairman; the National People's Assembly elected for 5 years by universal suffrage; the Cabinet headed by a presidentially appointed Prime Minister; the Military Development Committee; and the Constitutional High Court of seven members. The constitution also provides for a single national unity party, the National Front for the Defense of the Malagasy Socialist Revolution (FNDR). Six parties are now allowed political activity under the National Front and are represented on the Supreme Revolutionary Council.

2.2 Regional Organization

Administrative decentralization is being attempted through a revival of traditional village-based institutions (fakonolona). Six faritany have replaced the former provinces: Fianarantsoa, Mahajanga (Majunga), Toamasina (Tamatave), Antorana (Diego-Suarez), Toliary (Tulear), and Antananarivo (Tananarive). Faritany are divided into 18 prefectures which are subdivided into 92 sub-prefectures and about 11,000 traditional village communities. Each unit is governed by a council whose members must belong to FNDR.

2.3 Major Government Figures (July 1980)

Head of Government.....	Ratsiraka, Didier, Cdr
Prime Minister.....	Rakotoarijaona, Desire, Lt. Col.
Min. of Defense.....	Sibon, Guy, Capt.
Min. of Economy & Commerce.....	Rarivoson, Justin
Min. of Finance & Planning (attached to the Presidency.....)	Razakaboana, Rakotovao
Min. of Foreign Affairs.....	Richard, Christian Remi
Min. of Health.....	Seraphin, Jean Jacques, Dr.
Min. of Information & Ideological Orientation...	Ruphin, Georges
Min. of Interior.....	Ampy, Portos Augustin
Min. of Justice, Keeper of the Seals.....	Indrianjafy, Georges-Thomas
Min. of Natl. Education & Scientific Research...	Rakoto, Ignace
Min. of Population & Social Affairs.....	Tiandraza, Remi
Min. of Posts & Telecommunications.....	Andriantiana, Rakotovao
Min. of Public Admin., Labor & Civil Service....	Radio, Celestin
Min. of Public Works.....	Rakotomavo, Bruno
Min. of Revolutionary Art & Culture.....	Rabesahala, Gisele
Min. of Rural Development & Agricultural Reform.	Simon, Pierre
Min. of Secondary & Basic Education.....	Andrianoelisoa, Theophile
Min. of Transportation, Food, & Tourism.....	Bemananjara, Jean
Min. of Youth.....	Koussay, Said Ali

3. Disaster Preparedness

3.1 Host Disaster Plan

By a 1972 decree the government set up a Plan of Organization of Assistance for cyclone emergencies. The plan provides for a National Relief Council composed of government agencies and private organizations, and chaired by the Ministry of the Interior and an Executive General Staff under the Armed Forces. Disaster assistance is administered and coordinated by a National Relief Council. Local authorities have responsibility for preparation against the cyclone season.

3.2 US Mission Plan

At present, the US Ambassador or Charge d' Affaires makes determination that a disaster situation exists and exercises his disaster relief authority in expenditure of funds allotted for emergencies. In some instances equipment has been made available by the embassy.

3.3 Inter-governmental Organizations

UNDP, FAO, World Food Program (WFP), UNESCO, WHO

United Nations Development Program (UNDP): 26 rue de Liege, Tananarive. Cable: UNDEVPRO Tananarive. Telex: 983 22345, Tel: 219-07

3.4 Voluntary Agencies Contact List

Red Cross: Red Cross Society of Madagascar. Maison de la Croix-Rouge. Rue Clemenceau-Tananarive. Tel: 221-11. The Red Cross has no specific responsibility or disaster plan but in practice provides food and clothing for distribution.

The following voluntary agencies cooperate with the government in relief assistance activities:

CARITAS: Lot IV - G 199 Antanimena, Tananarive. Tel: 213-91

Catholic Relief Services (CRS): P.O. Box 1673, Tananarive. Cable: CATHWEL Tananarive, Tel: 206-66.

LWF: National Committee, P.O. Box 3622 Ambatovinaky, Antananarivo.
Tel: 212-49

WCC: Federation des Protestantes de Madagascar, 50 rue George V,
Faravohitra, Tananarive. Tel: 247-86.

3.5 US Voluntary Agencies (VOLAGS)

<u>Agency</u>	<u>Int'l/Local Staff</u>	<u>Programs</u>
The American Lutheran Church	17/	Comm; Ed; Med & PH
Catholic Medical Mission Board, Inc.	--	Med & PH
Catholic Relief Services	2/9	CD; Equip & Mat. Aid; Food Prod. & Ag; Med & PH
Church World Service	5/2	CD
Lutheran World Relief	--	Food Prod & Ag
Map International	--	Equip & Mat Aid; Med & PH
United Methodist Committee on Relief	--	Food Prod & Ag

Key

Comm	Communications
CD	Community Development
CHP	Construction, Housing, Planning
Coop	Cooperatives, Credit Unions, Loans
Ec & Dev Pl	Economic and Development Planning
Ed	Education
Equip & Mat Aid	Equipment and Material Aid
Food Prod & Ag	Food Production and Agriculture
Ind Dev	Industrial Development

Key

Med & PH	Medicine and Public Health
Nutr	Nutrition
Pop & Fam Serv	Population and Family Services
Pub & Bus Adm	Public and Business Administration
SW	Social Welfare
Women	Women
Youth	Youth

3.6 Acceptable Emergency Foods

Wheat flour, dehydrated potato

See also section 5.6, Staple Foods.

3.7 Disaster Types and History

Disaster types: flood, storm, cyclone, drought, civil strife, fire, earthquake.

Floods and cyclones are the most common disasters. During the annual storm season, generally December to March, violent cyclones frequently occur (one to five a year). The east coast is more regularly and severely hit, but any part of the island, with exception of extreme south, may be affected. Storm winds sometimes exceed 100 or even 150 m.p.h.; damaging floods often accompany storms.

Summary Disaster History

<u>Disaster</u>	<u>Location</u>	<u>Date</u>	<u># Killed</u>	<u># Victims</u>	<u>DMG</u> <u>(\$ 000)</u>
Civil Strife	Tananarive Univ.	4/24/72	34	100	0
Cyclone	Andapa SW Tulear	1/00/68	29	65,029	3,100
	E-W Nosy Varika	2/05/69	81	40,081	5,000
	Mangoky Riv. Basin	2/19/69	-	-	-
	C&S Madagascar	2/23/70	70	100,000	11,400
	Central region	2/14/72	91	2,500,000	12,420

<u>Disaster</u>	<u>Location</u>	<u>Date</u>	<u># Killed</u>	<u># Victims</u>	<u>DMG (\$ 000)</u>
Cyclone	S. Madagascar	1/18/75	7	100,000	76,000
	Tamatave	3/08/75	0	0	0
	North	1/00/75	16	25,000	17,000
	Tamatave & Fianarant	2/00/77	10	30,000	0
Fire	Anivorano & Bamanejika	9/01/64	0	500	50

4. Population

4.1 National Demographic Characteristics

An enumerated population of 7,520,439 was arrived at by the 1975 census. Recent estimates put population in the range of 8,000,000 to 8,258,000 and growth rate at 2.4-2.5%. 40 towns of 5,000 or more inhabitants accounted for 16% of population in 1975; urban growth rate estimated at 4.3%. Despite a low density of 13 inhabitants/sq. km., a population problem exists because agricultural production has failed to keep pace with population growth. Private family planning organizations are allowed to operate in Madagascar but receive no financial support from the government.

4.2 Regional Distribution

Population is concentrated in the central plateau region and is relatively dense along the east coast. Most sparsely settled areas are the west coast and, especially, the south. About 60% of the urban population in 1975 lived in the 6 main cities which are also faritany capitals. Antananarivo, the national capital, was the only city with a population over 100,000 in 1975 (450,000); each of the other 5 faritany capitals had populations of about 50,000. However, since urban areas were limited to administrative boundaries in the 1975 census, actual totals may be considerably higher.

Regional Distribution, 1972

	<u>Urban</u> <u>Communities</u>	<u>#</u>	<u>Rural</u> <u>Communities</u>	<u>#</u>	<u>Total</u>	<u>#</u>
Tananarive	507,098	7	1,426,858	135	1,933,956	142
Fianarantsoa	170,037	9	1,750,604	195	1,920,641	204
Tamatave	123,381	7	1,141,740	115	1,265,121	122
Majunga	133,721	9	832,272	111	956,984	120
Tulear	93,013	6	1,120,374	111	1,213,387	117
Diego-Suarez	49,117	8	488,427	66	638,779	74
Totals	1,176,358	46	6,751,275	733	7,928,868	779

4.3 Migration

Rural to urban migration, while significant in the 1960-75 period, is less prevalent than in most African countries. Rural to rural migration, from the desert south to regions in the highlands, is a longstanding pattern with the agricultural population.

5. Health, Nutrition, and Housing5.1 Overall Health Status and Summary of Diseases

Malaria, despite eradication campaigns, remains most serious health problem with locus in coastal regions, especially the east; maximum transmission September-March. Schistosomiasis highly prevalent in lowlands. High incidence of tuberculosis as well as diphtheria, typhoid and paratyphoid, venereal diseases, tetanus, hepatitis, gastroenteric parasites. Leprosy is endemic - 35,000 treated in 13 leprosariums as of 1972; nine special settlements for cured lepers. Bubonic plague appears sporadically on a small scale.

5.2 Vital Statistics (1978)

Birth rate	45/1000 population
Death rate	19/1000 population
Infant mortality	n.a.
Growth rate	2.5%
Life expectancy	46 years
Population under 15 years	45%
Population over 65 years	3%

5.3 Health Services and Facilities

Medical and health infrastructure is unevenly distributed; personnel concentrated in urban areas. 90% of hospital beds were in public hospitals in 1972. Main public health problem is lack of money for health manpower, equipment, and drugs. National priorities are the elimination of the imbalance between urban and rural areas, decentralization of medical education, and the integration of preventative and curative health services. 410 persons/hospital bed is most recent World Bank estimate.

Public Health Care Centers, 1976

	<u>Antana-</u> <u>narivo</u>	<u>Fianar-</u> <u>antsoa</u>	<u>Toama-</u> <u>sina</u>	<u>Toli-</u> <u>ary</u>	<u>Maha-</u> <u>janga</u>	<u>Antsi-</u> <u>rana</u>	<u>Total</u>
<u>Health Centers</u>							
General hospital	1	-	-	-	-	-	1
Provincial hospital	-	1	1	1	1	1	5
Urban dispensary	13	3	2	6	-	2	26
Secondary hospital unit	14	13	13	6	8	5	59
Medical-surgical hospital	2	2	1	3	-	2	10
Medical centers	23	17	11	18	20	8	97
Sanitary centers	89	69	70	47	46	9	330
Health rooms	36	14	10	26	27	29	142
Maternity centers	10	29	6	13	17	5	80
Primary health care centers	57	104	95	106	95	43	500
Hygiene municipal office	2	1	1	1	1	2	8
Maternal and child health	4	6	6	6	5	2	29
School sanitary inspection	1	1	1	1	1	1	6
Specialized medical centers	8	2	2	1	3	4	20

Private health care centers (1976):

Hospitals and clinics	10
Maternity clinics	3
Dispensaries	138
Leprosy centers	8
Others	8

Source: World Bank, Madagascar: Recent Economic Development & Future Prospects, 1979.

5.4 Health Personnel

There were 581 public health physicians and 220 physicians in private practice in 1976.

Physician/population 1/10,300
 Nurses/population 1/3,540
 (1977 World Bank estimates)

Other health personnel (1975):

Dentists	40
Dental practitioners	44
Pharmacists	91
Veterinarians	28
Midwives	1,019
Community nurses	53
Nurses	284
Assistant nurses	1,919
Physiotherapists	5
Medical laboratory technicians	4
X-ray technicians	10
Sanitary engineers	1
Sanitarians	46

5.5 Diet Summary

Diet is unbalanced, deficient in quantity and quality, and monotonous; based on rice which has replaced cassava and other tubers as the traditional staple. Consumption of rice: 297 lbs/yr/ capita. Marked variation in caloric intake and dietary composition depending on geographic location and time of year.

Regional differences: Antaimoro subsist on rice, supplemented by a little fish. Betsileo (skilled farmers on fertile land) consume 3,000 calories daily. Betsimisaraka (near coast) add fish and vegetables to polished (less nutritious) rice. Inland Betsimisaraka hull rice, retaining nutrients. Sakalava (in west) subsist on maize and taro, supplemented on rare occasions by meat (smoked and cut in small strips). Only the Antanosy, Antandroy, and other southern peoples use cassava and other tubers as main food, though rice is becoming increasingly popular. In cities, especially Tananarive, diets are more varied. Traditional rice dish is complemented with bread, fresh vegetables, meat, fresh or condensed milk, fruit.

Romazava, the national dish, consisting of boiled rice with or without greens and sometimes with a little meat or fish, is mid-day meal. No sauces and very little fat used; often unsalted but occasionally spiced with chili.

Infants are breast-fed for 9-18 months, supplemented with rice water or sweetened herb tea. Milk is a luxury food.

Taboos: Tsimihety have greatest number of food taboos (144), followed by Betsimisaraka (133). Majority are marginal taboos, forgotten under certain conditions. Many believe that children who eat eggs before they have learned to speak will become mute, or that eating fish will cause syphilis. Green bananas are said to cause dental cavities. Pork not allowed by Muslims.

5.6 Staple Foods

- Grains and starches: rice (preferred by most as main food), maize, sorghum, yams, taro, cassava, sweet potatoes, wild roots, and tubers.
- Cooking oil: very little fat used; some groundnut oil and palm oil, mutton and beef fat.
- Legumes: cow peas, dried beans, groundnuts; lima beans (pols du cap) grown for export.
- Vegetables: tomatoes, onions, leafy vegetables (cassava, pumpkin, wild cress) go into popular sauce; green beans, carrots, turnips, leeks, cauliflower, cucumbers, lettuce, cabbages.
- Fruits: fruit grows wild and is eaten as between meal snack; bananas (may be boiled or dried, pounded and mixed with rice and fried in peanut oil), citrus, pineapples, peaches, plums, apricots, apples, pears, grapes, lychee.
- Meat/fowl: meat generally limited to occasions of sacrifice at traditional ceremonies (funerals); or in honor of a guest, and consumed at once. Poultry also used in religious sacrifices or as gifts. Few eggs eaten, but kept for hatching.
- Fish: regular consumption (fresh or preserved) in coastal areas; less available in interior.

Liquids or beverages: coconut milk is important cooking ingredient; milk consumed mainly in South (as yogurt with lemon); national beverage is ranopango (water boiled with rice that has become stuck to side of pot, always drunk after meals); coffee (popular but expensive); a strong alcoholic drink made from sugarcane and tree bark.

5.7 Nutritional Deficiencies

PEM is a common condition, especially in children. Other reported nutritional problems: Vitamin A deficiency; scurvy in high plateau region; beri-beri in urban and coastal populations; goiter in some areas.

Winter is the season of hunger. Caloric intake may drop from a summer average of 2,587 to 1,430 during winter months when people subsist mainly on tubers and maize supplemented by wild grains and fruits. 39% of households are affected. The worst period is from October to December when rice reserves have been exhausted (harvest too small or too much sold) and the new crop is not yet in. People accept calamities fatalistically and do little to prepare for them. When a windfall hits, all is shared and nothing saved for the next day. Migration has provided temporary solution to undernourishment and starvation.

5.8 Housing

Styles and building materials vary with region. Traditional beliefs dictate shape (most houses are rectangular), orientation along N-S axis, and kind of roof (steeply pitched, two sided).

In the Imerina and Betsiho areas, houses are usually two stories, of sun-dried mud bricks. Typical dwellings in Ankaratra region, southwest of Tananarive (Antananarivo), have roofs extending to the ground to preserve heat. Thatched houses predominate in south and east, while the Tsimihety in north add thatched roofs to houses of sun-dried mud brick caked over a framework of raffia palm ribs. Houses built entirely of wood are common in forest regions and in some parts of the extreme south. In regions of heavy rainfall, houses are raised on posts. In all parts of the country, family tombs are often the most substantial structures in a community.

Furnishings in both rural and urban homes tend to be simple, arranged also according to custom. In traditional homes, the northeastern corner is the domain of ancestors and lacks furnishings except for the family talisman and prayer mat. A hearth consisting of 3 stones or 3 iron legs in southeastern triangle of room (or in middle of room in southern part of island) supports cooking pot. Wood, straw or charcoal is used for fuel. Cooking may be done in courtyard or separate small building.

An estimated 76% of urban dwellers and 16% of rural have access to safe water supply.

6. Economy

6.1 Overview of Economy

Agriculture is the leading economic sector, contributing 40% of GDP and accounting for 80-90% of export earnings. Considerable crop diversity exists. Industrial production accounts for 14% of GDP; food processing, textiles and apparel industries are dominant (together 70% of output). Other important industries: tobacco manufacture, chemicals (soap, matches), petroleum refining, construction materials (corrugated sheets, cement). A new cement plant being built at Antsirabe with 115,000 tons p.a. capacity was among expansion projects in 1977. Industrial growth has slowed since 1972; construction activity depressed. Production of mica and graphite has not expanded since 1975; chromite production (reserves estimated at 6 million tons of ore) has fluctuated. State monopoly (SONAREX) controls all mining operations.

There is wide disparity in wealth and development level among geographic regions with the central plateau area, and especially Antananarivo, being considerably more advanced than coastal areas of west and south. Despite a wide range of resources and relatively favorable climate, Madagascar is among the 30 poorest countries in the world with GNP per capita at about US \$240 in 1977 and some 50% of the population subsisting below poverty level. Economic growth in recent years has been slow and uneven, real GDP having increased by 3% since 1970 while output has barely kept pace with population growth.

Since 1972 government priority has been on restructuring the economy so that future growth will meet social objectives. Present policies of austerity and self-reliance such as a reduction in imports, external capital inflows, and private foreign investment, have had an initial effect of depressing the economy. Through expropriation of foreign-owned companies and nationalization of banks, insurance companies, and major industries, the state controlled 61% of the economy by 1978.

Government redistribution measures including the elimination of poll and cattle taxes, raising of producer prices, reduction of salary differential through establishment of ceilings and minimum levels, control of consumer prices, and subsidization of basic products such as rice, have had little impact in absence of employment and production growth. Urban unemployment is growing (50,000 urban unemployed in 1976 with 18,000 added yearly).

The financial position of the government has deteriorated. Improvements in tax structure and administration should increase revenues but the trend has been to finance development investment through fiscal deficits.

6.2 GNP

GNP at 1978 market prices (US \$millions): 2,050 (1978). GNP per capita \$250 (1978). GNP per capital (real) growth rate 1970-77: -2.7%.

Source: World Bank Atlas 1979. GNP at market prices rounded to US\$ tens of millions. GNP per capita rounded to nearest US \$10.

6.3 Balance of Payments

Balance of payments situation improved in 1976 and 1977 over the 2 preceding years due to sharply rising export prices (especially coffee) and strict import limitations. However, the position was believed to be deteriorating again in 1978. The slow growth of export volume, increasing dependence on food imports, a large services deficit, and a slow inflow of external resources were seen as major weaknesses by the World Bank.

Emphasis on self-reliance is reflected in external debt position. Outstanding disbursed debt at end of 1977, 11.5% of GNP, is well below average of 25% for most low income countries.

6.4 Imports

With a restrictive import policy introduced in 1976, the volume of imports fell 31% over the previous year. Concerned about the impact of policy on economic growth, the government relaxed import restrictions somewhat in 1979 and simplified procedures with respect to machinery spare parts, transport equipment, and essential commodities.

Major trade partner is France, which accounted for 33,549.6 (mil. FMG) of total merchandise import value of 85,216 (mil. FMG) in 1977. Germany, People's Republic of China, US, Japan, Italy, Iraq, Netherlands, Saudi Arabia, UK were among other trade partners.

Total merchandise imports of 85,216 (mil. FMG) in 1977 included: food and beverages (9,864.9), other consumer goods (15,840.4), mineral fuels and lubricants (13,106.6), other intermediate goods (27,377.6), and capital goods (19,027.3).

6.5 Exports

Madagascar has much wider range of exports than most developing countries. However, bulk of exports are from three categories: 1) agricultural commodities, such as coffee, vanilla, pepper, cloves; 2) processed foods, particularly sugar and meat products; 3) petroleum products and minerals such as chromite and graphite. Slow growth of exports since 1970 is due to growing domestic demand and inadequate production (sugar, meat, paper, paper products, footwear, tobacco products), lack of a more active marketing strategy (coffee, vanilla, pepper), and the slow growth of markets (cloves, petroleum products).

Major trade partners (1977): France was leading purchaser; others included USA, Reunion, Japan, Federal Republic of Germany, UK, Belgium/Luxembourg, USSR, Algeria.

Merchandise exports in 1976 totaled 66,034.9 (mil. FMG). Food and agricultural commodities: coffee (28,325.6), vanilla (4,732.7), cloves (4,304.1), pepper (1,520.1), lima beans (1,133.9) sisal (1,242.3), fish, crustaceans and mollusks (3,086.5), meat (845.1). Manufactured goods and mineral products: vegetable and fruit preparations (2,278.2); oil of cloves (1,240.3), oil cake (2340); cotton yarn and fabrics (1,915.0); wood and wood products (237.1); chromite (2,407.5); graphite (1,061); petroleum products (4,322.7).

7. Agriculture

7.1 Overview of Agriculture

The agricultural sector contributes about 40% of GDP, employs 85% of labor force, supplies 75% of household commodity needs, and accounts for 80% or more of export earnings. Highly diversified production includes a variety of staple foods, industrial crops (cotton, groundnuts, sugarcane), and export crops (coffee, vanilla, cloves, pepper). The leading crop, paddy, accounts for 30% of agricultural production. Though large-scale mechanized production systems exist, smallholder subsistence agriculture and traditional animal husbandry predominate, and low yields are characteristic. Growing demand for agricultural commodities in recent years has been met by bringing more land under cultivation (presently about a fifth of arable land under crops) rather than by improving yields. Low production growth rate of about 1% per year since the beginning of the 1970's, less than half that of population growth, has inhibited economic development and necessitated increased food imports especially rice and edible oils. In order to improve productivity and create employment opportunities within the agricultural sector, emphasis has been placed on intensive cultivation and extension of irrigation; only 184,000 ha. now irrigated cultivation compared with 900,000 ha. of potentially irrigable land.

Rice cultivation and livestock raising are found throughout Madagascar. Other activities tend to be concentrated in specific areas: in the highlands, rice is the dominant crop, supplemented by food crops, fruits, vegetables, and cattle; on the east coast coffee is the dominant cash crop, rice the staple food crop; in the north many export and industrial crops are grown (various spices and sugar); the west coast has excellent pastures and good potential for irrigated crops, but is relatively underdeveloped; livestock raising is the main activity in the south.

7.2 Crops and Production

Rice is the major foodcrop grown on 1 million hectares (one half of all cultivated land). Total production estimated 2-2.2 million tons/year; average yield about 1.8-1.9 tons/hectare. Between 80-90% is consumed on the farm. 75% of rice land is family owned fields; 25% government developed irrigation systems. Overall production is growing but marketed production has stagnated or declined. Severe drought conditions since January 1980 reported in southwest area of Morondava and northwest area

of Mainterano have caused production shortfalls, but main area not affected. Once a net rice exporter, Madagascar now imports rice (25,000 tons 1971 to 105,000 tons 1977). Manioc is second most important food crop; others include maize, beans, sweet potatoes, potatoes.

Coffee, the main export crop, accounted for nearly 50% of total export earnings in 1977. Madagascar is world's leading producer of vanilla. Pepper and clove are also important export crops. The leading industrial crop is sugar; production relatively constant (about 1.3 million tons/year); two-thirds consumed locally, the rest exported mainly to EEC. Cotton production expanded dramatically between 1967-77 due to efforts of CFDT (Compagnie française pour le Développement des Fibres Textiles). Yields of groundnuts, the main source of edible oil, are low and production fluctuates.

Estimates of Area Cultivated and Production for Principal Crops

<u>Crop/Culture</u>	<u>Surface Cultivated</u> ('000 ha)			<u>Production</u> ('000 tons)		
	<u>1975</u>	<u>1976</u>	<u>1977*</u>	<u>1975</u>	<u>1976</u>	<u>1977*</u>
<u>Food Crops</u>						
Rice	1,078	1,064	1,109	1,972	2,043	2,200
Manioc	203	254	277	1,309	1,370	1,594
Maize	109	115	127	120	136	154
Sweet potatoes	60	79	90	279	472	547
Beans	49	49	57	37	41	47
Potatoes	21	22	22	122	133	150
Vegetables	n.a.	15	n.a.	n.a.	65	n.a.
Sub-Total		1,598				
<u>Cash Crops</u>						
Coffee	234	229	241	84	79	89
Peanuts	34	49	49	42	54	55
Cloves	45	47	47	5	13	15
Sugarcane	34	34	38	1,378	1,287	1,352
Vanilla	28	24	25	7	4	5
Sisal	19	19	19	21	19	20

<u>Cash Crops</u>	<u>1975</u>	<u>1976</u>	<u>1977*</u>	<u>1975</u>	<u>1976</u>	<u>1977*</u>
Cotton	16	18	n.a.	31	35	37
Lima beans	25	19	24	24	19	24
Cashew nuts	18	18	19	64	63	69
Coconuts	20	14	14	34	34	38
Raffia	13	8	9	12	7	8
Pepper	6	7	8	3	5	6
Tobacco	4	6	6	4	5	5
Cocoa	4	6	6	1	2	2
Sub-Total	500	498				
<u>Fruits</u>						
Temperate	n.a.	4	n.a.	n.a.	15	n.a.
Tropical	n.a.	89	n.a.	n.a.	594	n.a.
Citrus	n.a.	12	n.a.	n.a.	64	n.a.
Other	n.a.	8	n.a.	n.a.	12	n.a.
Sub-Total		113				
<u>Miscellaneous</u>						
Ylang-ylang	1	1	1	0.5	0.5	0.5
Other		44				
Sub-Total		45				
Total		2,225				

*Provisional figures for 1977

Source: World Bank, Madagascar: Recent Developments and Future Prospects, 1979.

Livestock

Zebu cattle, traditional symbol of Madagascar, are found on vast areas of natural pasture throughout island. The national herd, between 7 and 11 million, is virtually all raised by traditional herders. Productivity is low and only a small part of herd enters commercial channels (3-4% a year). Excellent potential for other forms of livestock: pigs, poultry, dairy cows.

Fishing

Excellent fishing potential has not been exploited. Total catch (1976) estimated at 54,950 metric tons. Japanese fleets, fishing Malagasy coastal waters, account for marked increase in shellfish exports.

7.3 Crop Dates

<u>Crops</u>	<u>Harvest period</u>	<u>Bulk of Harvest</u>
Maize:		
Main harvest	March - June)	March - June
Secondary harvest	July - October)	
Sorghum	May - July	...
Rice	Whole year round	May - July
Sugar cane	June - November	...
Sugar	Campaign starting in June	---
Potatoes:		
Main harvest	February - May)	Feb. - May
Secondary harvest	June - October)	
Sweet potatoes and yams	May - December	...
Cassava	June - October	...
Dry beans	February - November	...
Other pulses	April - September	...
Citrus fruits	March - May	...
Raisins	January - March	...
Bananas	Whole year round	...
Pineapples	January - June	May - June
Palm kernels	Whole year round	...
Groundnuts:		
Main harvest	February - July	February - July
Secondary harvest	June - September	
Coconuts	Whole year round	...
Castor beans	July - January	...
Coffee	April - October	...
Cacao	October - December	...
Tea	Whole year round	...
Tobacco	April - October	...
Jute (<i>Idrea lobata</i>)	April - September	...
Sisal	August - November	...
Kapok	August - October	...
Raffia	May - November	...

7.4 Agricultural Imports

Unprocessed and semiprocessed food imports include: meat, fish and shellfish, condensed milk, dairy products, rice, other cereals, wheat flour, tea. Processed food imports include: meat preparations, sugar, cacao preparations, cereal, vegetable and fruit preparations. Other agricultural imports include: various beverages, tobacco products, oils and fats, live animals, animal feed.

Although the drought left a rice deficit of 250,000 tons, only 150,000 tons were imported in 1978. Flour imports totaled 70,000 tons.

7.5 Agricultural Exports

Coffee remained leading export in 1978, although both quantity and value were down from previous year. Higher prices for vanilla beans offset smaller quantity exported. Other major agricultural exports are cloves, pepper, lima beans, luxury rice, sisal, raffia, meat, (frozen and canned), seafoods, sugar, and textiles.

8. Physical Geography

8.1 Climate

Madagascar lies in the tropical zone, but much of it has a temperate climate owing to the altitude of the interior highlands. The east coast is exposed to the southeast trade winds, (which bring heavy rains) as well as to monsoons. Cyclones are an annual menace. The south is generally dry with semi-desert conditions in some areas. Temperatures are moderated by altitude, thus mean temperatures on the coast vary from 70° to 80° F, while Tananarive on the plateau has a range of 60° to 70° F. Tananarive's rainfall is about half the 112 inches of rainfall in Tamatave on the coast. The central highlands are relatively comfortable with a short dry season, lower average humidity, and lower temperature maximums than those prevailing on the coastal plains.

Majunga, a city on the northwest coast, has quite a different rainfall pattern (precipitation between 40" - 80" during annual wet cycle) but is nearly as warm and humid as Tamatave. Tulear, on the edge of the southern semi-desert, has temperatures similar to those on both coasts but has, along with its lower annual rainfall (less than 20" a year), a lower average humidity.

Mean Temperatures and Rainfall - 1967

	Tamatave		Tananarive		Tulear	
	Temp (°F)	Rain (In.)	Temp (°F)	Rain (In.)	Temp (°F)	Rain (In.)
Jan	80	14.4	70	11.8	82	3.1
Feb	80	14.8	69	11.0	80	3.2
Mar	79	17.8	69	7.0	79	1.4
Apr	77	15.7	67	2.1	76	0.3
May	74	10.4	63	0.7	72	0.7
Jun	71	11.1	60	0.3	71	0.4
Jul	70	11.9	59	0.3	69	0.1
Aug	70	8.0	58	0.4	69	0.2
Sep	71	5.2	62	0.7	72	0.3
Oct	74	3.9	75	2.4	75	0.7
Nov	77	4.6	68	5.3	78	1.4
Dec	79	10.3	70	11.3	81	1.7
Annual	75	128.2	65	53.4	75	13.5
Altitude (In feet)		20		4,500		20

8.2 Topography

The Democratic Republic of Madagascar comprises the fourth largest island in the world and several smaller ones in the western Indian Ocean. It is located about 500 km. off the coast of Mozambique or 250 miles from SE coast of Africa, is 995 miles long and 360 miles at its widest.

The terrain is rugged. A plateau rises sharply from the narrow coastal strip in the east and descends gradually in a series of terraces to the Mozambique channel in the west. A mountain chain runs N-S with peaks ranging up to 9,450 feet; average altitude of the north-central high plateaus is 2,500 to 4,500 ft. Major rivers flow westward. Near absence of bays or natural harbors except for estuaries in NW. The eastern coast is almost straight and has very few anchorages, no natural harbors.

The eastern plain is narrow and densely populated compared with the west. Hazardous conditions on the east coast which faces an empty ocean, have tended to increase the country's isolation. Offshore reefs, high wind velocity, frequent hurricanes, and few protected coves add to dangers and expense of trade and travel here.

8.3 Land Use

587,041 sq. km. or 222,656 sq. miles (including 2,100 sq. miles water). About the size of California and Oregon combined, or slightly larger than Texas.

<u>Land Use</u> ('000 hectares)	
Arable land	2,580 *
Land under permanent crops	282 *
Permanent meadows and pastures	34,000
Forests and woodland	12,472
Other land	8,820
Inland water	550
Total	58,704

* FAO estimate

Source: Europa, Africa South of the Sahara 1979-80.

Forests, estimated to cover 10-20% of area depending on extent to which low-grade woodland is included, are of great importance as a source of building material and fuel. Raffia is the only significant forest export product.

8.4 Rivers

Inland water transport is extremely limited. Rivers are generally heavily silted, alternately flooded or dry, or usable only by very small craft for short stretches. Rivers in the east are torrents rushing down steep slopes. In the west most are shallow swamps; sluggish, alluvial soil deposits in deltas. In the arid south and southwest streams are almost non-existent.

The longest waterways are in the west where, because of the absence of railroads and adequate road systems, they are the main means of transportation: the Betsiboka is navigable for 128 miles; Mahavavy, 126; Tsiribihina, 86; Manambolo, 120; Magoky, 151; and Onilahy for 134 in the rainy season. The 400 mile-long series of lagoons along the east coast (Pangalanes Canal), interrupted by sand and rocky ridges, can be navigated by light barges for limited stretches and is used to move agricultural products along the east coast. Lake Alaotra, in the highland area west of Tamatave, is the largest.

8.5 Mountains

Most of the higher elevations are located east of the SW-NE central axis. The central highlands, with ranges above 4,000', stand within 60 miles of the eastern shore. Many of the agricultural areas and population centers are at elevations of 4,000-5,000' overlooked by mountains rising above 8,000'. There is great diversity of landforms, elevation, and geologic origin. Most ranges were thrust upward by long-term lateral shifting in foundation rock, but some of the highest peaks are of volcanic origin.

There are three principal masses: Tsaratanana in the north, granite covered by lava, highest peak at 9,450'; Ankaratra, volcanic massif with elevations of 7,000-8,600 ft. in the center of the island; and Andringitra, an eroded granite mass, 8,721 ft., south of Ambalavo.

9. Transportation and Logistics

9.1 Roads

The island's physical configuration, rugged topography, climate, and lack of suitable construction materials, inhibit construction and maintenance which in turn reinforces the relative isolation of the less populated regions. An adequate transport system is lacking, notwithstanding progress in the last 15 years. Transport needs are relatively well served only on the central plateau, with Tananarive city generating or absorbing half of the country's commodity flows. Other populated areas are served mainly, if not exclusively, by coastal shipping.

The transport system consists of 28,000 km. of roads. 8,679 km. are classified as national, primary roads, of which 4,285 km. are paved; 19,000 km. are provincial, secondary roads. The paved highway network, consists of a main north-south artery interconnecting Fianarantsoa, Antsirabe, Tananarive, and Majunga; an east-west road linking Moramanga, Tanarive, and Tsiroanomandidy; and several short stretches around the major coastal towns. Other roads are generally low-standard, narrow, badly aligned, and often with weak, obsolete structures; heavy rains make many roads impassable half the year. The north and part of the west have no all-weather land connections to the rest of the island; most links to the southern region are mere trails.

A World Bank Highway Project completed in 1977 improved the primary road network by reconstructing the paved road between Vohidiala and Ambatondrazaka (24 km.) and that connecting Antsirabe - Betafo - Miandrivazo - Maliambandy (334 km.). Road maintenance problems arise from shortage of trained personnel (Malagasy nationals are being trained to replace departing expatriates), and insufficient amount and old age of equipment.

9.2 Vehicles

1978 vehicle fleet: 54,719 automobiles, 47,978 trucks or buses, 5,940 motorcycles and motorbicycles. About half the fleet was registered in Tananarive in mid 1970's. Traffic volume on paved roads is less than 75 v.p.d. on some sections but reaches more than 1,000 v.p.d. near main cities. Between 1965 to 1972 road traffic grew 5% p.a. and near 10% on paved roads. However, since 1972 traffic growth has slowed, as has the rest of the economy. Machinery and vehicle spare parts are unavailable due to recent import restrictions.

The road transport industry consists of numerous highly competitive small carriers and cooperatives, a few large companies, and traders. Almost no regulations or restrictions are imposed on providing services; the main exception is a 5.5 ton vehicle load limit on the Tananarive-Tamatave road to protect the railway from road competition. As a whole, tariffs are close to costs.

9.3 Surface Miles

(In km.)

Anbilobe - Fenerive	105
Antsirabe - Malaimbandy	334
Arivoninamo - Analavory	67
Fanjakamandroso - Tsiroanomandidy	55
Mahandro - Vatomandry	66
Mananara - Maroantsetra	112
Tamatave - Fenerive	105
Tananarive - Miarinarivo	124
Tananarive - Antsirabe	132
Tulear - Sakaraha	133

9.4 Railroad Network

Two unconnected railway systems of one-meter gauge track totalling 884 km. One line links Toamasina (Tamatave) on the east coast with Antsirabe in the interior via Brichaville, Moramanga, and Antananarivo (Tananarive), with a branch line from Moramanga to Vohidiala, which divides to Lake Alaotra and Morarano to collect chromium ore. The other links Mananara and Fianarantsoa. The railroad authority is Réseau National des Chemins de Fer: B.P. 259 Antananarivo.

9.5 Rail Distances

Tananarive - Tamatave:	372 km.
Moramanga - Lake Alaotra:	168 km.
Tananarive - Antsirabe:	159 km.
Fianarantsoa - Manakara:	165 km.

9.6 Ports

There are 18 ports, the largest being at Toamasina (Tamatave) and Mahajanga (Majunga). Fifteen ports are classified as "main", of which 11 are suitable only for lighterage. Of total 2.6 million tons of merchandise handled in 1977, Toamasina was responsible for 66%.

Diego Suarez

Coordinates: Lat. 12° 16' S.; long. 49° 17' E. At the N. tip of island.

Approach: Harbor large and commodious, but subject to very strong N.E. winds from May to October. Width of entrance, 300 m., depth of entrance, 15.24 m. Tidal current in roads, may attain 3 knots. H.W.S.T. 2.36 m.; L.W.S.T. 35.58 cm.; H.W.N.T. 1.63 m.; L.W.N.T. 0.99 m.

Accommodation: Two berths for steamers, depth 7.92 m. One quay 200 m.; one quay 67 m. Forty lighters. Storage capacity 1,500 tons. No rail connection. Cranes: One 5-ton and one 6-ton. Water: Fresh water from two floating tanks.

Bunkers: Fuel and gas oil by pipeline.

Shiprepairs: Societe d'Exploitation pour la Construction et la Reparation Navale (major), B.P. 135. Tel. 212-65. Telex: SECREN 930 103. In addition, there is a Government drydock, length 199 m., width at bottom 28.4 m., draft 10.5 m., with two 18-ton and two slipways. Authorities require 24 hours notice when drydock is required for repairs.

Pilotage: Compulsory for all vessels over 150 tons inside the bay W. of line joining Cap VatomaInty to Pointe de l'Angle; optional E. of this line.

Airport: National airport, Diego-Arrachart, with services daily to international airport at Tananarive, 800 km.

Fort Dauphin

Coordinates: Lat. 25° 02' S.; long. 47° 01' E. On the southeast coast.

Approach: Depth at entrance from 45.71 m. to 18.29 m. Weather: E. winds.

Accommodation: The harbor is 4.8 km. long E. and W., and a mile broad; has a depth of water sufficient for largest vessels; depth in harbor 60 m. Wharf 73.14 m. long. Storage: 1,470 sq. miles only. Cranes: Two of 3 tons, two of 5 tons and one of 30 tons.

Bunkers: Oil available in drums.

Airport: Fort Dauphin, 5 kms.

Majunga

Coordinates: Lat. 15° 43' S.; long. 46° 17' E. On the northwest coast at the entrance to Bay of Bombetoka.

Approach: Entrance to port through Ampajony's Pass between Euryalus' Bank and Mariner's Bank, marked by a channel entrance lighted buoy.

Accommodation: Ocean-going vessels and large coasters remain at anchor in a safe road opposite the town. Loading and discharging by lighter. There are four quays: Quay Oivisini (dry at low tide); Quay Coste, 2 m. draft at low tide; Quay Willemani, 2 m. draft at low tide; Quay Barrequand, 2 m. draft at low tide. Eight pallet elevators, two trucks, six tugs from 100 to 300 h.p., 29 lighters available. Cranes: Seven motor cranes from 10 to 15 tons.

Bunkers: Supplied by tank-trucks to small ships only.

Shiprepairs: Small slip for vessels up to 500 tons; minor repairs effected by Compagnie Malgache de Manutention. Tel. 28-76.

Pilotage: Optional, one pilot available. Harbor Master indicates anchorage by radio.

Traffic: About 300,000 tons p.a. In and out.

Airport: Daily service to Tananarive except Sunday.

Mananjary

Coordinates: Lat. 21° 14' S.; long. 48° 21' E.

Accommodation: Ocean-going vessels remain in the roadstead, loading and discharging by lighter. Depth on bar is never more than 1.50 m. Twelve lighters available, from 12 to 20 tons. A quay in the river is used by lighters which are rowed and occasionally towed ashore; length 180 m., draft at low tide 1 m. Three launches available of 60 tons. One hoist with rolling tackle of 8 tons. No rail connection. Storage: Warehouse with 1,200 sq. m. and open storage areas available. Cranes: Two cranes of 2 and 8 tons. Water: No fresh water.

Airport: Service to Tananarive on Monday, Tuesday, Thursday and Saturday.

Morondava

Coordinates: Lat. 20° 17' S.; long. 44° 16' E. On the west coast.

Accommodation: Anchorage for ocean-going vessels and larger coasters 1.6 km. offshore. Port facilities for lighters, small coasters (max. draft 2 m.) and schooners inside the lagoon at Port Bebe. There are three quays: 50 m. in length, draft 2 m. at low tide; 57 m., dry at low water, and 50 m. in length, dry at low tide. Entrance to the Bethoria Channel open to small coasters only at H.W.S.T. Two launches and five lighters of 50 to 65 tons available for discharge and loading from anchorage to quays. Cranes: One crane of 6 tons, two derricks of 3 and 20 tons.

Development: General improvement to port facilities projected.

Towage: Not available.

Pilotage: Not available.

Airport: Jacques Ringel Airport, 5 km. from port. Flights to Tananarive on Monday, Thursday, Friday and Saturday.

Traffic: About 550,000 tons p.a. In and out, plus one million tons of oil handled by pipeline to the refinery.

Airport: 5 km. from port. Daily service to Tananarive.

Working Hours: Normal working hours are from 07.00 to 14.00 hours and from 14.00 to 21.00 hours, extendable to 23.00 only for completing a vessel.

Tulear

Coordinates: Lat. 23° 22' S.; long. 43° 40' E.

Approach: Weather: Winds, S.W.

Accommodation: Vessels with drafts up to 10.06 m. may safely anchor in the harbor, but Jetty, 145.1 m. long has maximum safe draft of 9.29 m. alongside. One Jetty, 60.95 m. long with 7.31 m. draft at seaward end and 6.70 m. draft at shore end. Scandinavian East Africa Line and Societe de Batelage de Tulear have 15 lighters and 5 cranes from 5 to 17 tons. No rail connections. Cranes: Four cranes of 6 to 12 tons. Water: Fresh water available on Jetty.

Bunkers: Supplied by tank lorries to small ships only.

Pilotage: Compulsory for all vessels over 150 tons.

9.7 Shipping

Most imports and exports are moved by sea. Shipping along the 4,000 km. coast is also important, since it is the only means of transporting freight between many areas. Coastal tonnage increased about 6% p.a. between 1969 and the mid-1970's, despite the ports' poor services and unfavorable natural features and climatic conditions especially on the east coast. Coastal tonnage declined in 1977 and 1978 from peak 812 (thousand metric tons) in 1976.

Compagnie Generale Maritime (CGM): B.P. 1185, Antananarivo; f. 1976 by merger of Messageries Maritimes and Compagnie Generale Transatlantique.

Compagnie Malgache de Navigation: rue Rabearivelo, B.P. 1021, Antsahavola, Antananarivo; coasters.

Nossi-be

Coordinates: Lat. 13° 0' S.; long. 48° 26' E. On the northwest coast.
Free port.

Accommodation: A double bay with deep water. Two entrances, North 31.11 m., South 22.14 m. deep. Quays accessible only to lighters, small coasters, and vessels not longer than 50 m. and with less than 3 m. draft. Two quays of 290 m. Two launches and eight lighters available. Fresh water available at end of quay. Open storage of 10,431 sq. m. and covered storage of 3,484 sq. m. Cranes: Three cranes of 1,5, and 11 tons available.

Towage: One 180-h.p. and three 90-h.p tugs available.

Pilotage: Not available.

Airport: Daily service to Tananarive.

Tamatave

Coordinates: Lat. 18° 10' S.; long. 49° 32' E. On the east coast.

Approach: Weather: Work is often delayed by rain. Average fall is 120 in. p.a. Rainy seasons: Jan./March and May/Aug.

Accommodation: Commodious harbor with safe anchorage from April to November. Depth at entrance, 10.97 m. Three moles, A, B, and C. Mole A: East, 120 m. long with 6.70 m. alongside; three 3-ton cranes; West, 200 m. long and 5.49 m. alongside; two 3-ton electric cranes. Mole B: 180 m. with 8.23 m. alongside; six 3-ton electric cranes. One floating crane, 80 tons capacity. Mole C: 485 m. long, draft 9.45 m., equipped with three 6-ton electric cranes. Ten lighters available. Storage: 37,000 sq. m. of covered storage in warehouses and transit sheds. Water: Fresh water at quayside and from floating tanks.

Shiprepairs: Small slip for lighters up to 400 tons; minor repairs (deck engines) carried out by port workshop.

Towage: 1,750 h.p. tug available.

Pilotage: Compulsory. Rates on application.

Navale et Commerciale Havraise Peninsulaire (NCHP): rue Rabearivelo, Antananarivo, B.P. 1021.

S. A. M. Darrieux et Cie.: B.P. 1248, Antananarivo; agents for Nedlloyd Lines.

Societe Industrielle et Commerciale de l'Emyrne: B.P. 150, Antananarivo; f. 1911.

Societe Malgache des Transports Maritimes: 6 rue de Nice, B.P. 4077, Antananarivo; f. 1963; services to Europe.

Solitary Malagasy (SOLIMA): B.P. 140 ave. Grandidier, Antananarivo; f. 1965; transports petroleum and products.

The fleet in mid-1970's consisted of 250 registered sail boats and 25 cargo ships, only 5 of which had a carrying capacity above 400 tons. 150-ton landing craft are being introduced to overcome the lack of ports.

9.8 Airports

The international airport is at Antananarivo. There are 154 aerodromes of which 58 are open to public air traffic; 17 are of all-weather standards. In addition to Antananarivo (Tananarive), 10 airports have facilities for jets; Antananarivo/Ivato, Mahajanga (Majunga)/Amborovy and Toamasina (Tamatave) can handle large jet aircraft.

NB: For up-to-date information consult latest issue of weekly International Notams, International Flight Information Manual, and/or ICAO's Air Navigation Plan for appropriate region.

MAJUNGA/Amborovy
REG-S

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
		<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>		
15°39'57" S 46°21'03" E	26 29.3	14/37	0.77	2200	B	SW 24 SW 38 DTW 70	100 JA1

Remarks: Alternate aerodrome - Tananarive/Ivato; stopway 32-200; clearway 14-60; no telex; fuel available on request only.

Aids: VOR, L, LSA*, LVA*, LR, LTX, LB, LO, MD, MC, MT, MFD, MO, L6.

* SA14 & VA32 P 4/76

NOSY-BE (NOSSI-BE)/Fascene
REG-S

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
		<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>		
13°19'05" S	10	05/23	0.3	2190	B	MLW 16/1	100
48°19'37" E	26.6					24/2	JA1
						40/4	

Remarks: Alternate aerodrome - Majunga/Amorovy; stopway 05-60; 23-50;
*B737 acceptable; no telex; fuel available on request only.

Aids: VOR, LSA*, AV(23), LR, LTX, LO, MD, MC, MT, MS, MFD, MTX, MO,
L6, 9.

* SA23 P -/-

TAMATAVE/Tamatave
REG-S

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
		<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>		
18°06'55" S	6	01/19	0.09	2200	B	SW 20	100
49°23'34" E	27.6					DW 34	JA1
						DTW 62	

Remarks: Alternate aerodrome - Tananarive/Ivato; stopway 01-60; clearway
01-50; 19-200; no telex; fuel available on request only.

Aids: VOR, LSA*, LVA*, LR, LTX, LO, MD, MC, MT, MS*, MFD, MTX, MO, L4

* SA19, VA01 & S P -/-

TANANARIVE/ Ivato
 PEG-S

<u>Location</u> <u>Coordinates</u>	<u>Eleva- tion M/ Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft Strength (1,000 kg)</u>	<u>Fuel/ Octane</u>
		<u>NR/Type</u>	<u>Slope %</u>	<u>Aircraft/ Length M</u>	<u>CL</u>		
18°47'43" S 47°28'35" E	1279 23.4	11/29	0.80	3100	A	SW 23 DW 34 DTW 65	100 JA1

Remarks: Alternate aerodromes - Dar-es-Salaam/Dar-es-Salaam, Majunga/
 Ambovo, Maputo/Maputo, Saint Denis/Gillot; clearway 11 & 29-60;
 no telex; fuel available on request only.

Aids: ILS (11-1), DME*, VOR, L, LPA*, LSA (11), LAV(29+), LR, LTX, LB*,
 LO, MD, MC, MT, MTD, MS*, MFD, MTX, MO, L5, 6, 9.

* DME, PA 11-1, B & S, P-/-

See Appendix for Airport Key.

9.9 Personal Entry Requirements

Passport required; visa required. Smallpox vaccination required;
 yellow fever and cholera immunization for arrivals from infected areas.
 For specific information contact the Embassy of the Democratic Republic
 of Madagascar, 2374 Massachusetts Ave., N.W., Washington, D.C. 20008.

9.10 Aircraft Entry Requirements

All private and non-scheduled commercial aircraft overflying or
 landing for non-commercial purposes must obtain prior permission from the
 Ministre des Transports, du Ravitaillement et du Tourisme, Direction des
 Transports, Service des Transports Aeriens, B.P. 47, Antananarivo, Madagas-
 car (telegraphic address: AVIACIVIL ANTANANARIVO/Telex: None) at least
 72 hours prior to departure.

Non-scheduled commercial aircraft landing for commercial purposes must
 obtain prior permission from the Ministre des Transports at least 10 days
 prior to departure.

All requests must include provision for prepaid reply and include (a) aircraft type, nationality, and registration marks, (b) name and address of aircraft owners, operator, and charterer, (c) number of passengers and type and amount of cargo, (e) names, nationalities, dates, and places of birth of all persons on board and functions of crew members, (f) nature of flight (overnight, etc.), (g) complete route of flight from original point of departure to final destination, including intermediate stops, (h) dates and times of arrival and departure at airports to be used in Madagascar, (i) purpose of flight, (j) proof of third party insurance liability, (k) any other information which may be pertinent to the flight.

Special Notices

Aircraft overflying or landing without prior approval face military interception and all occupants will be subject to arrest and detainment.

9.11 Airlines

Societe Nationale Malgache des Transports Aeriens (Air Madagascar): B.P. 437, 31 ave. de l'Independance, Antananarivo; f. 1962; internal service between all the principal towns and external services to France and Italy, the Comoros, Djibouti, Kenya, Mauritius, Mozambique, Reunion, Seychelles, Tanzania and the U.S.S.R.; 66 per cent owned by the state, 34 per cent by Air France and Les Messageries Maritimes; fleet comprises 1 Boeing 707-320B, 2 Boeing 737-200, 1 Boeing 747-200B (with Air France), 2 DC-4, 6 Twin Otter, 2 Navajo, 5 Aztec, 2 Cherokee. Madagascar is also served by Air France and Alitalia (Italy).

9.12 Air Miles (Statute Miles)

Tananarive (Arivonimamo) to :	Tulear	373
	Tunis	4,527
	Volovan	132
	Zurich	5,178
Tananarive (Ivato) to:	Tsaratoana	142
	Tsiroanomandidy	94
To Tananarive from:	Diego Suarez	483
	Fianrantsoa	167
	Majunga	239

To Tananarive from:

Paris	5,428
Rome	4745
New York	8668

Fianarantsoa to:

Johannesburg	1,234
Tusaka Intl.	1,292
Maputo	969
Mauritius (Plaisance)	685
Mombasa	1,304
Nairobi Intl.	1,550
Reunion Is.	543
Salisbury	1,068
Seychelles Intl.	1,289

Majunga (Ambovo) to:

Mandritsara	170
Mauritius (Plaisance)	812
Moheli	291
Morafenobe	178
Moroni	345
Nairobi Intl.	1,180
Nossi Be	187
Paris (Orly)	5,197
Soalala	89
Tsaratanana	113

10. Power and Communications

10.1 Energy Sources

Madagascar has a large potential for hydroelectric power development, but in 1978 more than half of the electricity produced by the state-owned utility company was from thermal units. The Andekaleka hydroelectric generating plant, part of large industrial project, is expected to begin operating in 1982.

Electricity Production and Consumption Selected years 1960 - 1978 ^{1/}

<u>Year</u>	<u>Production</u>			<u>Consumption</u>		<u>Production</u>	<u>Consumption</u>
	<u>Total</u> (^{'000} kwh per annum)	<u>Hydro</u>	<u>Thermal</u>	<u>Total</u>	<u>Tananarive</u>	<u>1975=100</u>	<u>1975=100</u>
1960	72,468	60,816	11,652	58,128	38,148	29.5	30.1
1965	102,168	81,804	20,364	88,284	52,224	41.6	45.7
1970	172,404	117,252	55,152	154,440	73,488	70.1	80.0
1975	245,825	173,882	71,944	192,969	77,650	100.0	100.0
1978	282,309	115,642	166,667	245,043	88,852	114.8	127.0

^{1/} Data covers only the operations controlled by JIRAMA, the state-owned utility holding, and excludes electricity generated by various small operators and the auto-generation and consumption of industrial enterprises. Established in 1975, JIRAMA controls the operations of the former EEM (private) and SEM (semi-public).

Source: World Bank, Madagascar: Recent Economic Developments and Future Prospects, 1979.

10.2 Telephone System

The telecommunications system is described as above African average. 31,370 telephones were in use in 1976. There have been automatic telephone exchanges in Tananarive, Tamatave, Majunga, Antsirabe, and Fianarantsoa since 1970. The telephone system is supplemented by radio connections.

Satellite communication links between the island and France were inaugurated in April 1972. The telecommunications center (built with French aid) was linked with the US satellite, INTELSAT-4.

There is a telegraphic system, teletype, and telex links.

10.3 Radio

Radio Diffusion Nationale Malgache: Antananarivo, B.P. 442; government station; fourteen transmitters; programs in Malagasy and French. There were 600,000 radio receivers in 1976.

10.4 Television

Television Malagasy: Antananarivo, B.P. 442; f. 1967; started operations in the capital 1967; reception in Antananarivo, Ambatolampy, Arivonimamo, and Antseranana areas; programs in Malagasy and French.

1. General Information**1.1 Geographic Code**

AID 320

1.2 Country NamesLegal Republic of Maldives
Short Maldives**1.3 Calendar and Holidays**

New Year's Day	January 1
Labor Day	May 1
National Day	July 26
Republic Day	November 11
Christmas	December 25
Id al-Fitr	*
Id al-Adha	*
Milad al-Nabi	*

* dates vary

Fiscal year: calendar year

1.4 Currency

The Maldivian ruppe is monetary unit.

Free market exchange rate (1979)
US \$1 = MR 7.50Administrative accounting rate (since February 19, 1973)
US \$1 = MR 3.93

1.5 Time Zones

GMT + 5; EST + 10

1.6 US Mission to Maldives and Staff

US Ambassador to Sri Lanka, Donald B. Toussaint, is also accredited to Maldives.

Colombo (E), 44 Galle Rd., Colombo 3;
P.O. Box 106 Tel. 21271, 21520, 215432
Telex 0803 1305

1.7 Host Country Mission and Staff in US

Maldives has no diplomatic representation in US.

1.8 Treaties and Agreements

None.

1.9 International Organization Memberships

Colombo Plan, FAO, G-77, GATT (de facto), IBRD, IMCO, IMF, ITU, NAM, UN, UPU, WHO, ADB.

1.10 Travel and Visa Information

Passport required. Visa not required. Check Embassy, 25 Milburne Ave., Colombo 4, Sri Lanka (Ceylon), for specific requirements.

Cholera immunization required; yellow fever immunization required of travelers arriving from infected areas; smallpox vaccination required of travelers arriving from a country any part of which is infected.

1.11 Ethnic and Sociocultural Groups

According to legend, Aryan settlers (Sinhalese) from Ceylon or India joined an aboriginal Dravidian people on the islands around the beginning of the Christian Era or perhaps earlier. Later Arab contacts introduced the third major ethnic strain. Maldivian ethnic consciousness is strong, the population being unified by a common religion and language. The society tends to be closely knit, rigidly structured and disciplined. Power is concentrated in a small national elite in Male. About 1,000 mainly nonpermanent immigrants reside in Male.

1.12 Languages

The Maldivian language, Dhivehi, spoken throughout the archipelago, is derived from Elu (old Sinhalese) and contains elements of both Arabic and Hindustani. Thaana script, written from right to left, is the most generally used form of writing. The Government permits use of Roman script for official correspondence and documents. English is the second language of about 3% of the population and the second most widely spoken. Other languages spoken by small minorities are Arabic, Urdu, and Sinhala.

1.13 Education

Three separate branches of education: traditional Koranic schools, spread throughout the atolls, provide religious and rudimentary secular education; 53 privately financed Dhivehi primary schools provide the only formal schooling in the atolls to a wide age range (5-24); a few state aided English schools, all located in Male, prepare small number of students for university examinations.

Although adult literacy rate is high (82%), educational attainment is low; 20% of population above age 5 have completed primary school, 1.2% have completed secondary school.

1.14 Religion

Islam is the state religion; virtually all Maldivians are of the Shafi School of the Sunni Muslim faith. It is common belief that the Muslim faith supplanted Buddhism in 1153 when the sultan was converted by a visiting holy man.

2. Government

2.1 National Government

A centuries old sultanate, temporarily replaced by a republic from 1953 to 1954, ruled until 1968 when it was abolished by national referendum and the country became the Republic of Maldives. Although there was little interference in local affairs and no British presence, Maldives was a British protectorate from 1887 until full independence was achieved on July 25, 1965. In 1976, the UK abruptly terminated a 1956 agreement under which Gan Island in Seenu atoll had been leased for 30-year period as an RAF staging post and withdrew all its forces.

The 1968 Constitution provides for a President and a Minister's Majlis or Cabinet appointed by him, as well as a unicameral Citizens' Majlis (House of Representatives) of 48 members, 8 appointed by the President, 2 elected from Male, and 2 from each atoll, serving 5-year terms. The President, nominated by the legislature for a 5-year term, must be confirmed by national referendum. Islamic law, of which the President has final authority of interpretation, provides legal framework for most civil and criminal cases. There are no political parties. Ibrahim Nasir, the country's first president, was succeeded in November, 1978, by Maumoon Abdul Gayoom who pledged greater openness in government and a decentralization of the decision making process.

2.2 Regional Organization

There are no constitutional provisions for local government. The country is divided into 19 administrative districts corresponding to atoll groups. Each atoll has a presidentially appointed chief (verin), advised by an elected committee, and each inhabited island is administered by an appointed chief (khatib), a number of assistant headmen, and one or more mosque functionaries (mudim). Atoll and island chiefs have responsibility for maintaining public safety, collecting statistics, implementing government policies, and conducting local education. District radio communication keeps atoll chiefs in touch with the regional offices of the Ministry of Provincial Affairs.

2.3 Administrative Districts

Haa Alifu, Haa Dhaalu, Shaviyani, Noonu, Raa, Baa, Lhaviyani, Kaafu, Alifu, Vaavu, Maenu, Faafu, Dhaalu, Thaa, Laamu, Gaaf Alif, Gaafu Dhaalu, Gnaviyani, Seenu.

2.4 Major Government Figures (July 1980)

President.....	Gayoom, Maumoon Abdul
Attorney General.....	Hussain, Adnan
Head, Dept. of Finance.....	(vacant)
Head, Dept. of Information, Broadcasting & Tourism.....	(vacant)
Min. of Agriculture.....	(vacant)
Min. of Education.....	(vacant)
Min. of External Affairs.....	Jameel, Fathulla
Min. of Fisheries.....	Sattar, Abdul
Min. of Health.....	Hussain, Mohamed Musthafa
Min. of Home Affairs.....	(vacant)
Min. of Justice.....	Fatthi, Moosa
Min. of Provincial Affairs.....	(vacant)
Min. of Public Safety.....	(vacant)
Min. of Shipping.....	(vacant)
Min. of Transport.....	Zareer, Hassan

3. Disaster Preparedness

3.1 Host Disaster Plan

None.

3.2 US Mission Plan

No Mission plan. US Ambassador in Sri Lanka, accredited also to Maldives, makes the determination that a disaster situation exists and may exercise his disaster relief authority for emergencies.

3.3 Disaster Types and History

Except for occasionally severe weather during the period of the southwest monsoon, Maldives is relatively immune to natural disasters. However, health conditions are poor because of inadequate access to safe water supplies, and therefore, epidemics of waterborne diseases are major disaster type.

A cholera outbreak in early 1978 was most recent disaster. Beginning in the southern atolls, the disease, at first thought to be severe gastroenteritis, spread throughout the country, reaching epidemic proportions before being confirmed as cholera in early April. 11,258 persons were affected; 219 died.

Host country responded by mobilizing all medical personnel and resources to find cholera victims, treating the ill, and chlorinating drinking wells. Efforts to monitor the course of the epidemic and carry out control activities were hampered by initial lack of central coordination. A shortage of trained personnel, erratic and unreliable data collection, due to poor radio communications, and internal transportation difficulties were the major problems.

4. Population

4.1 National Demographic Characteristics

A national population of 142,800 was recorded by the 1977 census. According to unreliable past enumeration data, the population increased 71% between 1957 and 1977, the rate of growth averaging 3.1% per annum in the 1962-72 period and 2.8% in the 1972-77 period. Urban (male) population rose from about one-tenth to over one-fifth of total between 1967 and 1977. About 45% of the population is under age 15; 2.3% is over 65.

The current birth rate of 44/1000 is expected to increase to 47/1000 by the late 1980's due to an increase of women entering their reproductive years. Assuming a modest fall in death rate to 15/1000, as health conditions improve, the growth rate would be 3.2% per annum. Government health programs make no provision for family planning services.

4.2 Regional Distribution

Only 202 islands (of 1200 total) are permanently inhabited, 28 islands have fewer than 200 inhabitants, 107 have between 200 and 500 people, 19 islands have more than 1,000. The islands of Hithadua in the southernmost atoll of Seenu with 6,320 people (1977) and the capital, Male, with 29,520 inhabitants in a one square mile area, are by far the most heavily populated. 1977 census data show 35% of population in atolls north of Male, 24% in Male and Kaafu atoll, 41% south of central atoll. Male is the only urban settlement. Based on estimated land area of 115 sq. miles, population density was 1,242 persons/sq. mile in 1977; 944/sq. mile if Male is excluded.

Distribution of the Population, 1977

	<u>Total</u>	<u>Male</u>	<u>Female</u>
Total	142,832	75,224	67,608
Male	29,522	16,635	12,887
Atolls, except Male	113,310	58,589	54,721
Haa Alifu	8,601	4,416	4,185
Haa Dhaalu	9,923	5,133	4,790
Shaviyani	6,363	3,293	3,070
Noonu	6,282	3,306	2,976
Raa	7,904	4,076	3,828

	<u>Total</u>	<u>Male</u>	<u>Female</u>
Baa	5,758	3,080	2,678
Lhaviyani	5,655	2,977	2,678
Kaafu	4,153	2,258	1,895
Alifu	6,219	3,365	2,854
Vaavu	1,078	595	483
Meemu	3,095	1,610	1,485
Faafu	1,986	1,070	916
Dhaalu	2,999	1,538	1,461
Thaa	6,214	3,174	3,040
Laamu	6,090	3,232	2,858
Gaaf Alif	4,977	2,572	2,405
Gaafu Dhaalu	7,717	3,805	3,912
Gnaviyani	4,202	2,128	2,074
Seenu	14,094	6,961	7,133

Source: Census, 1977.

4.3 Migration

Nearly all inter-atoll migration is to Maie, where only 60% of the population are permanent residents. 1977 census data show that between 86% and 97% of inhabitants of other atolls had never lived outside their own islands. Emigration of Maldivians (1,359 overseas in 1977) is nearly always temporary, either for educational or political reasons, or to work as crew members on Maldivian ships.

5. Health, Nutrition and Housing

5.1 Overall Health Status and Common Diseases

Health conditions are extremely poor: Inadequate access to safe water and sewerage; inadequate public health services in the atolls; the large number and close spacing of children, resulting in nutritional deficiencies and lowered resistance to disease, are all contributing causes. Waterborne and tropical communicable diseases are the most common. Several epidemics of waterborne diseases, with heavy loss of life, have occurred in recent years: gastroenteritis (1965), typhoid (1966), diarrhea (1968), and cholera (1978). WHO data reveal high incidence of leprosy (approximately 14 cases per 1000) and tuberculosis (4 cases/1000). Malaria declined from 1,105 cases in 1975 to 256 in 1977 due to eradication program in effect since 1966, but a 47% increase in number of cases was reported in 1978 when a DDT seasonal spraying program was delayed and the chlorination of well water after cholera outbreak destroyed fish bred to eat mosquito larvae.

Ongoing programs, receiving UN assistance, have as highest priority the elimination of waterborne diseases through provision of safe water supply and improved sanitation. Because of the coral structure of the islands, present water sources, mainly shallow dry wells, are easily contaminated. WHO recommendations, to be implemented by UNICEF and UNCDF, call for building of rainwater collectors, community latrines for more populated islands, and a drainage system for Male. Also with WHO assistance, a program to survey and treat leprosy and tuberculosis and provide BCG and smallpox inoculation was undertaken in 1975; the outer atolls have been covered but continued surveillance and treatment is needed. The spraying program for malaria, generally successful despite recent setback, could result in eradication within 2-3 years.

5.2 Vital Statistics

Birth rate	44/1000 population
Death rate	17.6/1000 population
Infant mortality	120.7/1000 live births
Child death rate	21.2/1000 (1-4 year age group)
Growth rate	2.8% (1972-1977)
Life expectancy (at birth)	46.5 years
Population under 15	45%
Population over 65	2.3%

5.3 Health Services and Facilities

Difficulties in inter-island transport and shortages of resources and health personnel have resulted in concentration of health services in Male and neglect of the atolls. The only hospital, a 40-bed government facility, and 6 clinics are located in Male. In an effort to decentralize primary health services, the government, with UNICEF assistance, has recently established 23 community atoll health centers staffed by community health workers. Family health workers will eventually assist in the task of dispensing medicine and first aid and in carrying out disease prevention programs on the more populated islands. Two 12-bed regional hospitals are also planned to handle referrals from primary centers. Maternity and child care programs appear inadequate, and there is no provision for family planning services.

5.4 Health Personnel

9 doctors (1/15,894 people), 7 trained nurses (1/20,435 people), and 35 nurse aides all serve Male hospital. Other health personnel: 31 community health workers; 48 family health workers (1/300-400); foolumas (traditional midwives) of which trained (190), untrained (273); traditional practitioners (171).

5.5 Diet Summary and Nutritional Deficiencies

Rice, most of which is imported, is staple grain, served accompanied by highly spiced sauces of meat, fish or vegetables. Pork is not eaten and beef consumption is low. Consumption levels of fish (58 kg/per capita in 1978 among highest in the world) vary from atoll to atoll and are lowest in south where fishing is limited by shortage of bait.

Production data implying that measurable food consumption is 64% of minimum daily requirement of 2,000 calories do not take into consideration substantial consumption of home grown coconuts, arecanuts, breadfruit, and other fruit and vegetables. Per capita daily consumption in the atolls, however, is believed to be below national average and less than minimum daily requirements. WHO and UNICEF surveys show nutritional anemia and other dietary deficiencies to be common.

5.6 Staple Foods

- Cereals and starches:** rice, wheat flour (both imported), millet, maize, sorghum, cassava, sweet potatoes, yams, colocasia and alocasia (both tubers), plantains.
- Cooking oil:** coconut; some animal and vegetable oils and fats among imports.
- Fruits:** coconuts, arecanuts, breadfruit, bananas, pineapples, mangoes, papayas, pomegranates, some citrus.
- Vegetables:** little information available on preferred vegetables; some, such as beans and cabbages, grown for tourist market, are probably also consumed locally.
- Meat/fowl:** small amounts of beef (all of which is imported) but no pork; some meat from small livestock such as goats; poultry, eggs.
- Fish:** dietary staple and main source of protein; tuna predominant—dried and smoked as "Maldivian fish"; snapper, grouper, perch, some shellfish also caught and presumably included in the diet.
- Condiments:** green chillies, onions, green peppers; sugar is among largest food imports.
- Liquids and beverages:** coconut milk is probably used in cooking; fruit drinks and soft drinks imported; palm toddy, a milk alcoholic beverage, consumed in moderation.
- Baby food is an imported item.

5.7 Housing

Most houses are one story and fairly small, each set in its own compound. Lack of adequate housing does not appear to be a serious problem in the atolls, where more than three-fifths of homes have coral or brick walls and reinforced concrete or galvanized sheet roofs. There is virtually no access, however, to piped water and electricity except in Male.

1977 census reported quality of housing as follows: 18% of households in atolls, 29.7% in Male, had walls of coral/brick with plaster; 52% of atoll households, 28.1% in Male, had walls of coral/brick without plaster; 28.9% of atoll households, 39.6% in Male, had walls of thatch/galvanized sheets or other. 63% of atoll households, 87.8% in Male, had roofs of reinforced concrete or galvanized sheet; 5.7% of atoll households, 0.4% in Male, had tile roofs of reinforced concrete or galvanized sheet; 34.4% of atoll households, 9.2% in Male, had roofs of thatch or other.

3.6% of atoll households, 28.9% in Male, depended on rainwater for source of drinking water, while 91.6% of atoll households, 68.2% in Male, used well water; 0.4% of atoll households, 16.4% in Male, had water closets, while 99.4% of atoll households, 80.1% in Male, used other type of latrine; 2.3% of atoll households, 59.3% in Male, had access to electricity.

6. Economy

6.1 Overview of Economy

There are no national accounts, but a 1978 estimate put GNP at US \$23 million with an implied per capita income of \$160, putting Maldives among the world's 20 poorest countries. The open economy has a narrow resource base, traditionally dependent on fishing, which accounts for one-third of GDP, 44% of employment, and nearly all visible export earnings (see section, 7.3, Fishing). Tourism, accounting for 11.6% of GDP and employing 2% of labor force, has expanded rapidly since development began in 1972 (40% annual growth rate between 1974-78) to become most important foreign exchange earner in 1978. Shipping is a third important source of revenue and foreign exchange. Agriculture is a minor economic activity, contributing about 10-12% of GDP and employing 10% of workers. Small size of market and lack of infrastructure limit growth potential of industry (mainly cottage industries, handicrafts, small-scale fabrication and repair), which accounts for 26% of employment (a large percentage women) and 6% of GDP.

The unemployment rate in 1977 (5.8% overall) was much higher in Male (15.3%), than in the atolls (3.7%), where only Seenu had high open unemployment (11.5%), as a consequence of British withdrawal from Gan. The unemployment rate in the capital for those in 15-24 age group was 24%. GDP grew by an average of 12.5% between 1974 and 1978, reflecting recovery of fishing and growth of tourism. Inflation rate is believed to be 15-20% p.a. Profits from public enterprises have been main source of government revenues, but growing budget deficits prompted introduction of two new tourism taxes and new duty rates in 1979.

6.2 GNP/GDP

Estimated 1978 GNP, US \$23 million; GNP per capita, US \$160.

	<u>Gross Domestic Product in 1978</u>		<u>Annual Rate of Growth</u>
	<u>US \$Mn</u>	<u>% of total</u>	<u>1974-1978</u>
GDP at market prices	22.5	100.0	12.5%
Exports of goods, NFS	15.6	69.1	18.4%
Imports of goods, NFS	13.1	58.4	15.6%

Source: World Bank, The Economy of the Maldives, 1980.

6.3 Balance of Payments

Balance of payments estimates for 1974-78 show current account in surplus every year except 1975. Although merchandise exports, including re-exports, covered only 60-80% of imports, earnings from tourism and remittances from Maldives Shipping Ltd. offset deficits. No data on capital flows, but Development Assistance Committee (DAC) reported average annual commitments of 5.2 million between 1974 and 1978. Commitments rose sharply (12.2 million) in 1978 for airport expansion.

Balance of Payments (US \$ million)

	<u>1977</u>	<u>1978</u>
Exports of goods, NFS	9.0	15.6
Imports of goods, NFS	9.2	13.1
Resource gap	-0.2	2.5
Current account balance	+1.7	+ 3.3

Source: World Bank, The Economy of the Maldives, 1980.

6.4 Imports

Basic foodstuffs and other consumer goods predominant (95% of total in 1974, 83% in 1978). Food imports reached peak in 1975 when they accounted for 60% of total. Rice, usually largest imported food item, overtaken by sugar in 1975 and 1978. The gradual mechanization of the fishing fleet, energy and transport needs of tourism, and higher prices are reflected in growing share of petroleum products (12-fold rise between 1975-79). Intermediate and capital goods accounted for less than 10% in 1978. A 68% rise in imports to \$22 million in 1979 (preliminary) is mainly due to sizeable increases in food and petroleum imports. Japan, Australia, EEC, Italy, Germany are among main suppliers.

Trends In Principal Imports
(current US \$ million)

	1974		1978		Annual
	(\$ million)	%	(\$ million)	%	Rate of Change (%)
Total imports of which:	6.79	100.0	13.07		+17.8
Rice	1.33	19.6	0.09	0.7	.. /a
Wheat flour	0.76	11.2	0.56	4.3	-7.3
Sugar	1.12	16.5	0.85	6.5	-6.6
Petroleum products /b	0.12	1.8	1.20	9.2	+80.0

/a Growth trend is meaningless because of unusually low 1978 rice imports.

/b Excluding lubricants.

Source: World Bank, The Economy of the Maldives, 1980.

6.5 Exports

Fish is main export; others include tortoise shell, ambergris and cowries. Coconut products, principally coir rope and copra, were once exported, but present supplies barely meet domestic demand.

Current value of recorded exports rose by less than 1% a year between 1974-1978 (US \$3.96 million to US \$4.1 million) in what was essentially a period of recovery and structural readjustment from sale of Maldivian fish to Sri Lanka to growing sale of fresh skipjack, mainly to Japanese companies (see section 7.3, Fishing).

Trends In Principal Exports /a
(current US \$ million)

	1974		1978		Annual
	(\$ million)	%	(\$ million)	%	Rate of Change (%)
Total exports of which:	3.96	100.0	4.09	100.0	+0.8
Dry skipjack	3.03	76.5	0.21	5.1	-48.7
Fresh skipjack	0.70	17.7	2.54	62.1	+38.0

	<u>1974</u>		<u>1978</u>		<u>Annual</u>
	(\$ million)	₹	(\$ million)	₹	Rate of Change
					(%)
Dry salted fish	0.10	2.5	0.67	16.4	+61.0
Dry shark fins	0.03	0.8	0.34	8.3	+84.0
Tortoise shell	0.08	2.0	0.05	1.2	-11.1

/a Excluding re-exports.

Source: World Bank, The Economy of the Maldives, 1980.

7. Agriculture

7.1 Overview of Agriculture

The primary sector employs 55% of labor force with the greatest number by far (44%) engaged in fishing, which provides main livelihood for most islanders outside Male. Fish are caught for home consumption, sale or barter in local markets, and for export. Agriculture is mainly a means of supplementing earnings from fishing. Home gardening is main activity, with fruit, tubers, condiments, and coconuts the principal crops. Minor millets, the main field crops, are cultivated during the southwest monsoon. On a few islands crops are grown throughout the year. There is no dairy farming; most poultry are raised around households.

Total arable area is estimated at 6,900 acres; 0.5 acres per person. Another 1,100 acres of non-swamp land is potentially cultivable. Except for sizeable cultivated areas on Raa and Laamu atolls, most arable land is in the 3 northernmost and 4 southernmost atolls (together 60%). Cultivation practices are primitive, yields low, and crop failures common. Soils are highly alkaline, poor in water-retention capacity. Production data, which may not be reliable, implies that dependence on cereal imports is over 99%. A 1974 FAO study concluded that self-sufficiency in food grains was possible with, among other things, proper cultivation practices and utilization of swamp lands for rice growing. However, the World Bank suggests emphasis should be placed on coconut rehabilitation, import substitution in the agricultural sector to meet growing needs of tourism, and integrated development programs for a few carefully selected, agriculturally important atolls.

7.2 Major Crops and Production

Finger millets and Italian millets are grown throughout the archipelago; sweet potatoes, cassava, and yams are produced in the south and some parts of north. Most millets and tubers are consumed at home. Production of maize, once grown regularly in the south, has fallen off with easy availability of preferred subsidized rice. Green chillies, green peppers, and red onions are sold for cash as is a portion of the fruit and coconut harvest. According to 1977 census, 57% of households have breadfruit trees, 76% coconut trees. Considering the importance of coconuts in the Maldives (in the diet, in home and boat construction, and in handicrafts), rehabilitation of crop (yields low at 11 nuts per tree and declining) deserves priority. Thinning of overcrowded stands and a rodent control program would be necessary measures.

Data in the following chart, based on reports of island khatibs and atoll chiefs (possibly unreliable), are an indicator of production trends.

<u>Production of Major Crops</u> (metric tons)			
	<u>1969-71</u>	<u>1973-75</u>	<u>1976-78</u>
Grain Crops:			
Finger millet	73.9	1,016.3	40.3
Italian millet	43.2	182.0	32.3
Maize	9.5	26.6	11.4
Tuber Crops			
Sweet potatoes	6.1	92.0	19.6
Cassava	8.7	13.0	4.9
Colocasia	487.4	686.6	811.4
Alocasia	51.4	61.4	38.5
Tree Crops			
Coconuts (million nuts)	13.1	7.5	9.6

Sources: United Nations Food and Agriculture Organization; as cited in World Bank, The Economy of the Maldives, 1980.

7.3 Fishing

About 75% of fish landings are surface tuna (skipjack and juvenile yellow fin); other species include snapper, grouper, perch, and limited quantities of bait fish, shark, lobster, and shrimp. Fishing methods, mainly pole and line at maximum distance of 25 km. from outer reef, described as efficient. Wages of fishermen, little more than bare subsistence at best, determined by share system. Current problems threatening industry are high fuel costs and no corresponding rise in prices.

7.4 Agricultural imports

Rice, wheat flour, sugar, baby food imported in sizeable quantities. According to preliminary 1979 figures, food imports totaled \$10.5 million and made up 47% of total imports. Rice accounted for 12.9%, wheat flour 4.5%, sugar 4.8%, others 25.6%.

7.5 Agricultural Exports

According to preliminary 1979 figures, exports totaled \$4.5 million and were virtually all fish, fish products, or other sea products. The largest item by far was fresh skipjack, 12,646 MT, valued at \$3.3 million.

8. Physical Geography

8.1 Climate

The Maldives' equatorial climate is influenced by the system of monsoon winds. Moisture laden southwest monsoon winds flow from equatorial region of Indian Ocean over the archipelago from end of April until mid-August, though season is irregular. Heavy squalls, thunder, strong winds are common. High winds may cause rough seas, cutting off connections between islands and between Maldives and India and Sri Lanka. Steady, drier breezes come with northeast monsoon from December to March. Effects of the southwest monsoon are felt more strongly in the northern atolls than in the south; however, rainfall is greater in the south (150" annually compared with 100" in the north). Average annual rainfall in Male during 1974-78 was 84". The mean daily temperature in Male, which varies little throughout the year averages 86° F (30° C), with diurnal variations seldom more than 10'. Humidity, high throughout the year, is rarely below 80% during southwest monsoon.

8.2 Topography

The Maldives archipelago, situated between 7° 0' N and 0° 45' S latitude and 72° 31' E and 73° 48' E longitude, comprises 19 atolls or clusters of small islands numbering about 1200.* The long narrow chain (500 miles long, 81 miles wide) covers an area of 41,500 sq. miles. The plateau underlying Maldive atolls continues southward with British Chagos archipelago, and northward with India's Minicay and Lakshadweep (formerly Laccadives) islands. Nearest land mass is Cape Comorin, India (300 miles). Sri Lanka is 400 miles to the east.

The northern and central atolls, from Haa Alifu to Laamu, are separated by deep but easily navigated channels. The southern atolls, Gaaf Alifu, Gaafu Dhaalu, Gnaviyani, and Seenu, are separated from the main group of islands by two wide channels, 50-mile wide. One and a Half Degree Channel (between Laamu and Kaafu), and 46-mile wide Equatorial Channel (between Gaafu and Seenu), are hazardous to navigate due to strong currents and unmarked reefs.

* Estimates of number of islands range as high as 2,000.

The island of Gamu in Laamu atoll is longest, 4.5 miles; most islands are less than a mile long. Total land area is estimated to be 115 sq. mi. The islands are low-lying, the highest point seldom more than 6 ft. above sea level. The water table, high in all the islands, is generally highest along shoreline and in center. Several islands have fresh water lakes and ponds. The enclosure reefs of each atoll have breaks through which small boats can pass.

8.3 Land Use

Total arable land is estimated at 6,900 acres (two-thirds on inhabited islands, 500 acres low-land, rest upland). Another 1,100 acres of non-swamp land has been identified as potentially cultivable. (See also section 7.1, Overview of Agriculture).

9. Transportation and Logistics

9.1 Road Network

The streets in Male are built on crushed coral bases and surfaced with brushed sand. The government plans to pave about 6 miles of major streets. With the exception of Gan, which has 4 miles of main tarmac roads and 6 miles of secondary coral roads, road systems on other islands are primitive, consisting generally of a broad coral-sand main street, intersected at right angles by a shorter road leading usually from the wharf or landing beach. On all islands, people travel mostly by foot or on bicycles.

9.2 Vehicles

Registered vehicles in Male: 29 trucks, 12 vans, 108 cars, 312 motorcycles, 15 tractors.

9.3 Inter-Island Transport

All inter-island traffic is by sea. Sailing boats (dhonies) are generally used in intra-atoll transport while mechanized boats handle most inter-atoll traffic, particularly to and from Male, which is the direction of most traffic. There is little traffic between atolls. There are no regular schedules and trips to southern atolls may take as long as a week because of hazardous conditions. No data exist on volume of inter-island traffic (1977 census listed 2,000 persons employed as boatmen in areas other than fishing or tourism) nor on transport costs, which vary widely.

The increasing mechanization of boats is improving services (some mechanized fishing boats also carry goods and passengers), but the present system is judged inadequate to meet social and economic development needs. Faster and more regular inter-island transport would not only facilitate the spread of educational and health services to the atolls, but also help the tourist industry.

9.4 Ports

Male port handles limited oceangoing traffic. There are no deep water berths; the harbor is shallow (0.6 to 3 meters), while just outside breakwater sea bed plunges to 60 meters. Due to heavy congestion (fishing

boats, inter-island traffic, tourist boats, coral extraction boats, and maintenance/refueling operations all using harbor approximately 1,350 meters by 50-60 meters), even small, foreign trade vessels not permitted within inner harbor. Imports are off-loaded by lighters which are pulled by tugs to commercial section, then off-loaded by mobile cranes. Operation is time-consuming; about 60 ships with average turn-around time of 1 week use the port in course of a year.

9.5 Shipping

There are no regular liner operations in Maldives. A national shipping line, Maldives Shipping Ltd. (MSL), provides only effective sea link with outside world, carrying most international trade with exception of fresh fish exports and high value imports shipped by air freight. Operations of the shipping company, which also acts as managing agent for 10 smaller companies, have been profitable. Except for 1977 slump, its earnings are an important source of government revenue (22% in 1975-78 period) and of gross foreign exchange receipts (14%). Maldivian trade is only a small portion of entire operation.

The fleet at the end of 1978 consisted of 29 vessels totaling about 34,000 GRT and employing about 700 Maldivian seamen. Average vessel size is 2,800 GRT. In modernization program MSL plans to replace 12 of smaller vessels with three 15,000 GRT oil-powered ships. MSL vessels operate frequently between Maldives and Sri Lanka and call at ports in India, Pakistan, Burma, Singapore, and some Middle East and Adriatic countries. Operational headquarters are in Singapore; administrative offices in Male.

9.5 Airports

An airport on Hulule Island, about one mile from Male, is presently undergoing reconstruction and expansion to allow accommodation of Boeing 707's and eventually Boeing 747's. A new parking apron, terminal building, and tower installation of telecommunication, meteorological, and navigational aids are part of the project, financed with external assistance and due to be completed in 1980.

An 8,700' long, 150' wide airstrip is among facilities available on Gan Island in southernmost Seenu atoll, site of Royal Air Force base which closed in 1976. The runway can handle any weight of modern aircraft. The Maldivian government hopes to develop a second commercial airport on this site.

NB: For up-to-date information consult latest issue of weekly International Notams, International Flight Information Manual, and/or ICAO's Air Navigation Plan for appropriate region.

MALE/Hulule
REG-S

<u>Location</u> <u>Coordinates</u>	<u>Eleva- tion M/ Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft Strength (1,000 kg)</u>	<u>Fuel/ Octane</u>
		<u>NR/Type</u>	<u>Slope %</u>	<u>Aircraft/ Length M</u>	<u>CL</u>		
04°11'N 73°30'E	3 27.5	01/19	0	2133	C	AUW 22	None

Remarks: alternate aerodrome - Colombo/Bandaranaike Int'l. No Telex. Customs and Immigration on prior notice only.

Aids: LR, LTX, LO. MD. MC, MT.

See Appendix for Airport Key.

9.7 Personal Entry Requirements

Passport: Required.
 Visa: Not required. Exit permit required from Ministry of Home Affairs.
 Vaccination: Smallpox and cholera. Yellow fever for arrivals from infected areas.
 Embassy address: None established in U.S. However, the Embassy of Great Britain, 3100 Massachusetts Ave., N.W., Washington, D.C. 20008, will assist in obtaining a visa.

9.8 Airlines

Maldives International Airlines (MIA), in collaboration with Indian Airlines on let-lease arrangement, was formed in 1977. MIA and Air Lanka are involved in Male-Colombo tourist transport. Indian Airlines also serve Maldives.

9.9 Air Distance (statute miles)

Colombo (Ratmalana) to New York (J.F.K.) - 8749

10. Power and Communications

10.1 Energy Sources

Male is the only island with public power supply. Several other inhabited islands and the tourist islands have oil-based generators. 1977 census data show 60% of homes in Male, 2.3% in the atolls, with electricity. Demand for electricity in all sectors, but especially in manufacturing, has grown rapidly and was expected to double in 1980 over 1975 level.

The Electricity Department's installed capacity of 3,114 KVA or 2,493 kW, from 9 diesel generators, is considered sufficient; however, eventual replacement of old generators, anticipated demand increases, and planned upgrading of power distribution system will require the expansion of effective capacity. Present distribution system is unreliable, unsafe, and uneconomical. Supervision of system and proper maintenance of equipment have been hampered by lack of trained staff and financial resources.

10.2 Telephone System

The Male Telephone Exchange has 300 line-manual and 550 line-automatic telephone exchanges. The 844 telephone and telex lines (273 public; 571 private) are close to present maximum capacity, though more than 100 customers await service.

Inter-atoll communications between Male and atoll capitals is through a network of HF transceivers (25 W output) which do not work efficiently due to frequent power problems. Inter-island communications, within each island and with boats, is by walkie-talkie, of which about 1,000 are licensed in Maldives. A VHF radio telephone system links most tourist islands to Male.

A satellite earth station, installed in 1977, with 4 channels capable of transmitting and receiving telex, telegraph, facsimile, data traffic, and voice channels, provides more than adequate external communications. Cable and Wireless has been granted sole operating rights.

10.3 Radio

Radio Maldives in Male has 1 AM station; broadcasts in Dhivehi and English (6 A.M. to 11 P.M. in mid-1970's). There are approximately 4,147 receivers.

10.4 Television

TV Maldives began operations in 1978; depends on foreign sources for documentary and entertainment programs, but is developing local news-gathering capability. Receivers total 365.

1. General Information1.1 Geographic Codes

AID	642
State region	AF

1.2 Country Names

Legal	Mauritius
Short	Mauritius

1.3 Calendar and Holidays

New Year	January 1 and 2
Cavadee	January 27
Holi	* (February and March)
Chinese Spring Festival	February 11
Maha Shivaratree	March 11
Independence Day	March 12
Easter Monday	April 11
Ougadi	April 12
Varusha Piruppu	April 14
Labor Day	May 1
Assumption Day	August 15
Ganesh Chaturthi	August 28
Mid-Autumn Festival	September 8
Id-al-Fitr	September 15-17
Deepavali	October 22 (October and November)
United Nations Day	October 24
All Saints' Day	November 1
Christmas Day	December 25
Boxing Day	December 26
Ganga Asnan	*
Id-el-Adha	*
Yaun-un-Nabi	*

* Celebration depends on visibility of the moon.

Fiscal year: July 1 to June 30

1.4 Currency (May 1980)

The Mauritius rupee (R) of 100 cents is a non-convertible paper currency.

Coins: 1, 2, 5, 10, 25, 50 cents, 1 rupee

Notes: 5, 10, 25, 50 rupees

US\$ 1.00 = R 7.6258

1.5 Time Zones

GMT + 4; EST + 9

1.6 US Mission to Mauritius and Staff (May 1980)

Port Louis (E), Rogers Bldg. (4th Fl.)

John Kennedy St.

Tel. 2-3218/9

Ambassador.....	Robert C.F. Gordon
Charge d' Affaires.....	Thomas J. Burke
Economic/Commercial Section.....	John Feeney
Consul.....	William J. Clair
Labor Officer.....	Charles R. Hare (resident in Nairobi)
Administrative Section.....	Larry H. Atcherson
Public Affairs Officer.....	Robert Petersen

1.7 Host Country Mission and Staff in US (February 1980)

Embassy of Mauritius

Chancery: Suite 134

Connecticut Ave., N.W.

Washington, D.C. 20008

Tel: 202/244-1491 and 1492

Minister Counselor.....	Mr. Chitmansing Jesseramsing
Charge d' Affaires ad interim (September 22, 1979)	
Second Secretary.....	Mr. Marc Bourdet

1.8 Treaties and Agreements

Treaties concerning Aviation, Consuls, Economic and Technical Cooperation, Extradition, Investment Guaranties, Peace Corps, Property, Trade Marks, Visas.

1.9 International Organization Memberships

UN and most of its specialized agencies; the Commonwealth; OAU; OCAM (the African Malagasy, and Mauritian Common Organization); associate member of EEC; IWC (International Wheat Council).

1.10 Travel and Visa Information

Visa required, no charge except postage. Apply Embassy, Washington, D.C., 20008 and check specific requirements. Yellow fever certificate required of travelers one year of age and older and of travelers arriving from countries in endemic zones. Smallpox vaccination required of travelers arriving from a country any part of which is infected.

1.11 Ethnic and Sociocultural Groups

Mauritian society is characterized by ethnic and religious pluralism. Most of the population is descended from French settlers, African slaves, Indian immigrants (brought as indentured workers to the island following the abolition of slavery), and Chinese immigrants. The 1972 census listed "General Population" (whites, Africans and people of mixed descent-- Creoles) as constituting 28.7% of the population; Hindus 51.8%; Muslims 16.6%; Chinese 2.9%. About 89% of the Rodriguan population is Creole.

Relations between various ethnic groups are described as "distant" with greatest inter-group rivalry in the economic sphere. Occupations tend to be associated with ethnic groups though opportunities for social mobility exist. Economic class differences have developed within each ethnic group, creating common interests that cut across ethnic lines. A small Franco-Mauritian elite has traditionally owned many of the plantations and controlled much of the economy; Chinese predominate in the retail business; Indians are principal laborers in the sugar industry and increasingly in civil service positions; members of the "General Population" are clerical and professional workers, craftsmen, and artisans; Muslims are traders and industrial workers.

1.12 Languages

A 1972 study found 16 spoken languages in Mauritius. Though spoken by a small minority, English is the official language and the language of instruction in the schools. French is favored by the economic elite and often by the press. Creole, a French patois, is the lingua franca, and is spoken and understood by greatest number of people. The main languages of the Hindu and Muslim populations are Hindi and Urdu, respectively. Creole is the primary language of the Rodriguans.

1.13 Education

With free access to primary education, over 90% of the adult population has completed that level. A predominance of private schools (90%) over government ones at the secondary level has restricted entrance to certain groups. Attempts are being made to introduce non-English curriculum in primary schools and to increase access to secondary education. The educational system, which follows British model, emphasizes an academic program to the neglect of technical training. Literacy: estimated 60% for adults; 90% for those of school age.

1.14 Religions

The 1972 census classified religious groups as follows: Hindus 51%; Christians 31.3% (of which the majority were Roman Catholics and small numbers were Anglicans, Seventh-day Adventists, and others); Muslims 16.6%; Buddhists 0.6%. Many Chinese and some Indians are Christians. About 97% of all Rodriguans are Roman Catholic.

A tendency toward religious eclecticism is evidenced by the belief of many in the power of saints and deities of other groups; belief in spirits, the Gris-Gris, and sorcery is common.

2. Government

2.1 National Government

A constitution, enacted after independence from Great Britain (March 12, 1968), provides for a parliamentary government headed by a Prime Minister, supported by a Legislative Assembly. The Prime Minister, appointed by a Governor-General who represents the British Sovereign, heads a Council of Ministers of 21 members which is responsible for the direction of government. The unicameral Legislative Assembly has 70 members--62 elected, 8 appointed from a list of unsuccessful candidates. Elections are normally held every five years.

2.2 Political Parties and Current Issues

Multi-party system. The Independence Party (IP), an alliance of the Hindu-based Mauritius Labor Party and the Muslim Action Committee was formerly the majority party but won only 28 Assembly seats in 1976. The Mauritian Social Democratic Party (largely Franco-Mauritian and Creole), which had 8 seats in 1976, joined with IP to deny the Marxist and youth-oriented Mauritian Militant Movement (MMM), which secured 34 seats in 1976, the chance to form a government.

The MMM has called for the formation of a republic and the return of the island of Diego Garcia (now part of British Indian Ocean Territory and site of US naval base) to Mauritius and has announced creation of a committee to work for the repeal of the state of emergency, in effect since 1971 when MMM was involved in a protracted dock workers' strike. Parliamentary elections scheduled for 1981.

2.3 Regional Organization

There are nine administrative divisions on Mauritius: Pamplemousses, Riviere du Rempart, Flacq, Moka, Port Louis, Black River, Plaines Wilhems, Savanne, Grand Port. Rodrigues has a central government headed by a resident commissioner and local councils; Agalega Island and Cargados Carajos Islands are administered directly from Port Louis. Elected municipal councils were replaced by appointed commissions following 1971 disturbances; councils continue to function on district and village level in rural areas.

2.4 Major Government Figures (July 1980)

Governor General.....	Burrenchobay, Dayendranath Sir
Prime Minister.....	Ramgoolam, Seewoosagur, Sir
Min. of Agriculture, Natural Resources & Environment.....	Boolell, Satcam
Min. of Commerce & Industry.....	Basant Rai, Dayandlall
Min. of Communications.....	Saccaram, Kalleshwarao
Min. of Cooperation & Cooperative Development.....	Seetaram, Iswardeo
Min. of Defense & Internal Security.....	Ramgoolam, Seewoosagur, Sir
Min. of Economic Planning & Development.....	Ghurburrun, Rabindrah
Min. of Education & Cultural Affairs....	Jagatsingh, Khersingh
Min. of Employment.....	Saccaram, Kalleshwarao
Min. of Energy, Fuel & Power.....	Bussawon, Kanchandraseeh
Min. of External Affairs, Tourism & Emigration.....	Walter, Harold Edward, Sir
Min. of Finance.....	Ringadoo, Veerasamy
Min. of Fisheries.....	Seetaram, Iswardeo
Min. of Health.....	Ghurburrun, Befrgoonate
Min. of Housing, Lands, & Town Planning.....	Francois, Eliezer
Min. of Information & Broadcasting.....	Moorba, Suresh
Min. of Justice.....	Chong Leung, Paul
Min. of Labor & Industrial Relations....	Peero, Razak
Min. of Justice.....	Ramoly, Kamil
Min. of Price & Consumer Protection.....	Virahsawmy, Simadree
Min. of Rodriguez Island Affairs.....	Francois, Nicol
Min. of Social Security.....	Purryag, Kailash
Min. of Works.....	Bussier, Emmanuel Maria Laval
Min. of Youth & Sports.....	Ramchurn, Hurrydew

3. Disaster Preparedness

3.1 Host Disaster Plan

A "Government Cyclone Emergency Scheme" which emphasizes general preparedness was updated in 1976. The public is reminded to take precautionary measures before the cyclone season and is also advised of the warning system and protective action to be taken during a cyclone. The Cyclone Emergency Organization has headquarters at Government House, Port Louis.

A Central Cyclone Committee, composed of representatives of the various government departments, meets yearly under the chairmanship of the Permanent Secretary of the Prime Minister's Office to review the emergency plan. Local cyclone committees at the district level draw up lists of cyclone refugee centers--in most cases, government school buildings--for submission to the Central Committee.

A cyclone warning system, consisting of a numbered series of cyclone bulletins and summary statements of the class of warning (4 classes), goes into effect when wind speeds exceeding 75 m.p.h. are expected. The Meteorological Services Department prepares the bulletins which are broadcast on radio and television. Cyclone information is dispersed through the Mauritian Broadcasting System, the press, the telephone system, and the police. Code flags are flown on designated buildings. An emergency telecommunications system can be brought into operation in the event of breakdown of normal services.

Emergency relief operations are directed by a standing Cabinet Cyclone Committee composed of the Prime Minister and Ministers of Finance, Health, Local Government, Social Security, and Works. The Permanent Secretary of the Prime Minister's Office acts as secretary. All local and foreign assistance is channelled through the Cabinet Committee. A Committee of Officials supports the Cabinet Committee by collecting information on damage and expediting the flow of information and instructions to the various ministries concerned with carrying out executive directives.

3.2 US Mission Plan

No Mission plan.

3.3 International Organizations

United Nations Development Program (UNDP), National Red Cross, CARITAS, Ecoles Menageres, Church World Service (CWS).

Coordination with the GOM is through the Council of Social Services and Ministry of Health. The Red Cross works closely with central and local Cyclone Committees; provides food, blankets, clothing, and first aid.

Contact addresses:

UNDP: Anglo-Mauritius House, Indendance St.,
Port Louis. Cable: UNDEVPRO Port Louis.
Telex: 996 IW 259; Tel: 2-3726

Red Cross: Mauritius Red Cross, Ste. Therese St., Curepipe
Cable: MAUREDCROSS Curepipe.
Telex: YBRAT IW 258; Tel: 1304

CARITAS: Rue d' Estaing, Port Louis; Tel: 2-3405

3.4 Acceptable Emergency Foods

Staple--wheat flour; accompaniment--milk powder. See also Staple Foods, section 5.6.

3.5 Disaster Types and History

Tropical cyclone, fire, epidemic. Cyclones are most common type, occurring between November 1 and May 15.

Between 1725 and 1975, Mauritius was hit by 17 major cyclones--an average frequency of one every 15 years. However, the sequence is not regular. Since the beginning of 1960, destructive (if not always major) cyclones have affected Mauritius/Rodrigues in January and February of 1960, February 1962, January 1964, December 1967, 1968, February 1972, 1975, December 1979, and January 1980.

Crops, buildings, roads, and bridges were extensively damaged in the 1979 and 1980 cyclones. About 25,000 people in the worst hit areas were still completely dependent on emergency assistance in June 1980.

A typhoid epidemic (at least 108 cases) occurred in early 1980 following the '79 and '80 cyclones.

4. Population

4.1 National Demographic Characteristics

The 1972 census arrived at an enumerated population of 826,199 in Mauritius (1978 estimate--900,000) and 24,770 in Rodrigues (1978 estimate--30,000). About 44% of population is urban; 36% under 15 years of age and 4% over 65.

Between the end of World War II and 1960, the growth rate in Mauritius reached 3% and population density 1200 per sq. mile--one of the highest of primarily rural countries in the world. A sharp reversal in demographic trends has occurred, however, in recent years. A reduction in growth rate to 1.9% between 1960 and 1975 (1.3% between 1970 and 1975) is believed to be due to a government-supported family planning program and a trend toward late marriage. Even if GOM's aim of lowering gross reproduction rate from present 1.67 to 1.1 in mid-1980's is achieved, population growth is expected to rise as children born during high birth rate period of the 1950's reach child-bearing age.

4.2 Regional Distribution

Highest population concentration is in the western highlands corridor extending from Port Louis to Curepipe. The urban areas of Beau-Bassin/Rose Hill, Quatre Bornes, and Vacoas/Phoenix are also in western highlands.

Urban and Extra-Urban Population

<u>City/District</u>	<u>1972</u>	<u>1976</u> ^{1/}
Urban	364,902	383,939
Port Louis	133,996	141,343
Beau-Bassin/Rose Hill	80,043	83,790
Curepipe	52,154	54,455
Quatre Bornes	50,825	53,551
Vacoas/Phoenix	47,884	50,800

<u>City/District</u>	<u>1972</u>	<u>1976</u> ^{1/}
Extra-urban	461,297	496,842
Mahebourg	13,759	
Port Louis	n.a.	
Pamplemousses	69,948	
Rivière du Rempart	66,995	
Flacq	89,050	
Grand Port	66,960	
Savanne	53,011	
Plaines Wilhelms	26,793	
Moka	48,610	
Black River	26,171	
Total	826,199	880,781

1/ End-year estimate

Source: World Bank, The Economy of Mauritius, 1978.

4.3 Migration

About 28,000 Mauritians emigrated between 1962 and 1972; the number averaged 3,570 annually between 1973 and 1978. An emigration slowdown is expected as traditional recipient countries (UK and France) have imposed restrictions.

Significant internal migration (rural to urban) has resulted in growing congestion in Port Louis area and growth of residential areas of Quatre Bornes and Beau-Bassin/Rose Hill. New industrial areas such as Plaine Wilhelms are attracting growing numbers of settlers. Many Rodriguans emigrate to main island.

5. Health, Nutrition, and Housing

5.1 Overall Health Status and Common Diseases

Health conditions have improved significantly in the past few decades with most major tropical diseases under control. Malaria has been eradicated but reintroduction by travelers is a potential danger. Schistosomiasis remains a health threat in limited areas. Yellow fever, leprosy, and other tropical diseases are rare. Gastroenteritis is still an important cause of morbidity and mortality, especially in summer. An outbreak of typhoid occurred in early 1980, the majority of cases in Cite Roche Bals. Coming as it did after three cyclones had brought excessive rainfall to the island, contamination of the public water supply was considered the likely cause. Respiratory ailments are common during the winter months. Tuberculosis, aggravated by malnutrition and overcrowding, is seen mainly in adults in urban areas; children are receiving immunization. Diphtheria, tetanus, poliomyelitis are also largely controlled through immunization programs. Venereal diseases, mostly in urban areas, are believed to be on the increase.

5.2 Vital Statistics (1976)

Birth rate	26 per 1000 population
Death rate	8 per 1000 population
Infant mortality rate	40 per 1000 live births
Growth rate	1.3%
Population under 15 years (1972)	40%
Life expectancy at birth (1971-73)	63 *

* Most recent World Bank estimate is 67 years

Source: US Bureau of the Census, World Population, 1977.

5.3 Health Facilities and Services

Ministry of Health coordinates health services through an extensive network. Hospitals include: 4 regional with surgery, x-ray, limited laboratory facilities at Port Louis (378 beds), Quatre Bornes (618 beds), Pamplémousses (400 beds) and Port Mathurin, Rodrigues Island (72 beds);

4 specialized at Beau Bassin (psychiatric - 809 beds), Poudre d' Or (TB and other chest diseases - 146 beds), Moke (eye ailments - 57 beds) and Vacoas (E.N.T. - 39 beds); 3 district in Mahebourg (116 beds), Centre de Flacq (107 beds) and Souillac (94 beds).

Primary health care is provided by 50 public health dispensaries (often attached to local post offices), staffed by one or two nursing officers and visited regularly by a physician; 71 maternal and child health clinics, staffed by midwives and regularly visited by public health nurses and a doctor. Follow-through in medical care and maintenance supply is said to be particularly poor in primary health services. There are 2 rural clinics in Rodrigues--one at Mont Lubin (23 beds) and one at La Ferme (16 beds).

Seventeen health centers (207 beds) and 4 dispensaries are maintained by the Sugar Estates and there are 6 private clinics (176 beds) in urban areas. Population per hospital bed is estimated to be 280.

5.4 Health Personnel

There are 2250 patients per physician and 620 per nursing staff.

Health Care Workers (1975)

Physicians	346 (R)
Dentists	40
Dental non-operating auxiliaries	18 (G)
Pharmacists	46
Dispensers	78 (G)
Midwives	162 (G)
Nurse-Midwives	170 (G)
Nurses	1042 (G)
Assistant nurses	141
Nursing auxiliaries	130 (G)
Physiotherapists	6
Medical laboratory technicians	30 (G)
Medical laboratory assistants	26 (G)
Medical radiological technicians	44 (G)

(R)-Number on register but not all working in country; (G)-In government service

5.5 Diet Summary

Food preferences as well as taboos of various ethnic groups have been retained. Beef and pork unacceptable to Hindus, pork to Muslims. Sub-group of Hindus are lacto-vegetarian. Rice is dietary staple among all groups; usual accompaniment: bredes creoles (stewed greens) and lentils (Creoles), meat and vegetable curries (Indians), meat and vegetables (Chinese).

5.6 Staple Foods

Starches: rice and wheat (as bread or in "fah rattas" - unleavened bread); maize is traditional staple in Rodrigues where rice and wheat flour are becoming acceptable alternatives; potatoes, sweet potatoes, cassava, eddoes.

Legumes: grain legumes (black lentils and "dholi"); beans to lesser extent; groundnuts, pigeon peas, chick peas.

Cooking oil: vegetable oil preferred; butter acceptable.

Vegetables: moderate consumption, especially of green vegetables, onions, and tomatoes.

Fruits: mainly bananas; also coconuts.

Milk: fresh, liquid, and dried (full-cream; consumed by all population groups).

Meat/fowl: beef, mutton and poultry; pigs are raised on the Islands and pork is presumably consumed by some of the population.

Fish: frozen fish; salted and canned acceptable.

Spices and condiments: garlic, curry powder, and chillies; white refined sugar.

5.7 Housing

Urban houses are constructed of concrete, galvanized sheet-iron, or wood; wattle and daub houses with thatched roofs are still common in rural areas. Urban areas are experiencing growing congestion and shanty settlements are springing up near new industrial areas. An AID program is currently being carried out to help relieve the housing shortage among the poorest economic group (income less than Rs 750/month).

About 70-80% of homes have electricity, 28% piped water. Surface water is principal but unreliable source of water supply in Rodrigues for both domestic and agricultural use.

6. Economy

6.1 Overview of Economy

Mauritius has an open economy, heavily dependent on sugar production, which occupies 93% of arable land, accounts for 85% of exports, 30% of employment and, in recent years, 32 to 53% of GDP. A period of economic stagnation in the late 1960's, coupled with high population/labor force growth rate, prompted the GOM to undertake a program of economic diversification (expansion of other crops, promotion of tourism and labor-intensive light industry) while encouraging a family planning program.

As a result of high sugar prices during first half of 1970's, economic performance was strong with real GDP increasing at an average annual rate of 8.2%. A slowdown began with the simultaneous end of the sugar boom and the damaging effects of Cyclone Gervaise on agriculture and industry in 1975. The growth rate was only 3.6% in 1978. Fiscal austerity measures have become necessary as the budget deficit grew from Rs 535 million in 1975/76 to Rs 953 million 1978/79. In November 1978, unemployment was 5%; inflation 10%.

Agricultural processing, especially of sugar, has traditionally dominated industry. However, a small non-sugar industrial sector, concentrating on such import-substitution items as food products, beverages, clothing, paint, and metal products, has expanded significantly in the past decade. The fastest growing industries are textiles, clothing, electronic components, and diamonds. By 1977, large scale enterprises (10 employees or more) accounted for 17% of total employment, 22% of exports, 11% of GDP. Tourism, second most important foreign exchange earner, has grown rapidly since 1969 with visitor arrivals increasing by an average of 30% a year. The industry employs about 15,000 people.

Though GNP per capita income of US\$ 830 (1978) is relatively high, income and land distribution are sharply skewed (see section 7.1, Overview of Agriculture). The GOM emphasizes redistribution of income but plays minimal role in industrial development in which private enterprise is dominant.

6.2 Gross National Product (1978)

	US\$ Mn	%	Annual Rates of Growth	
			1972-75	1976-78
GNP at market prices	883.7	100.0	6.9	5.0
Gross domestic investment	348.2	39.4	27.0	8.2
Gross domestic saving	222.5	25.2	-13.2	-7.0
Current account balance	-119.7	-13.5	-	-
Exports of goods, n.f.s.	440.5	49.8	-7.9	6.9
Imports of goods, n.f.s.	566.2	64.1	8.7	3.4

6.3 Balance of Payments

Balance of payments, in surplus of US\$ 55 million in 1974 and 1975, has been in difficulty since 1976. The current account deficit increased from US\$ 36.4 million in 1976 to US\$ 119.7 million in 1978, while gross foreign reserves fell from US\$ 166 million at end of 1975 to US\$ 40 million in September 1979. Though Mauritius' debt service burden is still small, the ratio increased from 1% in 1976 to 2.4% in 1978 and was expected to be about 3% in 1979.

6.4 Imports

The composition of imports has been changing in recent years as capital goods show larger share of total. Foodstuffs have averaged about 40% of imports; other major items are machinery, petroleum products, vehicles, iron and steel, and fabrics.

The UK is the most important trading partner, purchasing 67% of exports in 1977 and supplying nearly 18% of imports. Other major suppliers in 1977: South Africa, Japan, Australia, Federal Republic of Germany, Iran, and Bahrain.

Major Imports (1977)
(million rupees)

Rice	106.1
Wheat flour	79.8
Alcoholic beverages	14.6
Petroleum products	270.4
Edible vegetable oils	49.0
Fertilizers	30.0
Cotton Fabrics	44.7

Other textile fabrics	108.0
Cement	84.6
Iron and steel	122.4
Manufactures of metals	99.3
Non-electric machinery	254.0
Electric machinery	256.7
Vehicles and parts	161.8
Total (including others)	2,950.8

Source: Europa, Africa, South of the Sahara, 1979-80.

6.5 Exports

The share of sugar in exports (about 85%) may be decreasing with agricultural diversification and the growing importance of export processing industries. The majority of sugar exports go to the EEC Market, which takes about 500,000 MT a year at a guaranteed price negotiated annually. A relatively small proportion of sugar is sold on the world market, mostly to US, Canada, and Saudi Arabia. Tea is exported primarily to South Africa and the UK. Exports of clothing, diamonds, other manufactures have shown steady growth.

Major Exports (1977) (million rupees)

Sugar	1,428.5
Molasses	41.0
Tea	43.5
Clothing	273.2
Fish and fish preparations	31.8
Textile, fabrics and made-up articles	55.9
Electronic components	59.1
Total	2,041.2

Source: Europa, Africa, South of the Sahara, 1979-80.

7. Agriculture

7.1 Overview of Agriculture

Sugar is grown on a total of 87,400 hectares. 21 large estates (1 government owned, 19 publicly owned of which 3 are foreign) cultivate 48,000 hectares; about 31,000 medium and small farms account for the remainder. Processing factories for all sugar grown on the island are found on the large estates. Although the traditional availability of surplus seasonal labor has contributed to the development of a sugar monoculture in Mauritius, the present labor shortage, due to the increasing reluctance of young people to work in the cane fields, is one of the industry's problems. Other problems include declining productivity and sugarcane's vulnerability to severe cyclonic storms. Greater mechanization of sector is being considered.

The GOM has encouraged agricultural diversification, away from dependence on sugar, especially cultivation of tea in the humid highlands. However, tea cultivation on about 13,000 acres by 1,100 mostly small holders, has also experienced disappointing yields, falling prices, and labor problems. Tobacco and aloe fiber are minor crops. Crops for domestic consumption, including rice, potatoes, groundnuts, maize, ginger, exotic fruits, flowers, and beef, have been expanded, with the first four being experimentally intercropped with sugar.

Subsistence farming is practiced on a very small scale in Mauritius, but is the main type in Rodrigues, where agriculture is the only significant productive sector. Maize and onions are main crops; garlic, chillies, cattle, pigs, and poultry are exported to Mauritius.

7.2 Production

Export Crops

Sugar: record 718,464 MT in 1973. Cyclone destroyed 20-30% of crop in 1975 when output was only 468,256 MT. Preliminary estimate for 1978 was 650,000 MT. GOM has target of 800,000 MT raw sugar by 1980, but World Bank considers attainment unlikely in view of present industry problems. Cyclones in late 1979 and early 1980 reportedly caused heavy damage to sugar plantations as well as to tea and foodcrops.

Tea: annual production of green leaf has been about 20,000-23,000 MT. The GOM's projected production of 35,000 MT in 1980 and increase in black tea from 4,000 MT (1974) to 7,000 MT should be possible, according to World Bank, if labor is available. About 70% of production exported.

Foodcrops

Rice, though a staple food, has local production of only about 1-2% of consumption. In 1977, 11,000 MT potatoes produced; 7,000 MT bananas; 5,000 MT coconuts. Output of potatoes and tomatoes usually satisfies local demand.

Livestock

Most livestock raised by smallholders with 1 or 2 animals, though some sugar estates are investing in herds. Mauritius is self-sufficient in pork, poultry, eggs; produces two-thirds of beef, only one-third of dairy needs. 1977 FAO estimates ('000 head): cattle, 54; pigs, 6; sheep, 4; goats, 68; chickens, 1,200; ducks, 25.

Fish

Annual catch 5,000-6,000 tons over past few years; 3,000-4,000 tons imported annually to meet requirements. Since 1964, Mauritius has been main base in Indian Ocean for ocean fisheries (mostly tuna), and Japanese, Taiwanese, and South Korean fleets transship about 15,000 tons annually (mainly to US). A joint Mauritian-Japanese tuna canning factory (established 1972) exports to EEC countries.

7.3 Crop Dates

<u>Crop</u>	<u>Harvest Period</u>	<u>Bulk of Harvest</u>
Maize	Whole year round	Jan - May
Rice	May - Jun	May - Jun
Sugarcane	Jul - Dec	Jul - Dec
Sugar	Campaign starting in Jul	-
Potatoes	Mar - Dec	Jun - Nov
Sweet potatoes	Jan - Dec	Jan - Jul
Eddoes	Jan - Dec	Mar - Jun
Cassava	Whole year round	Jan - Aug

<u>Crop</u>	<u>Harvest Period</u>	<u>Bulk of Harvest</u>
Bananas	Whole year round	Whole year round
Groundnuts	Whole year round	Jan - May
Coconuts	Whole year round	Whole year round
Tea	Whole year round	Nov - May
Tobacco	Whole year round	Sep - Nov
Mauritius fiber	Whole year round	-
Sisal	Whole year round	Whole year round

7.4 Agricultural Imports

Value of imports, in 1977* (million rupees): rice (106.1); wheat flour (79.8); alcoholic beverages (14.6); edible vegetable oils (49.0); fertilizer (manufactured-30.0); cotton fabrics (44.7); other textile fabric (108.0) out of total of 2,950.8.

* Provisional

7.5 Agricultural Exports

Value of exports, in 1977* (million rupees): sugar (1,428.5); molasses (41.0); tea (43.5); fish and fish preparations (31.8) of total of 2,041.2.

* Provisional

8. Physical Geography

8.1 Climate

The climate ranges from tropical to subtropical. Moisture-bearing southeast winds prevail, bringing heaviest rainfall to southeastern coast and mountain slopes with southeastern exposures. Annual rainfall varies from 200" on upper mountain slopes, where humidity averages about 90%, to 60" on southeast coast and 35" to 40" on western and northwestern coast, where irrigation is practiced. Greatest amount of rainfall occurs in summer (November to April) when destructive cyclones may occur. Winter (May to October) is the cool season, the period from September to November usually the driest. Mean temperatures vary from 74° F (23° C) at sea level to 67° F (19° C) at 2000 feet.

8.2 Topography

720 sq. miles in area and 38 miles long and 29 miles at widest point, Mauritius is situated in the Indian Ocean (28° 18' S latitude and 57° 36' E longitude), 500 miles east of Madagascar and about 1,250 miles off nearest point of African coast. Rodrigues Island, 350 miles to east of main island, 42 sq. miles, and the Agalaga Islands and Cargados Carajos Shoals, 27 sq. miles total, are parts of Mauritius.

Mauritius and Rodrigues are volcanic in origin. The surface of the former consists of a broad central plateau (about 2000 feet at highest point) which slopes toward a wide northern coastal plain and drops sharply to southern and western coasts. Low mountain groups encircle central plateau. Coral reef nearly surrounds the island.

A central ridge runs along most of the length of Rodrigues, leaving little land that is flat. Valleys are stream beds. Due to almost total removal of forest, the climate is dry and the island prone to drought. An indented coastline is surrounded by extensive flat coral reefs.

8.3 Land Use

Of total 461,000 acres on Mauritius, 381,000 are arable. 50% of land is intensely cultivated; 39% consists of forests, woodlands, mountains, rivers, natural reserves; 3% is built-up area; 5% water bodies; 2% roads and tracks; 1% permanent wasteland. The fertile valleys on Rodrigues are intensely cultivated; rest of farmland is on terraced hillsides.

8.4 Rivers

Several short, fast-flowing rivers on Mauritius drain toward eastern and western coasts, provide fresh water supply, and some hydropower. Grand River South East (the island's longest at 25 miles) and Grand River North West are particularly important as hydroelectric power sources. Two small crater and several man-made lakes are fresh water reservoirs.

8.5 Mountains

Mauritius, Rodrigues, and Reunion (the Mascarenes) are volcanic islands rising from a range of underwater mountains. The central plateau of Mauritius is bordered by three low mountain ranges: the Black River Range, the Grand Port Range, and the Moka Range. Pieter Both (2,699 ft.), the Pouce (2,661 ft.), and Montagne du Rempart (2,532 ft.) are among highest peaks. No active volcanoes on Mauritius or Rodrigues.

9. Transportation and Logistics

9.1 Road Network

Mauritius has an extensive road system serving all sections of the island. Of the total 1,775 km. of roads, 15 km. are motorway, 562 km. main, 590 km. secondary, 608 km. other. About 93% of roads are asphalted. A 10-mile expressway connecting Port Louis and Phoenix was completed in 1974. The construction of new roads in and out of Port Louis and improvements to the existing network were proposed highway projects for the 1975-80 Plan period. The distance across the island from Port Louis to Plaisance Airport is 48 km.

The road system on Rodrigues is described as adequate for present traffic loads. Some improvements planned as Relief Program projects include the rebuilding of a road between La Ferme and Baie aux Huitres (4-5 miles) which will connect with the road to Port Mathurin.

9.2 Vehicles

The number of vehicles owned by private individuals and by companies has grown considerably in recent years. December 1977: private vehicles 39,893 (cars 20,630, motorcycles 7,884, autocycles 11,379); commercial vehicles 17,645 (including 3,700 taxis, 1,261 buses); government vehicles 2,132.

9.3 Railroad Network

None presently in operation.

9.4 Ports

Port Louis, a natural, well protected harbor, is the only commercial deep water port. A major expansion of port facilities was begun during the 1971-75 Plan period. A newly created Marine Authority administers the port.

Current improvement projects at Port Mathurin (Rodrigues) include widening and deepening of approach channel and construction of quay with alongside depth of 25 feet.

Port Louis

Coordinates: Lat. 20° 30' S.; long. 57° 30' 0" E.

Approach: Harbor under government control. Safe anchorage outside harbor in 14-37 m. Vessels entering wait for pilot 0.8 km. from light-buoy. Vessel's ETA should be radioed to Port Authority as soon as it is known. Depth at entrance, 12.8 m.; depth in harbor, 12.19 m. The main channel is about 2.136 m. in length, with an average width of about 152.4 m. Ocean-going ships moored to buoys, laid each side of the inner part of the channel. The channel has a depth of not less than 9.75 m. L.W.O.S.T. throughout its length. The berths vary between 192 m. and 228.6 m. in length. Very large vessels are berthed in the outer channel at the Quarantine Berth.

Weather: harbor sheltered from all winds except N.W. which seldom blow with any strength except in hurricane season, lasting from December 1 to April 30.

Tides: spring rise 0.91 m.

Accommodation: There are two deep water quays with a length of 152.4 m., one of them for discharging/loading fertilizers. Smaller vessels are berthed at the head of the harbor where five moorings are laid, and one small quay is available for vessels drawing up to 5.18 m. of water.

Storage: Three sheds totalling approx. 15,000 sq. m. for general cargo, four sheds totalling approx. 16,000 sq. m. for bagged cargo. An area of 1.2 ha. is available for open air cargo storage. No refrigerated storage available in the Port area, but frozen cargo may be kept in privately owned refrigeration plants situated in town.

Tanker

Terminals: One berth, length 228.6 m., minimum depth 9.45 m.; water by barge and bunkers available.

Bunkers: Marine diesel oil, gas oil, furnace oil, and coal obtainable.

Development: Dredging the channel to a depth of 12.19 m. Deep water quays and sheds being built.

Shiprepairs: One dry dock for vessels up to 106.7 m. long, 15.54 m. beam, 3.66 m. draft aft. Taylor, Smith, & Co., No. 1 Quay Street. Tel: 2.3267 (4 lines). Telegrams: "Blacksmith Port Louis".

- Towage:** Six tugs available, one of 2,300 h.p., two of 720 h.p., and three of 320 h.p.
- Pilotage:** Compulsory.
- Traffic:** Arrivals, 1976, 2,300 ships; imports about 2,600,000 tons p.a.; exports include about 700,000 tons of sugar, 4,000 tons tea, 10,000 tons of goods.
- Airport:** Plaisance Airport, 48 km.
- Working Hours:** Cargo: 07.00 to 16.00 hrs. Saturday: 07.00 to 13.00 hrs.; 1 1/4 hr. break; overtime worked up to midnight.

9.5 Shipping

There is monthly boat service between Mauritius and Rodrigues. Several foreign shipping lines serve Mauritius.

9.6 Airports

The only airport is Plaisance in southeast of Mauritius. The construction of a new airport (Plaines des Roches) in the north, proposed in 1975-80 Development Plan, has been delayed. Aircraft movements increased by 21.6% annually between 1970 and 1975 as a result of growing tourist traffic, though Mauritius is also a refueling stop on Africa-Australia route. Runway and parking facilities to accommodate jumbo jets have recently been enlarged and navigational aids introduced. The airport's location between sea and mountains renders flight operations hazardous under adverse weather conditions and at night.

Construction to lengthen and surface the only airstrip on Rodrigues is expected to begin soon. There are 5 weekly flights between Mauritius and Rodrigues.

NB: For up-to-date information consult latest issue of weekly International Notams, International Flight Information Manual, and/or ICAO's Air Navigation Plan for appropriate region.

MAURITIUS/Plaisance

<u>Location</u> <u>Coordinates</u>	<u>Eleva- tion M/ Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft Strength (1,000 kg)</u>	<u>Fuel/ Octane</u>
		<u>NR/Type</u>	<u>Slope %</u>	<u>Aircraft/ Length M</u>	<u>CL</u>		
20°25'40" S	57	13/31	0.85	2600	A	LCN 75	100
57°40'31" E	27.3					N 75	JAI

Remarks: Alternate aerodromes - Mahe/Seychelles Intl., Majunga/Amborovy, Saint Denis/Gillot, Tananarive/Ivato.

Aids: ILS*, DME, VOR, L, LSA (13), LVA (31+), LR, LTX, LO, MD, MC, MT, MTD, MS, MED, MTX, MO, L4, 5, 9. Stopway 13-120; 31-60. Clearway 13-300; 31-150. No telex.

* ILS 13-1 P 4/76

See Appendix for Airport Key.

9.7 Personal Entry Requirements

Passport and visa required. Smallpox and yellow fever vaccinations required for arrivals by air from infected areas.

All passengers must show proof of means or method of departure (i.e., onward or return ticket from Mauritius) upon arrival. Additionally, a valid visa for the next country of entry after departing Mauritius must be presented to officials upon arrival.

See also Section 1.10, Travel and Visa Information.

9.8 Aircraft Entry Requirements

Private and non-scheduled commercial aircraft overflying or landing for non-commercial purposes must obtain prior permission from the Director of Civil Aviation, Plaisance Airport, Plaine Magnien, Mauritius Island (telegraphic address: CIVILAIR MAURITIUS/Telex: None) at least 7 days

prior to departure. All requests must include a) name of aircraft operator, b) type of aircraft and registration marks, c) date and time of arrival and departure from Mauritius, d) places of embarkation/disembarkation abroad of passengers and cargo, e) number of passengers and type of and amount of cargo, f) purpose of flight, g) name, address, and business of charterer, if any, h) cable address of operator. All requests must include provision for prepaid reply.

Special Notices:

Doors, windows or bays in the aircraft may not be opened until authorized by health and agriculture quarantine officials.

Due to acute shortage of parking space at Plaisance Airport, all aircraft must provide prior notification to the airport manager at least 7 days prior to arrival. The times of arrival and departure must be agreed upon by the airport manager before the flight takes place.

Non-scheduled aircraft weighing 100,000 Kgs. AWW and above are not permitted to land at Plaisance Airport during the hours of darkness.

9.9 Airlines

Air Mauritius: P.O.B 60, 1 Sir William Newton St., Port Louis; services to Reunion and Rodrigues and to France, India, Kenya, Madagascar, Seychelles, and UK; fleet of 1 Boeing 707-430, 1 Twin Otter.

9.10 Air Distances (statute miles)

Mauritius to:	Melbourne Intl.	5212
	Mogadiscio	1761
	Nairobi Intl.	1924
	Nampula	1263
	New York (JFK)	9272
	Perth Intl.	3656
	Reunion Is.	144
	Rome	5172
	Salisbury	1740
	Seychelles	1098
	Singapore	3468
	Tananarive	
	(Arivonimamo)	694

10. Power and Communications

10.1 Energy Sources

Power generated by diesel, hydroelectric, and thermal (steam) plants. The Central Electricity Board (CEB) provides most generation, all distribution. Diesel generation, based on imported fuel and accounting for about 70% of total, is limited to two stations, one at Fort Victoria and one at St. Louis (both near Port Louis) with installed capacity of 62.5 MW in 1976. Only indigenous energy sources are hydroelectric power (on the Grand River South East and the Grand River North West), installed capacity of 25.74 MW in 1976, and steam produced in boilers fueled by bagasse (residue of processed sugarcane) on sugar estates, providing additional 15 MW (including generation of two small hydroelectric stations). A 22 kV network is being overlaid with 66 kV system which will become main transmission voltage, the 22 kV system being split and used as radial feeders. The distribution feeder system consists of 6.6 kV network in urban and industrial areas, 22 kV in rural areas.

With growth of industrialization and tourism in Mauritius, electricity consumption has shown rapid increase, and installed capacity has not kept pace with demand. CEB's sales more than doubled between 1965 and 1976, with average growth rate of 7% per year. Imports of refined oil increasing to meet greater energy demands. The area supplied by electricity was expected to encompass entire island by 1978; about 80% of population has access in 1975. Domestic use accounts for 40% of electricity consumption, commercial and industrial use for 46%, irrigation and miscellaneous for remainder. Electricity supply: 220/240.

CEB operates main public supply in Rodrigues where an expansion program is underway.

10.2 Telephone System

26,500 telephones (2.9 per 100 population). No public or efficient administrative link between Rodrigues and Mauritius; Police Department provides radio link periodically. Cable and wireless has its own connection between the two islands as well as telegraph service.

Radiotelegraph service with Reunion, Madagascar, Seychelles, Zanzibar, and other points in Africa. One Indian Ocean Comsat station.

10.3 Radio

Mauritius Broadcasting Corporation: Broadcasting House, Louis Pasteur St., Forest Side; founded 1964; monopoly national radio and television service. 94,059 radio sets in use in 1977.

10.4 Television

Service began in 1965; color services since 1976; broadcasts in English, French, and Hindi. 60,518 television sets in 1977.

1. General Information1.1 Geographic Codes

AID	604
State region	AF

1.2 Country Names

Legal	Department of Reunion
Short	Reunion

1.3 Calendar and Holidays

New Year's Day.....	January 1
Easter Monday.....	*
Labor Day.....	May 1
Ascension Day.....	*
Whitmonday.....	*
National Day.....	July 14
Assumption Day.....	August 15
All Saints' Day.....	November 1
Victory Day.....	November 11
Christmas Day.....	December 25

* variable dates

1.4 Currency (August 1980)

French currency is used.
US \$1 = 4.15 francs

1.5 Time Zones

GMT + 4; EST + 9

1.6 US Mission to Reunion and Staff

None

1.7 Host Country Mission and Staff in US

The Embassy of France has jurisdiction over Reunion Island.

1.8 Treaties and Agreements

None

1.9 International Organization Memberships

EC, WFTU

1.10 Travel and Visa Information

Passport required. Visa not required for stay up to 3 months. Yellow fever certificate required of visitors one year of age and over arriving from infected areas. Smallpox certificate needed by travelers arriving from a country any part of which is infected.

1.11 Ethnic and Sociocultural Groups

Reunion's multi-ethnic population developed from an early plantation society. Despite the absence of a rigid class structure, occupations are associated with ethnic groups. In mid-1974, the population was divided by ethnic group as follows: Europeans (20%) including a few wealthy land and factory owners; a small group of French in temporary residence as government functionaries; a larger group of poor white subsistence farmers and foresters, Creole in culture and often intermarried with Africans; mixed Africans (58%), generally small-scale farmers, plantation, and urban clerical workers; Indians with Hindu ties (20%), sharing occupational and social status of Africans as sharecroppers, cane field, and factory workers; Chinese (about 1%), dominant in retail trade; Gujarat Muslims (0.5%), mostly in large business enterprises.

1.12 Languages

French is the official and most prestigious language, used in courts, government operations, and schools. Creole (derived from French with borrowings from Malagasy and other African languages) is the lingua franca of all ethnic groups. Most Chinese are bilingual, speaking their native dialects as well as Creole or French. The Gujarat Muslims speak Gujarati and Creole or French and use Arabic as their liturgical language. Most other Indians speak only Creole, though some have retained familiarity with traditional Tamil.

1.13 Education

School attendance is compulsory between the ages of six and sixteen. The secondary program combines academic preparation and technical or teacher training. Instruction in French puts Creole speaking children and some Creole teachers at a disadvantage. There is one university. Literacy rate: over 80% among school children.

1.14 Religions

Most (about 94% in late 1960's) of the population, including most Indians and Chinese, are Roman Catholic. Muslims (of Sunni branch) have resisted conversion. Other Indians have combined Catholic and Hindu beliefs and practices. Non-Christian Chinese are generally Taoist or Buddhist. Folk beliefs in magic and spirits persist among much of the population.

2. Government

2.1 National Government

A French possession since 1642, Reunion became an Overseas Department in 1946 and attained region status in 1972. Politically, it is an integral part of metropolitan France with an administrative structure similar to those of other French Departments. A Prefect appointed by the French Minister of the Interior represents the Central Government in the region and executes laws passed by the French National Assembly applying to Reunion. The island is represented by 3 deputies to the French National Assembly and 2 representatives to the Senate. An elected General Council of 36 members has legislative authority in local matters. The Regional Council has 46 members. The Justice system comprises 3 Tribunaux d' Instance, 2 Tribunaux de Grand Instance, and 1 Cour d' Appel.

2.2 Political Parties and Issues

The question of self-determination is the major political issue, with the left-wing Reunion Communist Party (Parti Communiste Reunionnais - PCR) and the Organization Communiste Marxiste-Leniniste de la Reunion (OCMLR) blaming "colonialism" for the island's economic problems. The OCMLR advocates complete independence in which it is supported by the leading party in Mauritius and the government of Madagascar. Popular sentiment for independence is not strong, however, and parties favoring retention of Department status are loosely grouped in the Association Reunion Department Francals. Several French parties are also represented.

2.3 Regional Organization

Reunion is divided into 4 regions: Saint-Denis, Saint-Paul, Saint-Pierre, Saint-Benoit. There are 24 districts and 36 townships.

3. Disaster Preparedness

3.1 Host Country Disaster Plan

Details of national disaster plan (ORSEC) not available.

3.2 US Mission Plan

No Mission plan.

3.3 Disaster Types and History

Tropical cyclones and volcanic eruption most common types.

The island is frequently hit by devastating cyclones, occurring most often January through March. Most recently it was affected by cyclones in December 1979 and January 1980. At least 20 died, 7,000 were left homeless, and roads, crops and communications were damaged as a result of the January storm.

A volcanic eruption in Sainte Rose, Piton de la Fournaise, in April 1977 affected 1,000 persons, destroyed several houses, and thousands of acres of forests and crops.

4. Population

4.1 National Demographic Characteristics

The 1974 census recorded a population of 476,675, which was estimated to have grown to 505,000 by January 1979. A population growth rate of 0.1% in 1975, as calculated by the U.S. Census Bureau, took into account a net migration rate of 20.6 per thousand population and represented a decline from over 3% prior to 1973. Migration has been mainly to France and Madagascar. Despite opposition from the Roman Catholic Church, a family planning program has been promoted in recent years. 43% of the population was urban in 1967.

4.2 Regional Distribution

An average density of 502 persons per square mile in early 1970's was actually about double that due to population concentration (about 85%) along the narrow coastal strip. All main towns, with the exception of Saint Andre, are on the coast. Numerous small settlements are found in central plain sections between Saint-Pierre and the towns of Saint-Denis in the north, Saint-Andre in the northeast, and Saint Benoit in the east. Southeastern coastal regions have low population densities.

The population of Saint-Denis, the capital, is estimated to be between 104,000 and 110,000. Other main towns and approximate populations (1977): Saint-Paul, 50,000; Saint-Pierre, 45,000; Le Tampon, 35,000; Saint-Louis, 30,000.

5. Health, Nutrition, and Housing

5.1 Overall Health Status and Summary of Diseases

Endemic malnutrition among the poorest in the population and unhygienic living conditions were important factors in the island's health problems in the late 1960's. Tuberculosis was widespread; waterborne parasitic diseases took an especially heavy toll of infant lives. Alcoholism was recognized as a significant health problem. Tropical diseases had been largely brought under control; malaria virtually eradicated and others, such as yellow fever, occurred only rarely.

Lack of education, the belief of many in the efficacy of magic in preventing and curing illness, a shortage of trained health personnel and facilities, and an emphasis on curative rather than preventive medicine are obstacles to the improvement of health conditions. Considerable progress has been made, however, since Reunion became an overseas department.

5.2 Vital Statistics

Birth rate (1975)	28/1,000 population
Death rate (1975)	7/1,000 population
Infant mortality (1973)	41/1,000 live births
Growth rate (1975)	0.1% *
Population under 15 years (1967)	46%
Life expectancy at birth (1963-67)	59

* Other sources give average annual growth rates of 1.3% (1-74 to 1-78) and 1.5%. (See also section 4.1, Population.)

Source: US Census Bureau, World Population 1977: Recent Demographic Estimates for the Countries and Regions of the World.

5.3 Health Services and Facilities

Reunion had a total of 12 general hospitals (2,385 beds) in 1972: 5 public and 7 private. A central hospital in Saint-Denis had 853 beds. Other hospitals included 4 rural (370 beds) and 5 specialized (1,131 beds). Several public and private dispensaries (80 in late 1960's), some specializing in particular health problems (e.g., venereal disease, tuberculosis), are distributed throughout the island.

The Department de la Sante Publique in charge of health services. The Roman Catholic Church is also active in providing health care.

5.4 Health Personnel (Figures are for 1974)

Physician/population	1/1,950
Physicians	251
Dentists	73
Pharmacists	143
Midwives	72
Nurses	1,251
Certified male nurses	178
Assistant nurses	391
Nursing auxiliaries	225
Physiotherapists	50
Speech therapists	5
Audiology technicians	1

5.5 Diet Summary

Much of the island's supply of meat, rice, and other foods must be imported and few people can afford high protein foods. Meat and chicken are generally restricted to special occasions. The dietary staple is rice, accompanied by curried lentils or vegetables. Bredes creoles (stewed greens) is a favorite dish. Foods are often consumed raw due to high cost and scarcity of fuel. It is estimated that most of population receives less than two-thirds of daily minimum calorie needs.

5.6 Staple Foods

The following list is based on available information concerning imported foods and those grown on the island.

Starches: rice, flour, corn, manioc, potatoes, yams.

Cooking oil: vegetable oils are among food imports.

Milk products: some imported but information lacking on extent of use.

Legumes: lentils, peanuts.

Vegetables: bredes creoles, onions, green beans, market garden vegetables.

Fruit: bananas, mangos, avocados, papayas, coconuts, pineapples, litchis, loquats, grapes.

Fish: some imported to supplement local catch.

Meat/fowl: beef, pork, poultry, probably mutton.

Beverages: tea, coffee, red wine, rum.

5.7 Housing

Houses of thatch or wattle and daub are common rural types. Corrugated iron is popular roofing material. Shanty structures of sheet iron, wood, and other scrap materials provide makeshift shelters for recent migrants from country to suburbs. Homes of middle and upper classes are more substantial structures of wood and stone.

6 Economy

6.1 Overview of Economy

As in Mauritius, agriculture is the economic mainstay and sugar the main crop. Grown on about two-thirds of the arable land, sugar accounts for about 86% of exports; its derivatives, molasses and rum, for a considerable further share. Tropical essences are the only other important exports. Industry, limited almost entirely to processing of agricultural products, includes 8 sugar mills (1975), several rum distilling plants, 2 tea plants, a slaughterhouse, a few canning factories, and small craft shops. Considerable potential appears to exist for tourism, and greater emphasis is being put on the industry; 30,000 tourists visited Reunion in 1977.

A lack of skilled workers is seen as a serious obstacle to economic development. Although average GNP per capita, income is relatively high (\$2,680 in 1976), wealth is very unevenly distributed. High unemployment (affecting 35,000 to 50,000) and inflation sparked protest strikes in recent years by the Communist-dominated major trade union. The rising cost of labor and fertilizers and adverse weather conditions have recently forced a number of bankruptcies among small cane planters.

A large trade gap (export receipts less than one-third of import bill in 1977) has been partly covered by French financial assistance and receipts from expatriates in France. The island's almost total economic dependence on France appears to be an important consideration by the majority of Reunionnais who wish to remain a part of the Republic.

6.2 GNP

GNP at 1977 and 1978 market prices (US \$ millions): \$1,450 (1977) and \$1,550 (1978); GNP per capita (US \$): \$2,900 (1977) and \$3,060 (1978). GNP per capita (real) growth rate 1970-77: -1.0%.

6.3 Imports

Main imports are foodstuffs (especially rice, meat, dairy products), machinery, road vehicles, cement, and petroleum products. 1977 imports totaled 2,465 million francs and included: rice (55), meat (87), pharmaceutical products (86.6), non-electric machinery (149.5), road vehicles (232), petroleum products (156.5), clothing (130). France is major supplier (62.2% in 1977); other EEC countries and Madagascar also important.

6.4 Exports

Sugar is principal export. Rum, tropical essences, vanilla, and tea are others. 1977 exports totalled 561 million francs and included: sugar (486), rum (14), oil of geranium (15), oil of vetiver root (8), vanilla (11.5). France's purchase of 66.1% of exports in 1977 was down from 1975 proportion of 90%.

7. Agriculture

7.1 Overview of Agriculture

Slightly less than one-fifth of total land area is arable and sugarcane is grown on about two-thirds of that (33,600 hectares in 1976), to a height of 1,300 ft. on the windward side of the island and to 2,950 ft. on the leeward side. Nearly one-quarter of the industry is in company holdings; a few individuals with large estates and many smallholders control the rest. Of the 25,000 planters in early 1970's, 18,000 were sharecroppers on company lands. Neither quality nor yield of Reunion's sugar is as high as that of Mauritius.

Vanilla, cultivated in coastal regions from Saint-Andre to Vincendo, and perfume plants (geranium, ylang-ylang, vetiver), grown at higher elevations, are other cash crops. There is limited cultivation of tea, tobacco, and coffee as well as such food crops as tropical fruits and vegetables, manioc, corn, green beans, lentils, market garden vegetables, and bananas. Production does not meet demand and Reunion is highly dependent on food imports.

7.2 Production

Crops (1978) in metric tons: sugar 249,949; oil of geranium 45.9; oil of vetiver 23.8; vanilla 131.2; maize 13,500; onions 1,500; tobacco 124; potatoes 2,335.

Livestock (1977): cattle 23,500; pigs 73,500; goats 32,700; sheep 2,300.

Fishing was still small scale in early 1970's but a larger fleet was being equipped by a Japanese company. 1,774 metric tons of fish landed in 1977.

7.3 Harvest Dates

<u>Crop</u>	<u>Harvest Period</u>	<u>Bulk of Harvest</u>
Maize.....	Apr. - May and Oct. - Nov.	Apr. - May
Sugarcane.....	Aug. - Dec.	Aug. - Dec.
Sugar.....	Campaign starting In August	
Sweet potatoes.....	Whole year round	Apr. - June
Cassava.....	Whole year round	Apr. - Sept.
Dry beans.....	Feb. - Nov.	June - Aug.
Bananas.....	Whole year round	Whole year round
Tobacco.....	Whole year round	Sept. - Feb.
Vanilla.....	May - Nov.	May - Nov.
Geranium.....	Whole year round	Jan. - May

7.4 Agricultural Imports

Current data unavailable on amount and value of most agricultural imports which in the past have included textiles, rice, meat, fish, milk products, wines and beverages, vegetable oils, tobacco, corn.

7.5 Agricultural Exports

See General Exports, Section 6.4.

8. Physical Geography

8.1 Climate

The climate is tropical, moderated by the ocean; southeast trade winds prevail. From October to April, the northeast monsoon brings heavy rainfall to the eastern, windward part of the island (about 223" annually at Riviere de L'Est). The leeward northwest and west receive much less rain (35" annually at Le Port) while the southwest is driest region. Destructive cyclonic storms which form in lower latitudes between 10° and 15° periodically strike Reunion, most often during January through March.

Temperature varies according to altitude. Coastal temperatures range between 64° F and 88° F, the maximum about 91° F; the variation is between 39° F and 64° F at higher elevations with temperatures sometimes falling below 32° at night. Mountain peaks may be snow covered in winter.

8.2 Topography

Reunion is westernmost of Mascarene Islands, between 20° and 22° latitude and approximately 420 miles east of Madagascar. About 44 miles long and 31 miles wide, the oval shaped island has a total area of 970 sq. miles. A narrow alluvial coastal plain encircles the central mountainous interior which consists of two major massifs separated by a high peneplain ("Plaine des Cafres"), extending SW-NE at an average altitude of 5,000 ft.

8.3 Land Use

Settlement and cultivation are largely restricted to the coastal lowland due to precipitous slopes, excessive rainfall or aridity in some areas, and recent lava flows. Less than one-fifth of the island (about 48,600 hectares) is under cultivation. Forests occupy about 98,000 hectares.

8.4 Rivers

Several short, fast moving rivers, which flow from central mountain ranges to the coast, furnish abundant supply of water but may damage crops when flooded. The main rivers (none navigable) are: Riviere du Mat, Riviere des Galets, Bras de Cilaos, Ravine Seche. At least two, the Marsouins and the Langevin, have been harnessed for hydro-electric power.

8.5 Mountains and Volcanoes

Two mountain ranges dominate the topography. To the northwest of the high central plateau is the older, larger range with the remains of a volcanic cone and the island's largest peak, the deeply dissected Piton des Neiges (10,066 ft.). The peak is surrounded by an area of deeply cut gorges and basins, including three large pear-shaped amphitheatres, the "Cirque de Mafatte," the "Cirque de Cilaos," and the "Cirque de Salazie." The mountain range to the southeast of the central plateau is an area of active volcanism. Piton de la Fournaise (8,560 ft.), of the Hawaiian type, erupts on an average of once every two years. In periods of strong activity, outflows may cross the coastal road and pour into the sea. Large eruptions took place in 1931, 1943, 1961, and 1975. Saint Rose, Piton de la Fournaise, not active since 1800, erupted in April 1977. (See also section 3.3, Disaster Types and History.)

9. Transportation and Logistics

9.1 Road Network

The road system of about 2,500 km (1977) consists of a main coastal road circling the island and connecting main towns, a route crossing the central plateau (Plains Road) linking Saint-Pierre and Saint-Benoit, and roads providing access to highland villages (Cilaos, Salazie, Hell-bourg) in two of the cirque valleys. Most main roads are bituminized. In addition to the tarred roads, a network of "tourist" roads has opened up several interior highland areas. A modern highway connecting the capital, Saint-Denis, with Le Port uses the right of way of the abandoned railroad and replaces the winding mountain route.

9.2 Vehicles

106,035 motor vehicles were in use in 1977, including 72,402 passenger cars.

9.3 Surface Miles

Saint-Denis to: Le Port - about 10 miles (23 by mountain route)
Saint-Benoit - 28 miles
Saint-Pierre - 52 miles

9.4 Railroad Network

A coastal railway (80 miles long) between Saint-Benoit and Saint-Pierre is apparently no longer in operation.

9.5 Ports

Pointe des Galets

Coordinates: Lat. 20° 55' S.; long. 55° 18' E.

Accommodation: The only port on the island of Reunion is Pointe des Galets, which has 8.53 m. water at entrance, and is well protected. Channel free and always practicable. Depth, 8.50 m. Ships not exceeding 22 m. in breadth, 160 m. in length acceptable. The capitol St. Denis, is 15 km. by road from Pte. des Galets. Harbor connected by coastal road with St. Benoit (N.) and St. Pierre (S.).

Cranes: Two cranes of which one is a floating crane of 100 tons.

Tanker

Terminals: One berth (length 160 m. draft 8.07 m.); night berthing not possible; water available.

Bunkers: Diesel oil obtainable but expensive.

Airport: Gillot, 10 km. from Saint Denis.

Currency: French franc.

Working Hours: 07:00 to 11:00; 13:00 to 17:00. Saturday ordinary working day. Work at overtime rates for remaining holidays and Sundays.

9.6 Shipping

Compagnie Generale Maritime: 2 rue de l'Est, B.P. 10, 97420 Le Port, Saint-Denis.

Nouvelle Compagnie Havraise Peninsulaire de Navigation: Residence du Barachois, P.O.B. 62, Saint-Denis; rue de St. Paul, B.P. 29, Le Port; freight only.

Societe de Manutention et de Consignation Maritime (SOMACOM): B.P. 7, Le Port; agents for Scandinavian East Africa Line, Bank Line, Clan Line, Union Castle Mail Steamship Co., and States Marine Lines.

9.7 Airports

Gillot airport, 6 miles from Saint-Denis, handles regular international flights. There are 6 smaller airfields, only one other with permanent surface runway.

NB: For up-to-date information consult latest issue of weekly International Notams, International Flight Information Manual, and/or ICAO's Air Navigation Plan for appropriate region.

SAINT DENIS/
Gillot

REG-S

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>			<u>CL</u>	<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
		<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>			
20°52'36" S 55°31'15" E	20 27.5	13/31	0.45	2670	A	MLW 18/1 32/2 60/4	100JA2

Remarks: Alternate aerodromes: Majunga/Amborovy, Mauritius/Plaisance, Tananarive/Tananarive.

Aids: ILS(13-11)DME*, VOR, LVA*, LR, LTX, LO, MD, MC, MT, MED, MTX, MO, L4, 9, STOPWAY 13-115. * DME & VA31+P-/-

See Appendix for Airport Key.

9.8 Personal Entry Requirements

See Comoros

9.9 Aircraft Entry Requirements

See Comoros

9.10 Airlines

The following airlines serve Reunion: Air France, Air Madagascar, Air Mauritius, South African Airways, UTA France.

9.11 Air Distances

Reunion (La Possession) to:	Statute <u>Miles</u>
Rome.....	5,119
Seychelles.....	1,122

Reunion (Saint-Denis) to:

Rome.....	5,122
Seychelles.....	1,120
Tamortave.....	439
Tananarive.....	557

10. Power and Communications

10.1 Energy Sources

Reunion depends on diesel and hydroelectric sources as well as seasonal production of power from some of the sugar mills burning bagasse. Three diesel stations are located at Saint-Denis, Le Port, and Saint-Pierre. The largest of the three hydroelectric installations (as of 1974) was that on the Marsouins River (Takamaka) which had a 17,400 kW capacity.

In 1977, the island had a total capacity of 75,000 kW; 185 million kWh were produced (370 kWh per capita).

10.2 Telephone System

The telecommunications system is described as adequate with fairly modern open-wire lines and radio communications stations.

32,000 telephones (6.5 per 100 population); radio communications to Comoro Islands, France, Madagascar, and Mauritius; one Indian Ocean Comsat station.

10.3 Radio

France Region 3: Place Sarda Garrida, 97405 Saint-Denis. Broadcasts in French on medium and short waves for 18 hours daily.

10.4 Television

One television station, also operated by France Region 3, broadcasts via 14 transmitters 5 hours daily. Television sets numbered 67,617 in October 1978.

1. General Information1.1 Geographic Codes

AID	662
State region	AF

1.2 Country Names

Legal	Republic of the Seychelles
Short	Seychelles

1.3 Calendar and Holidays

New Year Holidays	January 1 and 2
Commonwealth Day	May 24
Independence Day	June 29
Assumption Day	August 15
All Saints' Day	November 1
Immaculate Conception	December 8
Christmas Day	December 25
Boxing Day	December 26

Moveable religious holidays include Good Friday, Easter Monday, Ascension and Corpus Christi.

1.4 Currency (May 1980)

The Seychelles rupee (R) of 100 cents is a non-convertible paper currency. US\$ 1.00 = SR 5.83

1.5 Time Zones

GMT + 4; EST + 9

1.6 US Mission to Seychelles (May 1980)

Victoria (E), Box 148; APO, New York 09030
Tel: 23921/2

Ambassador.....Wilbert J. Le Melle
(resident in Nairobi)
Charge d' Affaires.....Robert C. Felder
Labor Officer.....Charles R. Hare
(resident in Nairobi)
Administrative Section.....Larry Corbett

1.7 Host Country Mission and Staff in US (Feb 1980)

Embassy of the Republic of Seychelles
Chancery (temp.): care of the Permanent Mission of Seychelles to the
United Nations
201 E. 42nd St., 8th Floor
New York, N.Y. 10017
Tel: 212/867-5157

1.8 Treaties and Agreements

Treaties concerning Consuls, Economic and Technical Cooperation,
Extradition, Mutual Security, Peace Corps, Taxation, Telecommunications,
Tracking Stations, Trade Marks.

1.9 International Organization Memberships

UN, Organization of African Unity (OAU), the Commonwealth, African
and Mauritian Common Organization (OCAM), G-77, NAM

1.10 Travel and Visa Information

Passport but no visa required of US citizens entering Seychelles.
Smallpox vaccination required; cholera and yellow fever immunization
required of travelers one year of age and older arriving from infected
areas.

1.11 Ethnic and Sociocultural Groups

The majority of Seychellians are descendants of original French settlers, African slaves, and indentured Indian workers; however, interracial unions have largely removed ethnic distinctions. Whites (British and French who constitute elite group), Chinese, and Indians (mainly merchants) are small minorities. Chinese are more likely than Indians to intermarry with Creoles. While race relations are harmonious and there is no rigid class structure, social distinctions tend to be made on the basis of skin color, evidence of material wealth, and family reputation. Values are primarily influenced by European model.

1.12 Languages

English is the official language; French is second official language, often used by churches and the press. Creole (basically French vocabulary, French and African syntax) is lingua franca but not a written language. Chinese, Gujarati and Tamil are other languages spoken by minority groups.

1.13 Education

Free and compulsory primary education introduced in January 1979. About 95% of primary school age children attended school in 1977; nearly 98% reached grade 6; about 30% the secondary level. The extension of universal education to 9 years is among proposed reforms. Literacy rate: 60% adults, 75% children.

1.14 Religion

Most Seychellians are Christian: 90-91% Roman Catholic; 8% Protestant of which greatest number are Anglican. Buddhism and other Asian religions have a few followers.

Despite the long history of the Christian church in the Seychelles and the people's general adherence to its ideals, folk beliefs persist and are widely held. Magicians and witch doctors, called 'bonhommes' or 'bonnefemmes de bols', are frequently called upon to cure illness or cast spells.

2. Government

2.1 National Government

Following a half century of French rule, Seychelles was ceded to Britain under the Treaty of Paris, 1814; thereafter, administered with Mauritius as single unit until becoming a separate Crown Colony in 1903. Gains were made toward self-government in 1967 with the establishment of a partially elected governing council, and again in 1970 when a new constitution, based on the English model, became operative and a ministerial government system was instituted. At a Constitutional Conference in London, March 1975, leaders of the country's two major political parties, James R. Mancham of the centrist Seychelles Democratic Party (SDP), and France Rene of the left-of-center Seychelles People's United Party (SPUP), announced their intention of forming a coalition government. The Legislative Assembly was increased from 10 to 25 members, 8 to represent constituencies, 17 to be elected by proportional representation.

Upon achieving independence, June 28, 1976, Seychelles became a sovereign republic with Mancham as president and Rene as Prime Minister. The Legislative Assembly, renamed National Assembly, was to run full term until June 6, 1979, when presidential elections would also be held. On June 5, 1977, while Mancham was attending a London Commonwealth Conference, his government was overthrown and Rene installed as President. Following the coup, the Constitution was suspended, the National Assembly dissolved and rule by presidential decree was begun. The Seychelles People's Progressive Front (SPPF) was organized in 1978 as successor to SPUP and declared sole political party.

2.2 Regional Organizations

A district council system of local government was abolished in 1968, leaving only the elected Victoria District Council on Mahe responsible for taxes, roads, and sanitation.

2.3 Major Government Figures (July 1980)

President.....Rene, France Albert
Min. for Administration &
Political Organizations.....Sinon, Guy
Min. for Defense.....Berlouis, Oglivie
Min. for Education & Information.....Michel, James
Min. for Foreign Affairs.....Hodoul, Jacques
Min. for Labor & Social Service.....Loizeau, Phillibert
Min. for Planning & Development.....Ferrari, Maxime, Dr.
Min. for Transport & Tourism.....Servina, Matthew
Min. of State In the President's
Office for Agriculture.....St. Ange, Karl
Min. of State In the President's
Office for Youth & Community Development....Jumeau, Esme

3. Disaster Preparedness

3.1 Host Disaster Plan

None

3.2 US Mission Plan

None

3.3 Disaster Types and History

All but the southernmost islands of Providence, Cosmoledo and Astone are outside normal cyclone belt. Torrential rainfalls may occur during period of northwest monsoon, and high winds, though rare, may damage coconut palms and banana trees.

4. Population

4.1 National Demographic Characteristics

1977 census recorded a population of 61,898 (64,000 is 1979 estimate). About 4% of population are non-Seychellians. An estimated 40% of population was under age 15 in 1976. Arrivals and departures of long-term migrants were about equal at 1,300 per year in 1970's. Between 1968 and 1977, both crude birth and death rates declined, and the current annual rate of population growth is about 2.1%.

4.2 Regional Distribution

Population is highly concentrated with about 98% of the people living on Mahe (88%) and the nearby islands of Praslin and La Digne (10%). No more than 1,000 people inhabit the scattered remaining islands. About 37% of the population lived in and around the capital city of Victoria at the time of the 1977 census. Population density: 221 per sq. km. overall; 1,240 per sq. km. on agricultural land.

Population by Main Islands

<u>Island</u>	<u>1977 Census</u>	<u>% of Total</u>
Victoria	23,012	37
Other Mahe	31,560	51
Total Mahe	54,572	88
Praslin	4,343	7
La Digne	1,911	3
Silhouette	390	1
Other Islands	682	1
Total	61,898	100

Source: 1977 Census Report.

5. Health, Nutrition, and Housing

5.1 Overall Health Status

General health conditions in Seychelles approach those of industrialized countries, with the islands free of such tropical diseases as malaria, sleeping sickness, and cholera. Major health problems have been tuberculosis, venereal diseases, and intestinal parasites, leading to anemia. Leprosy has been practically eradicated and tuberculosis brought under control. Heart disease was the leading cause of death in 1978.

Deaths by Major Disease, 1978
(Number)

	<u>Less than</u> <u>1 year</u>	<u>1-4</u>	<u>5-14</u>	<u>15-24</u>	<u>25-64</u>	<u>65 and</u> <u>over</u>	<u>All</u> <u>ages</u>
Malignant neoplasms	-	1	-	-	29	25	55
Diabetes mellitus	-	-	-	1	3	6	10
Hypertensive disease	-	-	-	-	5	9	14
Ischaemic heart disease	-	-	-	-	6	7	13
Other heart disease	-	-	-	-	8	32	40
Cerebrovascular disease	3	-	-	-	10	46	59
Pneumonia	7	1	-	1	-	18	27
Other perinatal mortality	19	-	-	-	-	-	19
Symptoms and ill defined conditions	1	-	-	1	5	90	97
Other diseases	17	11	6	12	55	31	132
Total deaths	47	13	6	15	121	264	466

Source: World Bank, Seychelles: An Introductory Economic Memorandum, 1979.

5.2 Vital Statistics

Birth rate (1977)	27.7 per 1000 population
Death rate (1978)	7.4 per 1000 population
Infant mortality (1978)	26.2 per 1000 live births
Growth rate	2.1% (approximate)
Life expectancy	63 years-males; 70 years-females

5.3 Health Services and Facilities

The health delivery network consists of a national general hospital and 8 clinics in Mahe, two small hospitals in Praslin and one in La Digue, and a number of preventive health centers throughout the country. Hospital beds total 319, or one for every 194 people. While curative services are adequate, the preventive system, including the clinics in Mahe, is described as "weak." A recently completed National Health Program emphasizes the upgrading of services and facilities.

5.4 Health Personnel

Professional health services are less accessible than physical facilities. Availability of doctors and nurses was 17% of that in industrialized countries in 1975. Population per physician is estimated to be 2,760; that per nursing person, 1,710. Doctors include 2 surgeons, 2 anesthetists, a gynecologist, and several medical officers. Because of low salaries in the public health sector, Seychelles' doctors usually migrate, leaving the country heavily dependent on donor-funded expatriate physicians.

Health care workers in 1975 included the following:

Physicians	21
Dentists	3
Dental operating auxiliaries	2
Dental technicians	1
Pharmacists	1
Midwives	4
Nurse midwives	96
Nurses	24
Assistant nurses	10
Physiotherapists	1
Medical laboratory technicians	3
Medical laboratory assistants	5
Medical radiological technicians	2
X-ray assistant technicians	1

5.5 Diet Summary

Nutritional status is generally satisfactory and malnutrition not widespread, though diet was considered insufficient in protein and sometimes in quantity in the early 1970's. Rice, lentils, fish, and fruit provide a balanced diet. Imported rice and locally caught fish are dietary staples. "Gros manger"--roots and tubers, such as cassava and sweet potatoes, plantains and breadfruit--are favorite foods. Cuisine influenced by French and British-Indian styles.

5.6 Staple Foods

Starches: rice, locally grown breadfruit when rice is scarce, cassava, sweet potatoes, plantains.

Cooking oil: coconut oil commonly used; other vegetable and animal fats.

Vegetables: preferred in form of "bredes" (soups made of green leaves of cultivated or wild plants) or "chatinis" (chutney) made from green fruits such as mangoes, golden apples and "billimbis" (fruit of tree related to carembola) to accompany rice, fish or meat; tomatoes, peppers, cucumbers, beans.

Fruits: bananas, mangoes, pawpaws, 'fruits de cythere', or golden apples, pineapples, coconuts, papayas, citrus.

Meat/fowl: turtle meat (now unobtainable because of ban on capture of green turtles) and pork are preferred meats; beef (most of it imported and therefore more likely to be eaten by the well-to-do), poultry and eggs, young shearwaters and fresh tern eggs during cropping season, flying fox (usually curried).

Fish: provides 70% of animal protein in the diet; octopus an occasional treat.

Liquids and beverages: coconut milk widely used as flavoring in curries, stews, sweets; tea; local alcoholic beverages such as "bacca" (from sugar cane juice), toddy (from sap of coconut palm), and "la puree".

5.7 Cooking

Kerosene is primary cooking fuel though firewood is still very important.

5.8 Housing

The 1977 census found 80% of houses in "good or fair condition", but improvements are needed to alleviate overcrowding in 10% of housing units occupied by more than one household. (AID study estimated 30% of all houses over-crowded.) The National Development Plan estimates a need for 800 new individual houses and the extension of 1,300. There are virtually no slums.

Most houses are of wood or fiberboard construction and have corrugated iron roofs and stone foundations. Rural houses may be made of thatch or of concrete or coral blocks. City homes typically have large stone steps and yards, often with fences.

According to the 1977 census, 5,465 households of a total of 12,644 had access to electricity supply (public electricity only on Mahe); 5,957 households had access to tap water, 3,090 to standpipe, 3,593 to river/well. The La Gogue dam, when completed, will provide storage and treatment in sufficient quantity to meet water needs for next seven years. The main sewerage system is on a reclamation area in Victoria. Though capable of serving a population of 8,000 the facility is presently greatly under-utilized.

6. Economy

6.1 Overview of Economy

The Seychelles' economy has traditionally depended on the production of copra and cinnamon for export, but since the opening of the international airport in 1971, tourism has become the major industry and the economy basically service oriented. Agriculture accounts for about 10% of the domestic product with production generally stagnant; manufacturing contributes about 5%. Unemployment has been kept at 8-10% since 1971.

Tourism and fishing are considered most promising sectors. The number of tourists visiting the Seychelles increased at an average rate of 27% per year 1973-78, the initial boom stimulating expansion of the infrastructure. The importance of tourism, which provides foreign exchange earnings 7 times that of domestic exports, has prompted increased government activity in the sector. The manufacturing sector, limited to about 50 small-scale industries, most located on an industrial estate in Mahe, includes agricultural processing plants, a brewery, cigarette factory, plastics factory, and several small family businesses; employed about 1,300 in 1977 (5% of labor force). Guano, used as fertilizer, is a traditional export, its value about 5.4% of domestic exports in 1977.

With insufficient resources (exports and reserves) to maintain economic growth, Seychelles is highly dependent on external factors (tourism, foreign capital). Assistance has come mainly from the UK, France, Australia, OPEC, and EEC. At the close of 1978, total disbursed external debt had reached SR 27.0 million (about US\$ 4 million), up from SR 4.9 million in 1976, while capital expenditures were showing a sharp increase. Government financing, also favorable in recent years, may be facing difficulties due to large rise in current expenditures.

6.2 GNP (1977)

GDP (at current market prices) is estimated to have been about SR 432 million in 1977 and to have risen (in real terms) by about 20% over last three years; GNP per capita estimated at about US\$ 100 in 1978; average annual growth rate of 4% since 1970.

	<u>US\$ Mln</u>	<u>%</u>
GNP at market prices	54.9	100.0
Current account balance	-10.5	-19.1
Exports of goods	10.2	18.6
Imports of goods	38.9	70.9

6.3 Balance of Payments

External payments situation characterized by: 1) large gap between domestic merchandise exports (SR 24 million in 1978) and merchandise imports (SR 357 million in 1978); 2) substantial gross earnings from tourism (SR 208 million in 1978); 3) current account deficit between 20 and 30% of GDP in recent years; 4) increased external reserves (about 4 months 1978 imports at end of 1978) as result of private and public capital inflows.

6.4 Imports

Substantial increase in imports between 1974 and 1978 reflects growth of tourism. Machinery, transport equipment, and manufactures made up about 40% of 1977 merchandise imports. In an effort to reduce inflation, the 1979 budget called for some regulation of imports and increased duty rates.

Value of imports, 1977 (c.i.f., SR million): food and live animals (67.2); beverages and tobacco (14.4); crude materials (5.6); mineral fuels (67.8); animal and vegetable oils and fats (3.2); chemicals (18.4); manufactures (56.8); machinery and transports (78.7); miscellaneous manufactures (36.7); others (0.7%); total (349.7). Major trading partners in 1977 were the UK, Kenya, South Africa, Japan, and Singapore.

6.5 Exports

Copra (most goes to Pakistan) and cinnamon bark are main exports, accounting for 75% of total domestic exports during 1974-78 period; exports of frozen fish increasing. Value of re-exports, largely petroleum products, has been nearly twice that of domestic exports since 1974. The near doubling of total earnings from merchandise exports between 1974 and 1978 is largely due to price increases.

Value of domestic exports, 1977 (f.o.b., SR thousand): food and live animals (7,700); beverages and tobacco (30); crude materials (16,354); animal and vegetable oils and fats (24); chemicals (92); manufactures (94); others (91); total (24,385). Re-exports in 1977 totalled 53.4 (f.o.b., SR million). Major trading partners for domestic exports (1977): of the 24.4 (SR million) total domestic exports, Pakistan purchased 14.0; other buyers included Greece, Netherlands, Mauritius, Reunion, UK, and USA.

7. Agriculture

7.1 Overview of Agriculture

The share of agriculture (including fishing and forestry) in the domestic product fell from 20% in 1972 to about 10% in 1977. Crop agriculture consists of plantation farming of export crops (coconuts, cinnamon, patchouli, vanilla, tea, and limes), and market gardening of fruits and vegetables for domestic use. There are about 25 large plantations, but only 4,000 people (17% of working force) are engaged in crop agriculture and less than 3% of families depend on farming for main source of income.

Favorable climate permits year round cultivation of crops, and production of fruit, vegetable and root crops could be expanded. However, significant growth of the agricultural sector is hampered by limited area of cultivable land (of total 22,100 hectares of arable land, little more than 1,000 are presently available for farming, the rest being in tree crops and shrubs), by low fertility of the soil requiring imports of fertilizer, and by the necessity for periodic irrigation. Agricultural diversification is a goal of the present development plan, the aim being to reduce reliance on food imports and to promote crops for export.

Livestock

In 1977, only 2,266 head of cattle, mostly on family land; meat and dairy products were 5% of merchandise imports. With approximately 10,555 pigs and 123,000 poultry produced on small holdings and factory farms, Seychelles is self-sufficient in pork, eggs, and poultry meat.

Fishing

Fish is very important in diet of Seychellians. Though present annual catch of 6,000 tons is small, fishing is considered one of the most promising economic activities due to considerable stocks off Seychelles' coasts. In 1978, the country declared an "economic zone" extending 200 nautical miles from coasts (for total of 400,000 sq. miles in the Indian Ocean).

7.2 Agricultural Production (1974-78) a/

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Crop production (ton)					
Copra b/	3,057	2,860	2,748	2,918	2,953
Cinnamon	1,448	1,085	1,153	799	610
Tea (green leaf)	145	180	181	172	--
Livestock slaughters at Le Rocher Abattoir (#)					
Cattle	398	329	352	351	278
Pigs	2,635	3,817	3,724	3,996	4,468

a/ No data are available on the production of milk, eggs, fruit, and vegetables, etc, nor on total coconuts produced.

b/ Export figures - excluding small quantity used locally in coconut oil production.

Source: World Bank, Seychelles: An Introductory Economic Memorandum, 1979.

7.3 Harvesting Dates

Maize, sweet potatoes, cassava, copra, citrus fruits, bananas, tobacco, coffee, cinnamon, patchouli and cane are harvested the year round, though periods of the bulk of harvest are not known. Presumably the main part of all crops is harvested in the first half of the year as is the case in other African islands in the Indian Ocean.

7.4 Agricultural Imports

Value of imports, 1977 (c.i.f., SR million): food and live animals (67.2) of which meat and meat preparation (7.9), milk - evaporated and condensed (5.5), rice (9.6), fruits and vegetables (11.5), sugar (5.3), others (27.4); beverages and tobacco (manufactured) (14.4); crude materials (5.6) of which wood (3.7), other (1.9); animal and vegetable oil and fats (3.2).

7.5 Agricultural Exports

Value of domestic exports, 1977 (f.o.b., SR thousand): food and live animals (7,700) of which frozen fish (3,161), sharks' fins (18), coconuts (1,146), cinnamon bark (3,247), cinnamon-other (64), beverages and tobacco (30); crude materials (16,354) of which copra (14,503), guano (1,319), turtle and tortoise shell and scales (375), other (65); coconut oil (24).

8. Physical Geography

8.1 Climate

The Seychelles are situated in tropical trade winds belt. Though islands are close to equator, climate is moderated by maritime environment. Temperature at sea level ranges between 75° and 85° F, drops at higher elevations. Relative humidity is high, averaging 75 to 85% year round. Except for the southernmost islands of Providence, Cosmoledo and Astove, Seychelles are outside normal cyclone belt.

Climate depends on reversible monsoons of land-locked Indian Ocean. Two monsoons: the southeast from May to October has strong winds, cool and dry; the northwest from December to March is generally calm, hot, rainy. Rainfall of northwest monsoon is occasionally torrential and winds may damage coconut palms and banana trees. November and April are transition periods.

Rainfall variation is considerable. Mean annual rainfall at sea level on Mahe and Silhouette is 2,335 mm (92"), probably about 3,810 mm (150") at highest points. Mean annual rainfall ranges from 1,770 mm (70") at sea level on Praslin and La Digue to 1,700 mm (67") on Denis island, 1500 (59") on Daros island, and 1,320 mm (52") on Alphonse. Over 33% of rainfall occurs in heavy downpours during December, January and February; only 6% falls during driest months of July and August.

8.2 Topography

The Seychelles comprise 90 to 100 islands (about 40 high rising granitic islands and 52 flat coralline islands) in middle of Western Indian Ocean between 4° and 11° S. latitude and 50° and 60° E longitude. Total land area is 119 sq. miles, though islands stretch over area about the size of Madagascar.

The rugged granitic islands, of continental formation, rise from a large, shallow (40 fathoms deep), submarine plateau and, typically, have narrow coastal strips surrounding a central range of hills. Four groups of granitic islands: Mahe, largest island in Seychelles (36,200 acres), and surrounding small islets; Praslin group, including Praslin, second largest island (9,700 acres) and Frigate Island and its islet; Silhouette (4000 acres) and North Island; Les Mamelles and Recifs. The core granitic islands of Mahe, Silhouette, Prasline and La Digue are within a 35-mile wide area.

The coral islands, spread over a much larger area, may be divided into six groups (followed by distance and direction from Mahe): Bird island, or Ile aux Vaches, and Denis island (52 miles to N and NW, respectively); two isolated islands, Plate and Coetivy (about 78 miles and 103 miles, respectively, to S); Amirante group (145 miles to SW), consisting of islands of African Banks, Eagle Island or Remire, Daros, Poive, Bordeuse, Etoile, Marie-Louise, Desnoeuvs and Desroches; Alfonse group (230 miles to SW), comprising Alfonse, St. Francois and Bijoutier islands; Providence group (390 miles to SW), made up of St. Pierre, Providence and Farquhar; Aldabra group (600 miles to SW), comprising, in addition to Aldabra island, Cosmoledo, Astove and Assumption.

The coral islands are of two types: the sand quays, comprising Bird, Denis, Plate, Coetivy, islands of Amirantes, Alfonse and Providence groups (total area about 5,000 acres), which are of relatively recent formation and support extensive coconut cultivation; the much older uplifted reefs, including St. Pierre, Assumption, Astove and Cosmoledo (total area just under 5,500 acres), which are solid corals having little or no soil, spiny or stunted vegetation, of economic value only for guano deposits.

8.3 Land Use

Because of rugged topography of the granitic islands and lack of soil on many of the coralline islands, about half of total acreage is unsuitable for agriculture. The most fertile soils are alluvial deposits of small streams that have settled on level areas behind coastal sand flats. In 1976, of total 28,000 hectares (excluding Aldabra, Desroches and Farquhar - 2,800 ha), 1,000 was arable land; 4,000 under permanent crops; 5,000 in forests and woodlands; 17,000, other land; 1,000 inland water.

8.4 Rivers

There are no major rivers, but numerous swift running streams on granitic islands supply adequate amounts of fresh water, especially during rainy months. Dams have been constructed on several streams in Mahe, providing reservoirs for water storage and possible generation of electricity.

8.5 Mountains

The granitic islands, characterized by rugged relief, have central ridges extending along the length of the islands and branching off in lateral spurs. Boulders or "glacis" are found throughout the high islands. Morne Seychellois on Mahe is highest peak at 3,000 ft.; Praslin's highest point is 1,281 ft.; Morne Dauban on Silhouette reaches 2,600 ft.

9. Transportation and Logistics

9.1 Road Network

Mahe has a total of 105 miles of motorable roads of which 84 miles are surfaced (tarmac). The network includes a road that circles the island as well as a number of trans-island roads. Praslin's main road along northeast coast continues to Vallee de Mai (a government reserve); 5 miles are surfaced, 21 miles are of earth. La Digue has 8 miles of earth road.

9.2 Vehicles

800 in 1977: 565 cars, 72 motorcycles, 163 others.

9.3 Ports

Sea is major mode of inter-island communication. Victoria harbor, only sizable port, was improved in 1975 by extension of the deep-water quay and enlargement of cargo handling and storage space. In 1979, it received 324 ships, handled about 70,000 tons of general cargo and 45,000 tons of bulk cement and oil. Though port operations are presently small scale, the World Bank believes it has potential to become a more important transshipment point due to central position in the Indian Ocean. There is regular ferry service between Mahe, Praslin and La Digue, but the last two islands have no harbors and only small craft can tie up at landing jetties.

Port Victoria

Coordinates: Lat. 4° 37' S.; long. 55° 28' E.

Accommodations: The port, consisting of approx. 2.6 sq. km. of deep water roadstead for ships of all sizes and the inner harbor of about half that area, is protected by a chain of islands and coral reefs. Safe in all winds. No bar. In outer harbour there are depths of 9.75 to 23.77 m. Depending on size and weather, six ocean-going ships can be accommodated in outer harbour simultaneously. Super tankers anchor outside Fairway Buoy. The Harbor Master should be consulted for best anchorage prior to arrival. Night movement at discretion of the Master. No tide or draft restrictions.

The inner harbor can accommodate two vessels alongside at Mahe Quay. Berth No. 1 for oil and cement tankers, Berth No. 2 for cargo and passenger ships. Maximum draft at berths 10.67 m. A new harbor can accommodate one vessel of 152.4 m., draft 9.14 m. and one tanker of 91.43 m. With the assistance of a tug, vessels of 198.1 m. can berth alongside. Fresh water in good supply alongside or by barge to anchorage. Warehousing rentable. Radio call sign ZCQ.

- Bunkers:** Marine diesel and gas oil.
- Shiprepairs:** Limited facilities.
- Towage:** Tug joins vessel in inner harbor. Ship's lines are used.
- Pilotage:** 24 hours' notice. Telegraphic address: "Demarine", through Cable and Wireless on C.W. Schedule 500 Kcs., and 8714 Megs. V.H.F. Station "Harborcontrol" operates on Channel 16, 12, 6 during working hours. Pilot boat flies "H" flag. Signals for pilot, "G" by flag or whistle. At night, "G" by morse. Pilotage compulsory in inner and outer harbor for vessels of or over 150 g.r.t.
- Airport:** N.I.A., 12.8 km.

9.3 Shipping

The Shipping Corporation of India, Ltd.: infrequent services from Bombay and East Africa call at the Seychelles; agents Jivan Jetha and Co., P.O.B. 16, Mahe.

The Union Lighterage Co., Ltd.: P.O.B. 38, Mahe; f. 1926; agents for Shell Company of the Islands, Shaw Savill and Farrell Lines, which run occasional services.

A twice-weekly ferry between Victoria and the Islands of Praslin and La Digue is operated by the Ministry of Transport.

9.4 Airports

Construction of Seychelles International Airport at Anse Larue on Mahe (about 6 miles south of Victoria) was completed in 1971. Despite subsequent improvements, the airport is now inadequate to accommodate increasing number of widebodied aircraft and growing tourist traffic. There is a landing strip on Praslin suitable for light aircraft and the government is building landing strips on Farquhar and Desroches.

NB: For up-to-date information consult latest issue of weekly International Notams, International Flight Information Manual, and/or ICAO's Air Navigation Plan for appropriate region.

MAHE/Seychelles Intl.

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>Runway Characteristics</u>				<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
		<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>		
04°40'20" S 55°31'23" E	3 28	13/31	n.a.	2987	A	LCN100	100L JA1

Remarks: alternate aerodromes Dar-es-Salaam/Dar-es-Salaam, Majunga/Amboro-
vy, Mauritius/Plaisance, Tannaarive/Ivato

Aids: DME,VOR, L, LSA (13), LVA (13), LR, LTX, LO, MD, MC, MT, MTD, MFD,
MTX, MO, L4, 5, 9, ('LS & PA difficult to install due to terrain)
CWY 13 & 31-610. No telex.

See Appendix for Airport Key.

9.5 Personal Entry Requirements

Passports are required. Visas are not a requirement. Smallpox and cholera vaccinations required; yellow fever immunization for arrivals from an endemic area. Proof of sufficient funds for the intended visit or onward tickets.

Embassy address: None; however, the Embassy of the United Kingdom, 3100 Massachusetts Ave., N.W., Washington, D.C. 20008 may be used as the official diplomatic representative for the State of Seychelles. See also section 1.10, Travel and Visa Information.

9.6 Aircraft Entry Requirements

All private and non-scheduled commercial aircraft overflying without landing need not obtain prior permission. All private aircraft landing must provide at least 24 hours prior notice to the Director of Civil Aviation.

All non-scheduled commercial aircraft landing for commercial or non-commercial purposes must obtain prior permission from the Director of Civil Aviation, P.O. Box 181, Mahe, Seychelles (telegraphic address: DIRECTAIR SEYCHELLES/TELEX: None) at least 24 hours prior to departure. All requests must include a) name of operator, b) date and time of arrival and departures, c) purpose of flight, d) number of passengers and type and amount of cargo, e) arrangements for passenger accommodation in Seychelles, if applicable, f) name, address and business of charterer, if any.

Special Notices: Operators should be aware that communication difficulties exist which could cause delays in the receipt of notification or requests. They should attempt to give as much advance notice as possible of arrivals to insure receipt of the message.

9.7 Airlines

Inter-Island Airways: P.O.B. 549, Victoria; f. 1976; operates scheduled passenger services and charter flights to Denis, Bird, Platte, Frigate, Praslin and Daros Islands; fleet: one Trislander, three Islanders.

Seychelles Airlines Ltd.: P.O.B. 56, National House, Victoria; f. 1977; government-owned; designated as the national airline; scheduled domestic passenger services are planned.

Seychelles is also served by the following foreign airlines: British Airways, Ethiopia Airlines, Air France, Air India, Kenya Airways, Air Madagascar, Air Malawi, Somali Airlines, South African Airways and Air Tanzania.

9.8 Air Distances (statute miles)

Seychelles to:	Singapore	3,363	New York	8,433
	Sydney	6,357	Paris	4,871
	Tananarive	1,141	Rome	4,189
	Tirstrup	4,909	Mauritius	1,098
	Vancouver	9,354	Madagascar	680
	Zurich	4,587	Reunion Is.	1,120

10. Power and Communications

10.1 Energy Sources

Mahe is the only island with a public electricity system. Main power station in Victoria has 5 diesel generators. In 1977, installed capacity was 9,880 KW; gross production, 37 million kWh. Demand for electricity is expected to rise by about 13% annually over next five years, requiring extension of transmission lines as well as additional generating capacity.

10.2 Telephone System

Automatic telephone system on Mahe. National telephone system extends to some islands; others communicate with Mahe via Radio Seychelles. There was a total of 2,115 telephone exchange lines in 1977: Mahe, 1,987; Praslin, 94; La Digue, 34. Cable and Wireless, Ltd. provides international radio-telephone service.

10.3 Radio

Radio Seychelles: P.O.B. 321, Union Vale; f. 1941; transmissions 12 hours daily; programs in English, French and Creole.

Far East Broadcasting Association: P.O.B. 234, Mahe; religious programs in Afar, Arabic, English, Farsi, French, Gujarati, Hindi, Kannada, Malayalam, Marathi, Nepali, Oriya, Portuguese, Punjabi, Pushto, Sinhala, Somali, Tamil, Telegu, Tibetan, Turkish and Urdu.

With the exception of church pulpit, radio is most important mass medium in Seychelles. 17,000 radio sets in use in 1977; no television service.

Airport KeyAbbreviations

INSTR	Instrument Approach Runway
N-INSTR	Non-Instrument Runway
PA I	Precision Approach Runway Category I
PA II	Precision Approach Runway Category II
REG-NS	Intl Non-Scheduled Air Transport, Regular Use
REG-S	International Scheduled Air Transport, Regular Use

Radio Aids

ILS	Instrument Landing System
DME	Distance Measuring Equipment
VOR	VHF Omni-Directional Range
RL	Radio Locator

Lighting Aids

LPA	Precision Approach Lighting System
LSA	Simple Approach Lighting System
LVA	Visual Approach Slope Indicator System
LAV	Abbreviated Approach Slope Indicator System
LR	Runway Edge, Threshold & Runway End Lighting
LC	Runway Center Line Lighting
LTD	Runway Touchdown Zone Lighting
LTX	Taxiway Lighting
LB	Aerodrome or Identification Beacon
LO	Obstruction Lighting

Marking Aids

MD	Runway Designation Markings
MC	Runway Center Line Markings
MT	Runway Threshold Markings
MTD	Runway Touchdown Markings
MS	Runway Sidestripe Markings
MFD	Fixed Distance Markings
MTX	Taxiway Center Line & Holding Position Markings
MO	Obstruction Markings

Runway Surface and Length

H	Hard Surface (numbers = ft. in hundreds)
S	Non-Hard Surface (number = ft. in hundreds)

Additional Lighting

L1	Portable Runway Lights (electrical)
L2	Boundary Lights
L3	Runway Flood Lights
L4	Low Intensity Runway Lights
L5	Low Intensity Approach Lights
L6	High Intensity Runway Lights
L7	High Intensity Approach Lights
L8	Sequenced Flashing Lights
L9	Visual Approach Slope Indicator (VASI)

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- African Guide 1979. Graham Hancock (ed.). Essex, England: World of Information, 1979.
- African Research Bulletin. Economic, Financial and Technical Series. Vol. 17, No. 4, May 31, 1980. Exeter, England: African Research Ltd.
- Africa South of the Sahara 1979-80. London: Europa Publications, Ltd., 1979.
- American Council of Voluntary Agencies for Foreign Service, Inc. TAICH Country Report: Madagascar. New York: Technical Assistance Information Clearing House, August 1976.
- Asia 1980 Yearbook. Hongkong: Far Eastern Economic Review, 1980.
- Bonnardel, Regine Van Chi. The Atlas of Africa. New York: The Free Press, 1973.
- Centre de l'Institut Geographic National. Madagascar et Comores. Echelle: 1/4,000,000. Tananarive: CIGN, 1970.
- Colliers Encyclopedia. Vol. 20. New York: Macmillan Educational Corp., 1974.
- The Far East and Australia 1978-79: A Survey and Directory of Asia and the Pacific. London: Europa Publications, Ltd., 1978.
- Food and Agriculture Organization of the United Nations. Foodcrops and Shortages. Global Information and Early Warning System on Food and Agriculture. Rome: FAO, June 1980.
- _____. World Crop Harvest Calendar. Rome: FAO, 1958.
- Government of Mauritius. Cyclone Emergency Scheme. Port Louis: Prime Minister's Office, December 7, 1976.
- Hance, William A. The Geography of Modern Africa. 2nd ed. New York: Columbia University Press, 1975.
- International Air Transport Association. Air Distances Manual. 7th ed. Effective April 1, 1980. Montreal: IATA/International Aeradio, Ltd.
- International Civil Aviation Organization. Air Navigation Plan: Africa - Indian Ocean Region. Montreal: ICAO, September 1976.

-
- International Financial Statistics. Vol. XXXIII, No. 4. Washington, D.C.: IMF, April 1980.
- International Road Federation. Road and Motor Vehicles Statistics for 1978. Washington, D.C., 1978.
- LICROSS. When Disaster Strikes and Help is Needed. A Guide to National Disaster Preparedness in Disaster Prone Areas and Selected Countries. Geneva: LICROSS, 1976.
- _____. Volags. Steering Committee for Disasters. Basic Facts on Madagascar. Geneva: LICROSS, 1978.
- _____. Basic Facts on Mauritius. Geneva: LICROSS, 1978.
- Lionnet, Guy. The Seychelles. Newton Abbot Devon: David and Charles, Ltd., 1972.
- Malagasy Republic. Direction Generale du Gouvernement. Direction de l'Institute National de la Recherche Economique. Population de Madagascar au janvier 1972 (at Census Library).
- Nelson, Harold D. et. al. Area Handbook for The Malagasy Republic. Washington, D.C.: GPO, 1973.
- Owen's Commerce and Travel and International Register. 25th ed. London: Owen's Commerce and Travel, Ltd., 1978.
- Oxbridge Omnibus of Holiday Observances Around the World, 1977. New York: Oxbridge Communications, Inc., 1976.
- Padya, B.M. Cyclones of the Mauritius Region. Port Louis: The Mauritius Printing Co., Ltd., 1976.
- Political Handbook of the World 1979. Arthur S. Banks (ed.). New York: McGraw-Hill, 1979.
- Ports of the World. 32nd ed. John Reithmuller (ed.). London: Benn Publications, Ltd., 1979.
- Protein-Calorie Advisory Group of the United Nations System. A Guide to Food and Health Relief Operations for Disasters. New York: UN, 1977.
- Republika Malagasy. Annuaire National 1973 de la Republique Malagasy. Tananarive: RM, 1973.

- Reunion, Former Bourbon Island. Prefecture of Reunion with the Collaboration of the Office for the Promotion of Tourism.
- Statesman's Yearbook 1979-80. John Paxton (ed.). New York: St. Martin's Press, 1979.
- Stoddard, Theodore L. et. al. Area Handbook for the Indian Ocean Territories. Washington, D.C.: GPO, 1971.
- Thompson, Virginia and Adloff, Richard. The Malagasy Republic. Stanford, Calif.: Stanford University Press, 1965.
- United Nations Disaster Relief Office. UNDR0 Monthly (No. 1, March 1977; No. 3, May 1977; No. 25, March 1979; March 1980). Geneva.
- US Agency for International Development. Country Development, Small Program Statement: Mauritius, January 1979.
- _____. Country Development, Small Program Statement: Seychelles, January 1979.
- _____. Foreign Disaster Assistance Summary Report: Maldives. Colombo: American Embassy, December 1978.
- _____. Office of Foreign Disaster Relief. Disaster Relief Case Reports. Malagasy Republic (Cyclone, February 1972; Civil Strife, May 1972; Cyclones, January and March 1975; Cyclones, January and February 1976). Washington, D.C.: AID.
- _____. "Selected Annual Trends," AID Economic Data Book. Washington, D.C. AID/SER/FR/SRD. November 1976.
- US Central Intelligence Agency. Chiefs of State and Cabinet Members of Foreign Governments. Washington, D.C.: GPO, June 1980.
- _____. National Basic Intelligence Factbook. Washington, D.C.: GPO, January 1979.
- US Department of Agriculture. Economic, Statistics and Cooperatives Service. Agricultural Situation: Review of 1978 and Outlook for 1979. Supplement 7 to WAS 18. Washington, D.C., August 1979.
- US Department of Commerce. Bureau of the Census. World Population 1977. Recent Demographic Estimates for the Countries and Regions of the World. Washington, D.C.: GPO, October 1978.

- US Department of Health, Education and Welfare. US Public Health Service. Center for Disease Control. Health Information for International Travel 1979. Washington, D.C.: GPO, 1979.
- _____. US Public Health Service. CDC. Preliminary Report on the Typhoid Fever Outbreak Cite Roche Bois, Mauritius. December 1979 - February 1980.
- US Department of State. Background Notes (Comoros, February 1979; Madagascar, December 1977; Maldives, March 1977; Mauritius, January 1977; Seychelles, April 1970). Washington, D.C.: GPO.
- _____. Diplomatic List. Washington, D.C.: GPO, February 1980.
- _____. Key Officers of Foreign Service Posts. Washington, D.C.: GPO, May 1980.
- _____. Treaties in Force. Washington, D.C.: GPO, January 1979.
- _____. Visa Requirements of Foreign Governments. Washington, D.C.: GPO, January 1978.
- US Department of Transportation. FAA. International Flight Information Manual. Vol. 26. Washington, D.C.: National Flight Data Center, April 1978.
- World Bank. Appraisal of a Fourth Highway Project. Democratic Republic of Madagascar. Washington, D.C.: IBRD, June 3, 1976.
- _____. Atlas 1979. Population, Per Capita Product and Growth Rates. Washington, D.C.: IBRD, 1979.
- _____. The Economy of the Comoros. Washington, D.C.: IBRD, July 26, 1977.
- _____. The Economy of the Maldives: An Introduction. Washington, D.C.: IBRD, April 2, 1980.
- _____. The Economy of Mauritius: A Basic Economic Report (Main Report; Annex I - The Sugar Industry; Annex II - The Power Sector). Washington, D.C.: IBRD, February 22, 1978.
- _____. International Development Association. Report and Recommendation of the President of the International Development Association to the Executive Directors on a Proposal Credit to the Democratic Republic of Madagascar for a Fourth Highway Project. Washington, D.C.: IBRD, June 1976.

- _____. Mauritius: Development Bank of Mauritius. Washington, D.C.: IBRD, December 6, 1979.
- _____. Madagascar: Recent Economic Developments and Future Prospects. Vols. I and II. Washington, D.C.: IBRD, October 24, 1979.
- _____. Project Performance Audit Report. Madagascar: Third Highway Project. Washington, D.C.: IBRD, July 27, 1978.
- _____. Seychelles: An Introductory Economic Memorandum. Washington, D.C.: IBRD, November 1979.
- World Health Organization. Fifth Report on the World Health Situation 1969-1972. Geneva: WHO, 1975.
- _____. World Health Statistics Annual 1977. Vol. 3. Health Personnel and Hospital Establishments. Geneva: WHO, 1977.
- Worldmark Encyclopedia of the Nations: Africa. New York: John Wiley and Sons, Inc., 1976.
- _____. Asia and Australia. New York: John Wiley and Sons, Inc., 1976.
- Researched and Written by Faye Henderson: July 1980