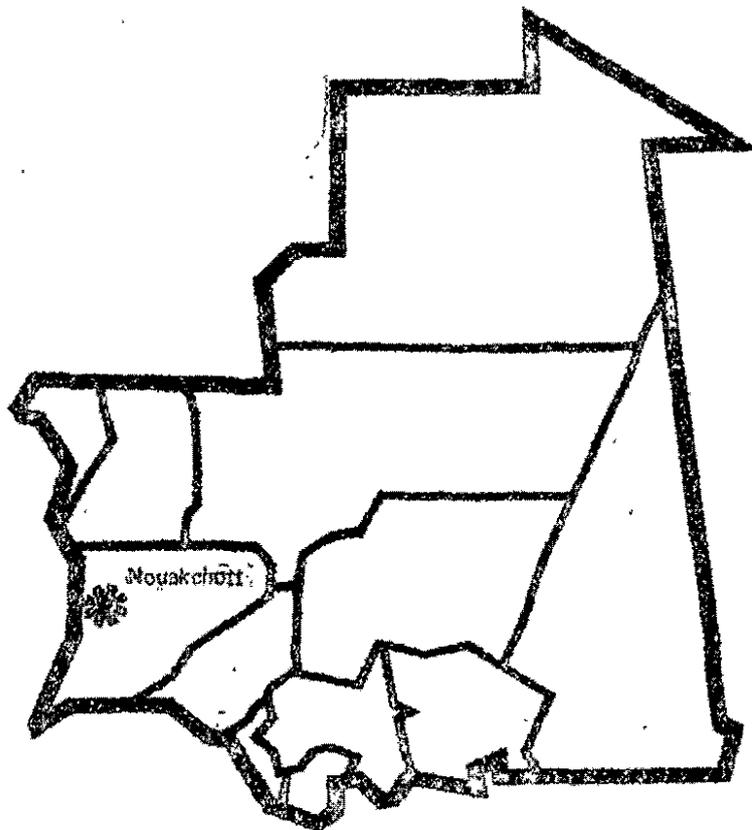


# Mauritania

## A Country Profile



October 1979

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

# Mauritania



502729 9-77 (542165)  
 Lambert Conformal Projection  
 Standard parallels 8° and 32°  
 Scale 1:8,200,000  
 Boundary representation is  
 not necessarily authoritative

-  Railroad
-  Road
-  Airport

MAURITANIA: A COUNTRY 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  
under contract AID/SOD/PDC-C-0283

The profile on the Mauritania 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.

January 1980

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\*\* out of print

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**NO.     iii**

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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1. General Information1.1 Geographic Codes

AID standard	682
State regional	AF
FIPS	MR

1.2 Country Names

Legal	Islamic Republic of Mauritania
Local	Republique Islamique de Mauritanie
	Jumhuriyyat Mouritania al-Islamiyya
Short	Mauritania

1.3 Calendar and Holidays

Labor Day	May 1
African Liberation Day	May 25
National Holiday	November 28

Muslim religious holidays are also observed: Id-al-Fitr, Id-al-Adha, Milad-al-Nabi, Ramadan. Dates are moveable, occurring approximately 10 days earlier each year.

Fiscal year: calendar year

1.4 Currency (January 1980)

45.09 Ouguiyas	= US \$ 1.00
5 Khoums	= 1 Ouguiya

1.5 Time Zones

GMT; EST + 5

1.6 US Mission to Mauritania and Staff (Oct. 1979)

Embassy of the United States  
 Nouakchott (E), B.P. 222  
 Phone: 52660/3  
 Telex: AMEMB 558 MTN

Ambassador  
 Deputy Chief of Mission  
 Economic/Commercial Section  
 Labor Officer

Consular Section  
 Administrative Section  
 Agency for International Development  
 Public Affairs Officer (USICA)

E. Gregory Kryza  
 Charles F. Dunbar, Jr.  
 Laurence D. Wohlers  
 Raymond J. Pardon  
 (resident in Dakar)  
 Robert Stanton  
 Peter Flynn  
 John Hoskins  
 Robert O. Jones

1.7 Sister Cities

None

1.8 Host Country Mission and Staff in US (August 1979)

Embassy of the Islamic Republic of Mauritania  
 2129 Leroy Pl. NW  
 Washington, D.C. 20008  
 Phone: 202/232-5700

Ambassador	Sidi Bouna Ould Sidi
Counselor	Bocar M. Wane
Counselor	Moktar Ould Haye
First Secretary	Ould Cheikh Ould Abdel Aziz Boubouda
Second Secretary	Abdoulaye Fall

1.9 Treaties and Agreements

Agricultural commodities  
 Development assistance  
 Drought recovery and rehabilitation  
 Investment guarantees  
 Peace Corps

### 1.10 International Organization Membership

AFDB, AIOEC, Arab League, CEAO, CIPEC (associate), EAMA, EIB (associate), FAO, G-77, GATT, IBRD, ICAO, IDA, IFC, ILO, IMCO, IMF, IPU, ITU, NAM, OAU, OMVS (Organization for the Development of the Senegal River Valley), U.N., UNESCO, UPU, WHO, WIPO, WMO

### 1.11 Travel and Visa Information

Visa valid 3 months, 3 photos, \$10. Apply Embassy, Washington, D.C. 20008 or Mission of Mauritania to the UN, New York 10018.

Smallpox vaccination required; yellow fever vaccination required for travelers over 1 year of age, except those arriving from non-infected areas who stay less than 2 weeks.

### 1.12 Ethnic and Sociocultural Groups

Ostensibly, majority of Mauritanians are Moors of mixed Arab-Berber descent, with some black admixture. They are divided into tribes (Maaquil, Lemtouna, Masoufa, Tolbas, Zenaga, Nemadi, Imraqun, Azarzir, Dualsh and Regelbat), as well as into black and white status groups, based on descent rather than color. Traditionally, most Moors were pastoral nomads but coincidence of recent drought with development of modern urban sector has brought many nomads into peri-urban nomad encampments.

Senegal River basin is inhabited by sedentary black farmers, the Sarakole, Bambara and Wolof, semi-sedentary black farmer-pastoralists, the Toucouleur, and black nomadic pastoralists, the Peulh (Fulani). Together, the Toucouleur and Fulani, whose languages are closely related, make up 13% of population.

Considerable animosity exists between Moors and blacks. Historically, Moorish raiders exacted tribute and took slaves from black farmer populations. Recent droughts have increased pressure on pasturage and farmland in southern Sahelian belt, so that land use patterns of farmers and herders increasingly overlap. A new census completed in April 1979 has not been released by the Islamic government as it shows a black majority.

### 1.13 Languages

French and Arabic are the official languages. Hassaniya Arabic is the first language of most Moors, although some still speak Berber dialects. Fulani and Toucouleur tribes speak similar dialects of same Niger-Congo language, while Sarakole and Bambara are similar Mande languages. Black groups, including black Moors in the southern regions, often can communicate in each other's languages, but are unlikely to be fluent in Arabic; white Moors seldom speak any West African language.

Question of common language is complicated by scarcity of Moorish teachers. The conflict over Western Sahara has reduced flow of teachers from Algeria, hence most Mauritanian teachers are from black minorities whose sedentary lifestyles encourage school attendance.

### 1.14 Education

Lack of trained teachers and opposition to modern education by traditional Muslims have hindered educational progress. Adult literacy rate: 10.0% (1970); primary school enrollment 17.0% (1977).

### 1.15 Religions

Islam is the state religion and essentially all Mauritanians are Muslims of Maliki school. Two religious brotherhoods, the Qadiriya and the Tijaniya, contribute to cross-cultural unification: the Qadiriya, which focuses on Islamic learning, is most influential in Trarza, Brakna, Tagant and Adrar, while the Tijaniya, primarily a missionary order, draws its membership from black tribes and has made many converts in other areas of West Africa. Less than 1% of population is Christian, most Roman Catholic.

Chinguetti, a city in Adrar region, is seventh holy place of Islam.

## 2. Government

### 2.1 National Government

Country governed by one party (monopoly by Mauritanian People's Party established by law in 1964). Permanent committee, chaired by party secretary, decides policy, though nominally party decisions are made by 40-man National Political Bureau (BPN), made up of government ministers, regional party federal secretaries and elected representatives. No organized opposition at present.

President, elected by direct universal suffrage, chooses cabinet, acts as commander in chief of armed forces and has power to sign and ratify treaties. Unicameral 77 member national assembly also elected by direct universal suffrage. Supreme court justices appointed by president.

On July 10, 1978, the military Committee for National Redress, a group of high ranking military officers led by Chief of Staff Col. Moustafa Ould Salek, overthrew regime of Moktar Ould Daddah, country's head of state since its independence in 1960. Bloodless coup's leaders described as nationalist and pro-western by African and Western diplomats. Committee cited economic stagnation, financial decadence and danger of peoples' uprising as justification for takeover.

### 2.2 Current Status (1979)

Struggle with Algerian backed Polisario guerrillas over Mauritania's claim to southern third of Western Sahara ended August 5, 1979 with signing of peace agreement. Mauritania renounced all claims to the area of Western Sahara (Tiris al-Gharbia) it had occupied. Morocco immediately announced jurisdiction over Tiris al-Gharbia (renaming it Oued Eddahab) and withdrew 6,000 troops stationed in Nouakchott under a mutual defense pact. Mauritanian sympathies for the Polisario and the economic drain created by increased defense expenditures are reasons cited for the peace settlement.

On May 27 Premier Ahmed Ould Bouceif, who had taken power in a palace coup in April, was killed in a plane crash. He was replaced by Lt. Col. Mohamed Khouna Ould Haidalla who forced Col. Mustahpa Ould Salek, only a figure-head president since April, to resign.

### 2.3 Regional Organization

12 regions and one district (Nouakchott), each headed by a delegate and commission, constitute administrative divisions of state.

Regions: Adrar, Assaba, Brakna, Gorgol, Guldimaka, Hodh-occidental, Hodh-oriental, Inchiri, Lévrier Bay, Tiris Zemmour, Trarza

### 2.4 Major Government Figures (January 1980)

President & Prime Minister.....	Haidalla, Mohamed Khouna Ould, Lt. Col.
Min. in Charge of Operations of the Military Committee for Natl. Safety (CMSN).....	Haidalla, Mohamed Khouna Ould, Lt. Col.
Min. of Civil Service & Professional Training.....	Menkouss, Yahya Ould
Min. of Culture, Information & & Telecommunications.....	Houssein, Ahmed Mahmoud Ould, Lt. Col.
Min. of Defense.....	Haidalla, Mohamed Khouna Ould, Lt. Col.
Min. of Finance & Commerce.....	Zein, Ahmed Ould
Min. of Foreign Affairs & Cooperation.....	Abdallah, Ahmedou Ould
Min. of Health, Labor & Social Welfare.....	Yousseuf, Diagana, Dr.
Min. of Industry & Mines.....	Zamel, Mohamed El Moktar Ould
Min. of Interior.....	Dia, Amadou, Maj.
Min. of Justice & Islamic Affairs.....	Cheikh, Yaddli Ould
Min. of Plan & Fishing.....	Boukhreiss, Moulaye Ould, Maj.
Min. of Primary & Secondary Education.....	Didi, Hasni Ould
Min. of Rural Development.....	Ba, Oumar, Dr.
Min. of Works & Transportation.....	Bably, Anne Amadou, Maj.
Min. of Youth, Sports, Handicrafts & Tourism.....	(vacant)

### 3. Disaster Preparedness

#### 3.1 Host Disaster Plan

Law of February 25, 1971 established civil defense organization. Draft rules proposed disaster plan and disaster organization at central and local levels, but as of late 1979, no country plan has been approved.

1968-73 drought precipitated establishment of office of GIRM coordinator. Special fiscal legislation was passed, food processing and distribution systems and logistics/ transportation capability were built up. Recurrence of drought in 1977/78 has prolonged GIRM emergency activity; by late 1979, Plan d'Urgence (Emergency Plan) Office reported directly to Prime Minister's office, and included representatives from Livestock Service, National Cereals Office and Agricultural Service. (Though the office is no longer under Ministry of Rural Development, the director was retained.)

Effective response of GIRM to 1977-78 disaster noted by both mission and LICROSS.

#### 3.2 Red Crescent

Mauritanian Red Crescent, active in 68-74 drought years, provides contingency planning and implementation of food distribution programs for vulnerable sectors of population: pregnant women, children, elderly. Monthly distribution ration per person set at: 300 g. butter-oil, 100 g. dried meat (interior) or 200 g. dried fish (coast), 750 g. rice.

Red Crescent represented in GIRM draft rules as active in civil defense organization at both central and local levels. As of 1976, it had not yet developed disaster plan. Relief organization exists at headquarters and some local offices. Largely dependent on foreign donors for limited stocks of supplies and vehicles.

#### 3.3 US Plan

Disaster relief team organized as follows:

Planning sector:      Headed by MDRO and Food for Peace Officer.  
Responsibilities:    response and strategy,

including liaison with other organizations; reporting; survey and assessment.

Operations sector: Headed by PRO, assisted by PC director.  
Responsibilities: Implementation of relief activities; monitoring commodity stockpiling and distribution; end use checking; providing technical assistance; operational liaison with other organizations

Support sector: Headed by Admin. Officer, assisted by GSO, CRO, FM, and POL. Responsibilities: procurement, financial control, transport/logistics, communications, security, administration, consular, information.

#### 3.4 US Plan Procedures

<u>Activity</u>	<u>Action Officer</u>
Establish contact with local officials	MDRO
Assess extent of disaster and need for US assistance	MDRO & alternate
Based on assessment and GIRM request, determine that disaster exists and notify Washington	Ambassador
Implement disaster plan. Modify to fit current situation (including determination of commodity, technical assistance, and personnel needs)	MDRO & alternate
Request appropriate commodity, technical, and personnel assistance	Admin Officer & support team
Establish contact with other donors to coordinate planning	MDRO & alternate
Prepare appropriate financial procedures	FM

---

Set up command center if necessary	MDRO
Provide daily cable sitreps	Alternate MDRO
Coordinate operations with government and other donors	PRO
Arrange for clearance of commodities	GSO
Arrange for clearance of personnel	POL
Provide technical advice and assistance to government	PRO
Turn over US commodities and monitor distribution and use	PRO
Monitor general relief and rehabilitation operations	PRO
Maintain commodity accountability records	GSO
Prepare survey reports	Alternate MDRO
Prepare final disaster report summary	Alternate MDRO with all team members

### 3.5 TDY Needs

Technical (engineering, medical logistics, etc.), communications, secretarial and information personnel assistance may be required in event of disaster. REDSO/Abijan, AID/W and State Department may be asked to assist in expediting transshipment of sea-shipped supplies from Dakar.

3.6 Host Contact List

<u>Officer/Office</u>	<u>Duties</u>	<u>Telephone</u>
Dr. Oumar Ba Min. Rural Development	Planning and Coordination	52020
Maloukif El Hacen Deputy Director, Cereals Office	Logistics, Dis- tribution and Transport	52911
Dr. Youssouf Diagaña Min. of Health	Health	52020 X 327
Civil Protection Office, Ministry of Interior		52253

3.7 US Mission

	<u>Location</u>	<u>Telephone</u>
Food for Peace Officer- Bob Kidd	USAID Office	52768
All other personnel (see US mission staff)	Embassy	5260
Peace Corps director		51781

NB - Peace Corps director and AID personnel may be contacted at all hours via embassy radio, as may all other personnel during non-duty hours.

3.8 Agencies

Mauritanian Red Crescent  
Avenue Gamal Abdel Nasser  
Nouakchott  
Tel 2670

Lutheran World Federation  
P.O. Box 431  
Nouakchott  
Teléx: 557 MAFRIC Pour FLM; Tel 52990

Caritas  
P.O. Box 358  
Nouakchott

Catholic Relief Services  
P.O. Box 539  
Nouakchott  
Tel 51623; after hours 52345

UNDP  
General de Gaulle St.  
Nouakchott  
Cable: UNDEVPRO Nouakchott  
Telex: 935-52; Tel 52409

World Food Program  
c/o UNDP Office  
Tel 52793

### 3.9 OSRO Mission (10/77)

#### Donors

Federal Republic of Germany	Mr. K. W. Gall, expert in food security (Senegal)
United Kingdom	Mr. Humphreys, ODM
United States of America	Mr. W. Pearson, Chief Advisor, USAID
France	Mr. Leger, agriculturalist, FAC
WFP	Mr. Sorby, MATF
FAO/OSRO	Mr. P. Basesjou, WFP advisor in Nouakchott
	Mr. A. Gara, FAO/OSRO consultant, team rapporteur

#### Host Government

Mr. Boucoum Mohamed	Director of Agriculture
Mr. Loulaïd Ould Wadad	Director of CNERV
Mr. Maloukif Ould Hacen	Assistant Director of OMC (Mauritania cereal office)
Mr. Toure Abderrahman	Director for Protection of the Environment
Mr. Moulay Abdallah	Director of Hydraulics
Mr. Dah Ould Mohamed Lamine	Deputy Director of Livestock, Zone III

### 3.10 OSRO Contacts

Mr. Boulares, acting resident representative of the UNDP at Nouakchott  
Mr. H. Duret, Chief of MATF at Nouakchott  
Mr. R. Le Sueur, acting delegate of the EEC at Nouakchott  
Mr. Nagel, Ambassador of the FRG

Mr. G. Tenvelde, representative of the World Lutheran Federation at  
Nouakchott  
Mr. Ahmed Ould Med. Salah, Acting Minister for Rural Development  
Mr. Sar, Assistant Director-General of FAO at Accra  
Dr. Oumar Ba, Minister of Rural Development  
Mr. Soued Ahmed, Secretary-General of Rural Development  
The governor of Rosso  
The governor of Kaedi

### 3.11 Host Funding and Resources

In 1973, costs of distributing emergency food relief were met by levy of 1% of sales on commercial and industrial firms and equivalent of one day's pay from salaried employees.

Dependent on donor assistance, local crops and imports. Storage facilities in all major cities: Total capacity 20,000 tons. Food ration system exists. US soy-fortified grits acceptable throughout country, according to mission.

### 3.12 Transport

Overland: GIRM 300-vehicle truck fleet, reduced by war to perhaps 60 (10/78), supplemented by contract commercial trucks. Mission deems adequate for drought relief activities. (Most imports, including US emergency food shipments, come overland from Dakar, since until recently Nouakchott had no alongside dock capability.)

Planes: Air Mauritania has 2 Fokker F-27 passenger craft, 1 DC-4 and 1 DC-3. Mauritanian Air Force has 2 sky vans. All other aircraft registered in country strictly light planes, few of these.

Field capacity: Nouadhibou: Caravelle/Boeing 727/DC-10 type craft. Kaedi, Zoverate - F-27; Atar, Aloun took C-130's in 1974, but runways broken up. Airfields in other regional capitals limited to DC-3's, often closed during rains. Navigational aids and fuel supplies in regions erratic. Light aircraft can be rented from flying club - no pilots provided.

### 3.13 Communication

GIRM administrative radio net includes all regional capitals and some secondary towns. Post office maintains telex and telephone services with some regional capitals and Dakar. Regular aviation radio exists only at Nouakchott and Nouadhibou.

### 3.14 Storage

Grain storage not critical problem in desert areas or at ports; tarps with provisions for ventilation and fumigation sufficient. In south, where rainfall is higher, greater protection is needed. Present storage facilities include:

2,300 T of unused silos at Kaedi  
9,000 T of warehouses as follows:

Nouakchott	2	(40 M X 10 M)	1,450 T
Rosso	2	(40 M X 10 M)	1,450 T
Aleg	1	(40 M X 10 M)	725 T
Kaedi	1	(40 M X 10 M)	725 T
Bouge	1	(40 M X 10 M)	725 T
Kiffa	1	(40 M X 10 M)	725 T
Selibaby	1	(40 M X 10 M)	300 T
Aioun	1	(40 M X 10 M)	725 T
Nema	1	(40 M X 10 M)	725 T
Tikjka	1	(40 M X 10 M)	725 T
Atar	1	(40 M X 10 M)	725 T
Total	13	Warehouses	9,000 T

Financing is now being arranged for a CILSS project to put up 60,000 T of silos at a cost of US \$6,000,000, with contributions from the ADB and from the Netherlands through UNSO. The project will consist of seven delivery and seven distribution hangars.

3.15 US Volags

<u>Agency</u>	<u>Intl/Local Staff</u>	<u>Programs</u>
Catholic Relief Services	3/2	Equip & Mat Aid; Med & PH, Nutrition, Women, Youth
Goodwill Industries	consultant only	Ind Dev; SW
Intl Voluntary Services	1/-	Med & PH
Lutheran World Relief	5/20	Equip. & Mat Aid; Food Prod & Ag; Med & PH Nutrition, SW, Women, Youth
Marist Missionary Sisters	3/-	Med & PH

Key

Equip & Mat Aid  
 Food Prod & Ag  
 Ind Dev  
 Med & PH  
 SW

Equipment & Material Aid  
 Food Production & Agriculture  
 Industrial Development  
 Medicine & Public Health  
 Social Welfare

3.16 Disaster Types and History

Drought, at least recently accompanied by secondary effects of famine and epidemic, is only major natural hazard. Cyclical alternations of drought and normal rainfall conditions are characteristic of Mauritania, as of entire Sahel. Periods of sub-normal rainfall have occurred at turn of century, in 1913-14; in the early 1940's and, more recently in 1968-73. The 1913-14 and 1968-73 droughts were more severe and widespread than others. Timing of rainfall, optimally in planting/growing seasons, as important as quantity. Impossible to predict fluctuations in rainfall on basis of current data series.

Lesser disasters, seasonal flooding and insect infestations, usually handled by local government.

Summary Disaster History

<u>Disaster</u>	<u>Location</u>	<u>Date</u>	<u>No. Killed</u>	<u>No. Victims</u>	<u>Dmg (\$000)</u>
Drought	Nouakchott & Kandossa	1/65	n/a	46,000	n/a
	Nationwide	71	n/a	505,000	1,500
	Nationwide	72	n/a	520,000	1,500
	Nationwide	73	n/a	1,300,000	34,000
	Kiffa, Attar & Nouakchott	77	n/a	1,300,000	n/a
	Kiffa, Attar & Nouakchott	79	n/a	n/a	n/a

#### 4. Population

##### 4.1 National Population

1976 census put population at 1,481,000 (1979 IBRD estimate is 1,618,000). At time of census, approximately 27% classed as nomadic, 42% rural sedentary and 31% urban. (1959 breakdown: 78% nomadic, 16% sedentary farmers, 6% urban, indicates changes due to development of modern sector and to extended 1968-73 drought.) Annual growth rates relatively low, 1.6-2.2%, because of high infant mortality and Moorish social customs of monogamy, frequent divorce and little premium placed on having many children. Average population density of 1 person/km sq. varies greatly; great majority of population lives in narrow belt of land just north of Senegal River: 80% of people live in less than 15% of land area, in south and in vicinity of Nouakchott.

60% of population now classed as urban, 30% rural farmers and only 10% nomadic. Sweeping social changes: formation of squatter settlements of displaced nomads around major cities and transport routes, movements of nomads into fluvial regions, put increasing pressure on agricultural land and GIRM resources. Sedentarization rate estimated at 20%/annum by Livestock Service in 1978.

##### 4.2 Regional Distribution (January 1977)

<u>Region</u>	<u>Sedentary</u>	<u>Nomad</u>	<u>Total</u>
Nouakchott	134,986	-	134,986
Region 1 (Nema)	74,110	140,000	214,110
Region 2 (Aloun)	62,262	72,000	134,262
Region 3 (Kiffa)	89,192	53,000	142,192
Region 4 (Kaedi)	139,680	22,000	161,680
Region 5 (Boghe)	104,915	54,000	158,915
Region 6 (Rosso)	121,460	95,000	216,460
Region 7 (Atar)	40,071	22,000	62,071
Region 8 (Nouadhibou)	24,385	3,000	27,385
Region 9 (Tidjikja)	32,513	42,000	74,513
Region 10 (Selibaby)	74,545	20,000	94,545
Region 11 (Zouerate)	22,010	2,000	24,010
Region 12 (Akjoujt)	9,817	10,000	19,817
Tiris el Gharbia*	11,886	3,000	14,886

	<u>Sedentary</u>	<u>Nomad</u>	<u>Total</u>
Total Population	941,832	538,000	1,479,832
of which: Urban			(318,676)
Rural			(1,161,156)

\* As of 8/79 Mauritania no longer claims this territory.

Source: World Bank, Recent Economic Development, 1979.

#### 4.3 Urban Area

<u>City</u>	<u>Population</u> <u>(1976 Census)</u>
Nouakchott	134,386
Nouadhibou	21,961
Kaedi	20,848
Zouerate	17,474
Rosso	16,466
Atar	16,326
Kiffa	10,629

Source: Europa Yearbook 1978-79.

## 5. Health, Nutrition and Housing

### 5.1 Health Sector Overview

Lack of health statistics, due partly to majority of population having little or no access to health care infrastructure, makes assessment of disease incidence and impact tentative. Endemic diseases include: chicken pox, dysenteries, gonorrhoea, helminthiasis, hepatitis, leprosy, malaria, measles, meningitis, pertussis, plague, schistosomiasis, syphilis, tetanus and tuberculosis. Of these, the following have major impact on country's health status:

**Malaria:** endemic area extends from fluvial zone north to latitude of Nouakchott and to oases in far north. Estimated 70% of population have been infected. Falciparum malaria, more common in Senegal, limited to river basin.

**Respiratory diseases:** aggravated by desert's extreme variations in daily temperature and sand in air. Major cause of death, especially in crowded refugee camps. Tuberculosis, pneumonia, bronchitis common, influenza less so.

**Childhood diseases:** measles, whooping cough, chicken pox reach epidemic proportions in susceptible nomad populations and are particularly virulent in drought-associated conditions of crowding and malnutrition. (Vaccination has not been generally available.)

**Enteric diseases:** diarrheas, dysenteries and helminthic infestations contribute to high infant and early childhood mortality even in times of normal rainfall; effects aggravated by malnutrition, poor sanitation, crowding. Localized epidemics of cholera and typhoid around refugee camps during drought.

**Schistosomiasis:** most common in fluvial zone; there, prevalences of urinary schistosomiasis range from 10% in Senegal delta to 40% near Mali border

**Tetanus:** common in newborn in rural areas.

### 5.2 Vital Statistics (1977)

Birth rate/1,000 population	44.8
Death rate/1,000 population	24.9
Infant mortality/1,000 live births	169.0
Life expectancy at birth	42

Source: World Bank, Recent Economic Developments, 1979.

### 5.3 Health Facilities

Ministry of Health and Social Affairs has 2 branches: Directorate of Health and Directorate of Social Affairs, each functioning autonomously on separate budgets; integration between two quite weak. Former handles most health care services and administers training programs, latter is responsible for maternal and child care programs. WHO assistance aims to integrate branches into basic health program. No provision in ministry for collection of accurate health statistics. Health care needs for drugs, personnel and infrastructure are heavily subsidized by external systems.

Health facilities as of 1977 were as follows:

#### GIRM

In Nouakchott district: 1 national hospital (254 beds), 4 health centers (consultations), and 3 specialized centers.

In regions: 6 regional hospitals (which in principle have surgery, maternity, x-ray, laboratory facilities, 25-150 beds); 48 other out-stations (primarily concerned with curative medicine); 13 mobile teams and 13 PMI's (mother/child centers) provide preventive care.

#### Private

Three private polyvalent clinics financed by mining companies provide complete medical care to miners and dependents.

Only major hospital, national hospital in Nouakchott, built by European development fund, is being expanded from 135 to 450 beds. Pediatric, psychiatric and intensive care units available. French-speaking staff.

Otherwise, dispensaries and medical centers are of poor quality. For example, facilities of tenth region comprise hospital with 26 beds, located in Selibaby, and 9 small dispensaries. Region staff includes 3 state nurses and 5 certified nurses. Capabilities are limited to simple surgery, while supplies consist of first aid materials, except for some medicines at Selibaby hospital.

#### 5.4 Cold Storage

Cold storage facilities in Pharmarim (agency responsible for drug importation and storage), in some private businesses, regional hospitals (refrigerations and freezers), and possibly in rural health centers. No dry ice available. Cold chain in health mobile teams and in cattle breeding services.

#### Distribution of Health Facilities by Region, 1973

<u>Region</u>	<u>Medical Districts</u>	<u>Hospitals</u>	<u>Dispensaries</u>	<u>Health Stations</u>	<u>PMI</u>	<u>Mobile Units</u>	<u>Private Clinics</u>
I	1	1		9	1	2	
II	1	1		4	1	1	
III	2	2		13	1	2	
IV	1	1		11	1	1	
V	3		3	14	1	2	
VI	3		3	16	4(a)	1	1
VII	2	1	1	7(b)	1	1	1
VIII	1		1		1	1	1
Nouakchott	3	1	3	1	2(c)	2	
Total	17	7	11	75	13	13(d)	3

a Includes a maternity.

b Including Bir Moghreïn dispensary, run by military personnel.

c One of which is a pilot PMI.

d Each mobile unit consists of one state nurse, one nurse brevete, one nurse's aide, one workman and a chauffeur.

Source: Ministère de la Santé, Mauritania, as cited by Ministère de la Planification et du Développement Industriel, 1973.

5.5 Health Personnel

1 physician per 16,840 population (1976); 1 nursing person per 2450 population; 1 hospital bed per 2320 population (1/600 urban, 1/3,628 rural).

Regional Distribution of Health Personnel

	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>	<u>VII</u>	<u>VIII</u>	<u>Total Region</u>	<u>Nouakchott</u>	<u>Total</u>
Doctors	6	7	12	3	4	5	4	2	43	22	65
Dentists									0	2	2
Pharmacists									0	3	3
Anesthesiologists									1	1	2
State nurses	5	5	7	9	8	9	6	3	52	33	85
Nurses brevetes	14	11	21	21	21	23	13	7	131	63	194
Nurses aids	5	2	25	22	21	26	14	1	116	35	151
Midwives	1			1		3			5	9	14
Diagnosticians	2					2			4	6	10
Matrones	3		2	3	3	7	4	1	23	7	30
Other	28	17	30	43	28	35	14	6	201	220	421

Source: Ministère de la Santé, Mauritanie, as cited by Ministère de Planification et du Développement Industriel, 1973.

5.6 Diet

Calories: 2318 (FAO)

Protein	Carbohydr	Fat	Calc	Phos	Iron	Sodium	Potas	Vit-A
43.5g	261g	116g	800mg	800mg	14mg	-	-	-

5.7 Food and Drink

Flour: Wheat, eaten as bread or pancake in urban areas and northern oases; millet used like wheat, or, crushed, husks removed, steamed with water to make couscous. Flour made from watermelon seeds is used when no other types are available.

Meat:	Mutton, goat, occasionally camel or donkey, seldom beef, most of which is exported.
Milk:	Cows' (preferred), goats', fresh and soured.
Fat:	Butter, peanuts, animal fat; fish oil (coast)
Fish:	Dried fish in south and along coast; fresh fish in modern sector and on coast.
Grains:	Sorghum, millet, rice, corn, wheat.
Legumes:	Peanuts, cowpeas, beans.
Vegetables:	Sweet potatoes, okra, sweet corn, squash. Beets, cabbage, carrots lettuce, onions, peppers, radishes, tomatoes are recent arrivals.
Fruits:	Watermelon, dates, licorice, other local fruits commonly eaten; mangoes, bananas, limes are new arrivals.
Beverages:	Sweet green tea, milk.

5.8 Regional Foods

<u>Area</u>	<u>Major Foods</u>			
	<u>Staple</u>	<u>Accompaniment</u>	<u>Staple</u>	<u>Emergency Accompaniment</u>
Sahara and Sahel (pastoralists)	millet milk dates	meat milk butter	rice wheat	milk powder
Southern Sahel (Senegal Valley farming communi- ties)	millet sorghum maize- flour sweet- potatoes	vegetables pulses fish meat peanut oil	rice wheat	milk powder

### 5.9 Seasonal Diets

Mauritanian diet varies with seasons: Milk consumption rises in rainy season, falls during soudure. Grain reserves are lowest during rainy season; harvesting begins in July in Senegal Valley, continues into December as rain-fed grains ripen. Second flood plain harvest, in February and March, supplies some cereal during soudure, augmented by wild grass seed, fonio.

### 5.10 Consumption by Food Type

	<u>Grams/Person/Day</u>	<u>Calories</u>	<u>Protein (grams)</u>
Cereals	299	1,038	28.9
Legumes	29	101	6.6
Dates	29	39	0.2
Meat	94	154	12.1
Milk and derivatives	470	362	20.2
Fish	31	26	4.8
Sugar	56	217	-

Source: Data from FAO Food Balance Sheets, 1964-66.

Note: Cereal requirements rise as sedentarization increases and fewer people subsist on products of their herds.

### 5.11 Malnutrition

When normal food supply is available, diet is nutritionally adequate, though low in vitamin C. Few cases of kwashiorkor seen in young children due to presence of milk in diets of all age groups. Even during drought marasmus more common than kwashiorkor; scurvy, beri-beri, vitamin A deficiency reported in refugee camps.

### 5.12 Housing

Traditional:

Moorish nomads prefer woolen cloth tents of 5-6 person capacity: each nuclear family has separate tent, which may be shared with 1 or 2 older relatives. Closely related families may pool resources (animals)

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and pitch tents together, but still occupy separate units. Settled Moors build individual circular mud huts for nuclear families; huts of extended family grouped in circle.

Sedentary Blacks in river valley build mud brick-walled, thatch-roofed one room huts, with earthen floors, no windows. In dry season, most activities take place outside in straw shelter equipped with mosquito nets. Sarakole extended family (15-50 members) household includes separate houses and granaries enclosed within fence or earthen wall.

Typical Peulh dwelling is dismountable beehive-shaped hut.

Modern:

Inadequate manpower and capitalization limit capabilities of GIRM-created housing company, the Building Society of Mauritania (SOGOCIM). Building program: 4,000 units, half of them low-cost, to be constructed over 4-year period. In 1975, Egyptian, Kuwaiti and Mauritanian interest combined to form new company, Afarco-Mauritanie, to develop housing and hotel space. Government provides fiscal incentives and regulations (civil servants cannot occupy public housing; all unoccupied housing will be taken over by government).

## 6. Economy

### 6.1 Overview of Economy

Extreme case of dual economy with little interaction between modern and traditional sectors; geographic separation of modern industrial (mining and fishing), administrative and traditional agricultural sectors further complicates situation. Three production centers: 1) mining and commercial fishing areas in north, centered on main export port of Nouadhibou; 2) administrative and refugee population nucleus in country's central capital of Nouakchott; and 3) agricultural lands of Senegal River basin along southern border are separated by vast, essentially uninhabited stretches of desert and dry steppe. Nouakchott is 100 mi. north of river valley, 400 mi. south of mining areas. Transport and communications infrastructure concentrated in north: mine-port link was original focus, but GIRM is emphasizing capital as road transport center and upgrading port of Nouakchott (see Ports, section 9.6). Traditional trade linkages between southern farming regions and Mali and Senegal stronger than with north; as a consequence, up to 25% of total foreign trade occurs as unrecorded transactions along this border.

During 1960's the economy grew about 10% per year in real terms due to development of iron ore mining and expansion of livestock. Since then, however, growth has slowed to less than 2% per year after a series of severe droughts. A slow recovery began in 1974-75 but was offset by a doubling of petroleum prices, stagnation of the world steel market and a drain of scarce resources for defense efforts against the Polisario. Drought struck again in 1977 and more than 100,000 tons of grain had to be imported, of which only about 1/3 was grant-financed. By the end of 1977 balance of payments had a US\$ 45 million deficit and net reserves of the Central Bank were in a negative position, despite adoption of an austerity plan in August 1977.

Mining is mainstay of economy: accounts for 22% of GDP; 80% of export earnings; 25% of total public revenues; and is second largest employer after the government with total of 4,800 workers. Iron ore mining also indirectly supports construction, road transportation, port services and public utilities which together represent 10% of GDP. Remaining ore reserves at the Kedia mine permit production only until the late 1980's; to continue exploitation, GIRM hopes to begin first phase operation of the Guelbs project by 1982-83. This project calls for exploitation of El Rhein and Oum Arwagen deposits, both located near present mining city of Zouerate and existing infrastructure.

Other industrial projects (excluding mining) have for the most part been ill conceived: a sugar refinery and oil refinery both completed in 1977 cannot be operated profitably at present and remain closed. GIRM has now shifted emphasis to employment-creating small to medium scale industries. Currently there are about 72 enterprises employing 5,000 people mainly in Nouakchott and port of Nouadhibou; ownership is almost entirely private.

## 6.2 GDP

GDP during 1970's averaged only 1.7% per year at constant prices, a rate lower than population growth (2.5%/year), resulting in a reduction of the average standard of living.

### GDP by Sector of Origin at Constant 1977 Prices (millions of UM)

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Rural sector	4,620	5,220	5,360	4,650
Livestock	3,940	4,470	4,700	4,000
Agriculture	360	410	320	290
Fishing	260	280	280	300
Forestry	60	60	60	60
Industrial sector	6,820	5,020	5,600	4,900
Mining	5,220	3,290	3,730	2,950
Fish processing	170	180	180	200
Other industries and energy	450	550	650	750
Handicrafts	980	1,000	1,040	1,000
Construction and public works	1,150	1,440	1,700	1,700
Transportation, commerce, and services	2,380	2,280	2,500	2,400
Administration	2,840	3,100	3,850	3,160
Local	1,880	2,090	2,780	4,300
Technical assistance	960	1,010	1,070	1,140

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
GDP at factor cost	17,810	17,060	19,010	17,950
Indirect taxes	2,540	1,940	2,200	2,340
GDP at market prices	20,260	19,000	21,210	20,290
Factor service income	-1,151	-1,213	-1,688	-1,588
Gross national product	19,109	17,787	19,542	18,702

Source: IMF, Central Bank of Mauritania, and mission estimates, as cited by World Bank, Recent Economic Developments, 1979.

### 6.3 Balance of Payments

1977 resource gap reached US\$ 208 million, or 47% of GDP, an amount higher than total export of goods and services. Due to defense expenditures, less world demand for iron ore, and high debt service payments, both the balance of payments and budget will be in disequilibrium for next 5-6 years.

#### Balance of Payments (Millions US \$)(1)

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Exports of goods, NFS	203.6	185.5	202.0	178.9	161.4
Imports of goods, NFS	246.8	307.1	401.9	386.5	352.7
Resource gap (deficit = -)	-43.2	-121.6	-199.9	-207.6	-191.3
Interest payments (net)	-4.3	-5.8	-7.9	-14.6	-13.4
Direct investment income	-6.0	-0.2	-0.5	-0.8	..
Worker's remittances	-16.2	-24.4	-28.4	-27.6	-31.3
Other factor service income (net)	6.6	5.0	2.9	4.3	3.1
Current transfers	66.2	71.6	136.9	115.3	146.1
Balance on current acct.	3.1	-75.4	-96.9	-131.0	-86.6
Direct investment	35.6	-12.7(4)	-49.8(5)	4.4	-6.8
Official capital grants	9.1	10.9	12.0	13.6	15.1
Net MLT borrowing(2)					
Disbursements	43.2	46.9	184.7	77.1	109.7
Amortization	-2.4	-24.0	-19.4	-22.6	17.5
Subtotal	40.8(3)	22.9	165.3	54.5	92.2
Other M and LT loans	-3.1	-2.3	-3.3	-1.9	2.2
Short term capital	-43.6	-0.5	-2.0	12.5	..

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Other (incl. errors and omissions)	2.7	4.2	-11.3	2.7	3.3
Change in official reserves (- = Increase)(6)	44.5	52.8	-18.0	45.2	-19.2
Gross reserves (end year)	99.7	50.1	81.3	55.1	87.3

- 1 Converted into US dollars using prevailing exchange rates.
- 2 Excluding loans for balance of payments support.
- 3 Excluding MIFERMA and SOMIMA.
- 4 Including a payment of UM 920 million for the acquisition of SOMIMA.
- 5 Including UM 2,281 million repayment to MIFERMA shareholders.
- 6 Figures may not sum due to rounding.
- 7 Debt service net of interest earned on foreign exchange reserves as a percentage of Exports of Goods and non-factor services.

Source: World Bank, Recent Economic Developments, 1979.

#### 6.4 Imports

Heavy dependence on imported staple foods and other consumer goods due to limited range of output. Total value of imports doubled between 1973-77 due to recurring drought, rise in world commodity prices (particularly petroleum) and inflation. France chief source of imports followed by UK, Senegal and West Germany. See also Agricultural Imports, section 7.6.

	<u>Imports</u>				
	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Through Central Bank channels(1)	7,120	7,740	11,300	10,680	9,354
Foodstuffs	3,510	2,370	2,460	2,850	..
Other consumer goods	580	560	1,210	1,300	..
Petroleum products	830	1,070	640	430	..
Vehicles & electrical equipment	540	1,350	1,860	1,100	..
Building material	470	460	420	480	..
Other(2)	1,190	1,930	4,710	4,520	..

	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Outside Central Bank channels	3,158	2,713	3,001	2,660	2,973
Total goods, cif	10,278	10,453	14,301	13,340	12,330
Non-factor services	870	2,810	3,770	4,323	3,967
Total imports					
Goods & NFS	11,148	13,263	18,071	17,663	16,297

(1) Based on Central Bank payment records, not on customs data.

(2) Including military equipment.

(3) Mostly food grants and investment goods financed with foreign loans.

Source: Central Bank of Mauritania, IMF, and mission estimates as cited by World Bank, Recent Economic Developments, 1979.

### 6.5 Exports

Iron ore earnings are major source of export revenues: up to 80% of total. However, since 1975, stagnation of the world steel market has caused decline in iron ore production (export earnings dropped from UM 6,867 million in 1976 to an estimated UM 4,585 million in 1978). Fish and fish products totalled UM 921 million in 1977, while copper concentrate exports were valued at UM 435 million. Gum arabic and live cattle are also exported. Main export recipients are France, Spain, Italy and Japan.

#### Exports 1973-78 (millions of UM)

<u>Exports</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	Provisional <u>1978</u>
Iron ore	4,580	5,900	6,194	6,867	5,716	4,585
Copper concentrate	570	1,460	193	332	483	435
Fish products	547	730	692	727	921	970
Other products	277	352	133	88	47	34
Total goods	5,974	8,442	7,212	8,014	7,167	6,024
Non-factor services	470	760	801	1,070	1,007	1,432
Total exports of goods and NFS	6,444	9,202	8,013	9,084	8,174	7,456

Source: World Bank, Recent Economic Developments, 1979.

## 7. Agriculture

### 7.1 Overview of Agriculture

Agricultural activities, including stockraising, fall largely within traditional economy. July-October dryland crop production depends on rainfall (recently erratic), while November-March flood recession crop is limited by availability of water to Senegal River basin and scattered northern oases. Even in south, livestock raising is dominant activity, contributing 75% of value added by traditional sector. Modern farming inputs and techniques are confined to scattered foreign aid projects, though largescale animal vaccination programs led to 6% per year increase in national herd in 1960's, ended by onset of drought in 1968-69. Both livestock and farming productivity rates are low: 25 to 50% of those achieved in developed countries.

At present, virtually all agricultural production is accomplished by hand labor without benefit of fertilizers (other than chance deposits of animal manure) or pesticides. Poor planting practices, inferior crop varieties, insect infestations and bird and domestic animal damage to standing crops contribute to chronic low yields, made worse in recent years by drought's degradation of soils, vegetation and water supplies. Periodically, wind erosion and soil exhaustion force abandonment of fields. Increasing population densities due to higher birth rates in sedentary groups and to migration from drought-stricken north necessitate cultivation of land formerly used for grazing or left fallow; increased conflict between pastoralists and farmers over land and water rights in southern regions follow. Different land tenure systems aggravate conflict: Moors recognize individual ownership which includes right to assign use of land, but sedentary peoples generally practice communal ownership with disposition rights assigned to a "master of fields".

Rural development projects have concentrated on irrigation infrastructure development in order to increase area of cultivable land, especially in Senegal delta, where dry season intrusion of salt water prevents double cropping. Large-scale irrigation projects have had limited success because implementation techniques conflicted with traditional land tenure systems and work habits. A.I.D. is achieving better production with village-based irrigated farming, using modern equipment and techniques, on Senegal side of river; testing now being conducted in Mauritanian farming villages.

Lack of farm-to-market transport, scarcity of markets in Mauritania and inability of GIRM to enforce price controls inhibit movement of produce beyond locality of production. Higher grain prices in Senegal further increase likelihood of surplus grain produced in riverine villages being

exported rather than trekked to northern population centers. Traditional distinction between millet/sorghum-eating southerners and wheat-eating northern nomads is now complicated by growing demand for rice, most of which is imported. All these factors reinforce subsistence character of farming, since farmers' prospects of adequate return on sale of surplus are poor.

Stockraising was traditionally oriented toward acquisition of large numbers of animals for prestige and to supply sufficient milk to sustain owner's family, rather than as source of meat or income. Growth of national herd due to vaccination and well development programs in 1960's brought increasing ecological imbalance, somewhat restored by 40% die-off of cattle herd during drought years. Pasture deterioration, growth of toxic grasses aided by overgrazing and erosion. Productivity rates are still limited by inadequate watering, poor pasturage and disease to about half those characteristic of developed countries. 1977 livestock population estimates: cattle: 1,115,000, sheep and goats: 7,000,000, camels: 7000,000, horses and donkeys: 16,500; total: 8,831,500.

## 7.2 Crops and Acreage Under Cultivation

In south, 15 varieties of red and white sorghum, with maturation periods ranging from 90 to 150 days; 3 varieties of millet and 2 of maize are major crops. Supplementary crops include cowpeas, peanuts, beans, rice, sweet potatoes, okra, squash and cotton. Vegetables newly introduced for market gardening include beets, carrots, cabbage, lettuce, onions, peppers and tomatoes. Mangoes, bananas and limes are also new to area.

Northern oases produce significant quantities of dates, some wheat and barley.

<u>Crop</u>	<u>% of land planted</u>	<u>Yield kg/ha</u>
Sorghum	75	400-800
Millet	5	500
Corn	8	725
Peanuts	6	500
Rice	4	n.a.

7.3 Agricultural ProductionEstimated Agricultural Production, 1973-78  
(in millions of tons)

	<u>1973/74</u>	<u>1974/75</u>	<u>1975/76</u>	<u>1976/77</u>	<u>Est. 1977/78</u>
Millet/sorghum	50,000	45,000	36,000	21,000	14,000
Maize	1,500	2,500	2,000	1,500	1,200
Niebe	2,060	3,000	2,500	2,000	1,000
Beref	700	1,000	800	700	400
Potatoes	700	800	750	650	500
Rice	3,000	3,843	3,960	5,000	6,000
Wheat & barley	150	400	350	300	350
Dates	10,400	10,000	11,000	12,000	13,000
Other fruits	2,600	-	-	-	-
Vegetables	1,400	1,600	1,800	2,000	2,000
Other	1,082	-	-	-	-

Source: World Bank, Recent Economic Developments, 1979.

Livestock and Livestock Products, 1977

<u>Livestock</u> ( <u>'000 head</u> )		<u>Livestock Products</u> ( <u>metric tons</u> )	
Cattle	1,400	Beef	13,000
Sheep	4,700	Mutton & lamb	7,000
Goats	3,100	Cows' milk	47,000
Asses	180	Sheeps' milk	43,000
Horses	16	Goats' milk	61,000
Camels	700	Hen eggs	2,465
Poultry	2,900	Cattle hides	1,894

Source: FAO estimates as cited by Europa Yearbook, 1978.

7.4 Crop Dates

Sorghum/Millet:

Flood Plain

Planting

Harvest

March - April  
July - September

December - January  
February - March

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Rainfed	
Planting	May - July
Harvesting	October - December
Rice:	
Planting	May - August
Harvesting	October - November

### 7.5 Current Status (1979)

Livestock situation continues to be critical. Recent FAO/OSRO report has recommended programs for animal feeding and desert encroachment control. Rains in September have improved grain crop and pasture conditions but assessment of harvest prospects not yet possible. Grain crops seriously affected by poor rains in early August.

### 7.6 Imports

Normally 20-25% of cereal requirements are imported but wide fluctuations in levels must be anticipated. Rice, wheat and wheat flour constitute major official food imports, but unofficial imports of sorghum from Senegal and Mali have been estimated at 10-30,000 tons per annum. See also General Imports, section 6.4.

### 7.7 Exports

Traditionally, major agricultural export was cattle, for which no real market existed in country. Illicit traffic across Senegal and Mali borders common; estimates of number exported vary widely, but approximated 150,000 - 250,000 animals yearly in last decade.

## 8. Physical Geography

### 8.1 Climate

Four climatic zones:

Nouadhibou -- Maritime influence: prevailing NW wind moderates temperature. Warmest month is September (34°C), coolest January (13°C). Approximately 6 rainy days.

Nouakchott -- Some maritime influence, but hot season temperatures are similar to those in interior.

Fluvial -- 10-20 mile wide belt along Senegal River characterized by 12-26" annual rainfall which occurs in distinct July-October season. Mean annual temperature range 74-94°F. High humidity along river, mist common. Tornadoes common during rainy season.

Saharan -- Northern 2/3rds of country. North of 150mm Isohyet experiences hot days, cool nights; warmest period (45°C) occurs in July and August; December and January are coolest (13°C). Rare torrential rains fall between July and September, but great annual variability (Qatat has received as much as 10" of rain in one year, and as little as no rain in 5 years.) Extreme variation in daily temperature, 99°F in summer, 68°F in winter. Prevailing wind, harmattan, is hot, dry, dust-bearing northeasterly.

Some climatologists prefer to designate coastal or sub-Canarian zone, including both Nouadhibou and Nouakchott, based on presence of prevailing oceanic winds that bring humid, relatively temperate, climate. Rainfall minimal, less than 1" annually, falls between July and September. Mean temperature maxima 83°F in Nouadhibou, 89°F in Nouakchott, minima 61°F and 67°F.

Rainy season in the Sahel (July - October) characterized by extreme variability with precipitation ranging between 6" in north and 18" in south. Daily variation in temperature 60F - 70F. Prevailing wind, as in Sahara, is harmattan, but moisture content slightly higher.

### 8.2 Temperatures (Fahrenheit)

<u>Station</u>		<u>Jan</u>	<u>Apr</u>	<u>Jul</u>	<u>Oct</u>	<u>Extreme</u>
Atar	Maximum	84	97	106	98	117
	Minimum	54	67	81	72	39
Nema	Maximum	86	105	99	101	120
	Minimum	62	79	78	79	47
Nouakchott	Maximum	85	90	89	91	115
	Minimum	57	64	74	71	44

Source: Climates of the World, 1972.

### 8.3 Precipitation (inches).

<u>Station</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
Atar	-	0.0	-	-	-	0.1	0.3	1.2	1.1	0.1	-	-
Nema	0.1	-	-	-	0.7	1.1	2.3	4.7	2.1	0.7	-	0.1
Nouakchott	-	0.1	-	-	-	0.1	0.5	4.1	0.9	0.4	0.1	-

Source: Climates of the World, 1972.

### Precipitation Comparisons (millimeters)

<u>Station</u>	1977 overall rainfall	Normal (N) (1941-70)	Comparison 1977/N	1976 overall rainfall	Comparison 1977/76
Aleg	(100.7)	227.6	44%	145.5	69%
Aioun El Atr.	102.8	281.7	36%	98.7	104%
Akjoujt	20.2	70.7	29%	79.0	26%
Atar	3.7	74.6	5%	91.6	4%
Boutilimit	35.5	163.5	22%	94.0	38%
Boghe	105.6	297.7	35%	228.0	46%
Bir Mogrein	0	15.2	0	2.4	0
F'Derik	13.1	29.0	45%	53.6	24%
Kiffa	169.2	326.8	52%	285.4	59%
Kaedi	227.5	339.5	67%	211.1	108%
Mederdra	-	213.1	-	183.0	-

<u>Station</u>	<u>Precipitation Comparisons</u> (millimeters)				
	<u>1977</u> overall <u>rainfall</u>	<u>Normal (N)</u> (1941-70)	<u>Comparison</u> 1977/N	<u>1976</u> overall <u>rainfall</u>	<u>Comparison</u> 1977/76
Nouakchott	2.5	115.0	2%	48.8	5%
Nema	95.6	271.9	35%	196.6	49%
Nouadhibou	Trace	11.2	0	3.0	0
Rosso	123.3	256.5	48%	227.5	54%
Selibaby	351.7	574.1	61%	304.6	115%
Tidjikja	44.6	135.8	33%	66.2	67%
Tamchekett	95.5	224.7	43%	207.2	46%

Source: OSRO Multidonor Report, 1977.

#### 8.4 Landforms

1,085,210 sq km in area (twice the size of France); vast dry plains extend from Senegal River basin, the southern border with Senegal, 800 miles north to Morocco and former western Sahara (NW) and Algeria (NE). Maximum east-west extent, from Atlantic coast to eastern border with Mali, is about 750 miles.

Four geographic divisions determined by northward movement of rain-bearing inter-tropical convergence zone:

Southern Sahel (Chemana), including Senegal River basin, comprises 7% of country's land area. Topography consists of lowland savannah flooded annually, with extensive marshes in Senegal delta.

Range of flat-topped, steep-sided hills with crests 700-1400' runs north from juncture of Senegal and Kourogoro rivers to about 22 degrees north latitude where it meets 200-500' escarpments trending northeast to Algerian and Malian borders. Similar escarpments ring Aoukar depression in northeast. Otherwise, plains rise gradually from sea level in west to 400' at Kiffa, 800' near Mali border in southeast and 1,000' in northeast.

Northern Sahel comprises band of level plain and dunes fixed by vegetation, grading into southern Saharan zone south of Nouakchott and Tidjikja. There, dunes, most oriented NE-SW, grade from fixed to mobile,

depending on composition, availability of water for vegetation and intensity of grazing. Sand, which covers 40% of land area, is usual surface material except in extreme north and scattered western areas, where gravel predominates.

Plateaus of Adrar (500 m. elevation) and Tagant (300 m.) are major surface features of southern Sahara. Dunes parallel coast from Aleg in northern Sahel north to capital, from which they extend inland to Adrar mountains. Northern Sahara comprises rocky plains and mobile dunes; lowlands delimited from coast by line of dunes paralleling shore.

Features formed by intermittent action of water include dry watercourses (wadis) dissecting hills and gravel plains and sebkhas, salt flats or marshes which fill with water in rainy periods -- most numerous near coast and northwest border.

#### 8.5 Land Use

Less than one-third of land area is suitable for pasture and farming. Northern half of country is Saharan desert. Less than 15% of land area, southernmost 50-100 miles, receives 10-25" annual rainfall, which, together with annual flooding, provides sufficient water for crops.

No government department has responsibility for agricultural statistics collection. Reports prepared by extension workers of Ministry of Rural Development.

Less than 1% suitable for crops; 0.1% cultivated, 10% pasturage, 90% desert.

Flood recession crops	50,000 ha*
Rain-fed crops	116,000 ha
Irrigated crops	1,200 ha

\* Plus 14,000 ha in dams and R'Kiz projects

#### 8.6 Rivers

Senegal is only permanent watercourse. From source in hills of northeast Guinea, it flows north and west across Mali to form border between Senegal and western Mauritania. No falls break flow along border; thus, river is navigable in rainy season as far as Kayes in Mali and as far as Podor, Senegal, in dry season. Annual floods, triggered in April

by onset of heavy rains in Guinea, move into Mali and Senegal in May and June, cresting at Bakel, Mauritania, in mid-September (45') and at Rosso (12') by mid-October. Entire 15-20 mile wide valley is flooded: water fills depressions (marigots) that retain water well into dry season. By end of dry season flow is so reduced that tidal waters may rise as far inland as Rosso.

**Navigability:** in normal years, the Senegal River is navigable year round by small sea-going vessels as far as Rosso and by river boats as far as Boghe. In flood season, July-November, navigability is extended to Kaedi and Kayes. Though Senegalese river steamers operated as recently as early 1970's, at present very little river traffic exists except for local pirogues. OMVS studying possibility of reviving river transport for carrying bulk low-cost commodities in 1975-76.

River distances:	St. Louis - Richard Toll (Senegal)	200 km
	Richard Toll - Bakel (Senegal)	600 km
	Confluence of Senegal and Faleme Rivers	825 km upstream

### 8.7 Coast

400 mile coastline on Atlantic has only one protected harbor, Levrier Bay, in north near border with former Western Sahara. Shallow offshore waters' shoals and surf limit coastal shipping.

### 8.8 Mountains

Barren sandstone hills of central and south-central Mauritania are steep-sided with flat tops; often deeply dissected by numerous narrow intermittent watercourses. Western margins of central and northern hills are high escarpments cresting at 1,500 to 2,400', 700-1,400' above western plains. Near Mali border in northeast, numerous escarpments 600-1,300' in elevation trend northeastward. Precipitous slopes and loose sand or gravel make cross-country progress difficult.

## 9. Transportation and Logistics

### 9.1 Road Networks

Roads are most significant mode of mechanized transport in Mauritania. GIRM has emphasized transportation, allocating 30% of public investment to sector 1970-77. As of May 1979, approximately 1,050 km of national highway were paved (of 7,140 km total); principal axes of road system: Rosso-Atar highway running N-S (paved from Rosso to Akjoujt); Nouakchott-Nema road running E-W (paved from Nouakchott to Kiffa); and central Boghe-Aleg-Tidjika road (paved only from Aleg to about 125 km NE). To complete the East-West highway, a Brazilian firm has been contracted to build the Kiffa-Nema segment (1979).

Density of road network conforms fairly well to distribution of population and economic activity, but access to most parts of country is limited: dry season sandstorms in north and rainy season flooding in river basin coupled with poor road maintenance force closings for up to 5 months each year. Most routes poorly maintained in part because local soils not suitable for road-building. Vast, thinly populated spaces and harsh climatic conditions make extension and upkeep of transport infrastructure expensive and technically difficult and operation of vehicles costly, arduous and often hazardous.

Road Network As of 1977  
(in km)

	<u>Paved</u>	<u>Improved earth</u>	<u>Ordinary earth</u>	<u>Improved track</u>	<u>Existing track</u>	<u>Total by class</u>
National roads	465	433	1,821	945	1,041	4,705
Regional roads	150	-	120	-	1,460	1,730
Secondary roads	-	-	125	140	390	655
Totals by type	615	433	2,066	1,085	2,891	7,090
Govt. resp.	465	[ 1,341	]	[ 3,279	]	5,085
Maintained	465	[ 994	]	[ 1,070	]	2,529
% total network	9%	6%	29%	15%	41%	100%
	9%	[ 35%	]	[ 56%	]	

Source: DOT, Sahel Transportation Infrastructure, 1978.

## 9.2 Traffic

Most passenger traffic occurs in modern sector on Rosso-Nouakchott-Akjoujt road. Goods traffic, other than that generated by mining industry, consists almost entirely of imported foodstuffs and petroleum products entering through Nouakchott and Rosso. Agricultural products and local goods make up only 16% of total traffic.

In dry season, 25-ton trucks can go at best as far as Nema on sand tracks. In wet season, restricted to paved roads, thus secondary staging point needed at Kiffa to transfer food to 5-10 ton trucks. (Capacity of secondary staging point limited by number of qualified supervisors available.)

As of 1973: 5,654 cars, 5,590 vans and trucks. In 1974, distribution of vehicles by type showed two different patterns: the most heavily traveled north-south roads carried 70% of all light vehicles and 30% of heavy vehicles (more than 1.5 tons), while the rest of the network carried the opposite percentage.

## 9.3 GIRM Capacity

As of January 1978, GIRM had 80 10-12 ton Berliet or Mercedes trucks in working order and another 150-175 scheduled to come into service within 2 years if present rates of maintenance and improvement continue.\*

FAO estimated (10/77) GIRM vehicle pool's carrying capacity at 2,400 T and private vehicle pool's capacity at 3,600 T per month. Average transport cost per kilo of food estimated at 6-7 UM.

Movement between Dakar and Rosso is still limiting factor on Dakar-Mauritania route.

Road maintenance is the responsibility of the Ministry of Construction which is currently being reorganized into a decentralized organization of 11 territorial sub-divisions.

\* However, war in Western Sahara had considerably reduced truck fleet as of Fall 1978.

List and Condition of Present Equipment 1977

Type and Model	No.	Avail- able	Repair- able	Bad	Avail- able	Date of purchase Number/year
Bulldozers D5	7	2	2	3	28%	4/71 - 2/75
Bulldozers D7	3	-	2	1	0%	3/71 - 2/75
Loaders 920	7	2	4	1	28%	5/71 - 2/75
Loaders 955	2	-	2	-	0%	2/71
Grader 120	9	3	3	3	33%	6/71 - 3/75
Hyd. shovel Yumbo	1	-	-	1	0%	1/67
Tractor Ferguson	9	8	1	-	88%	9/71
Roller on tires	3	-	3	-	0%	3/61
Asphalt patcher L 62	2	2	-	-	100%	2/71
Compactor	2	-	2	-	0%	2/71
Vibrating roller	2	1	1	-	50%	2/75
Compressor	3	-	2	1	0%	3/71
Light vehicles	19	10	5	4	52%	5/69 - 71 14/73 - 75
Land rover	16	5	2	9	31%	13/71 - 3/75
Dump trucks GLR 160	19	3	12	4	16%	7/71
Cargo 350 L62	16	5	3	8	31%	16/71
Road tractor TLM 12	2	2	-	-	100%	2/71
Tanker trucks GLR 120	7	4	2	1	57%	7/71
Tanker trucks-Fuel GRH 12	2	2	-	-	100%	2/76
Low boy	2	2	-	-	100%	2/71
Mobile workshop L64	3	3	-	-	100%	3/71
Other light veh.	4	1	1	2	25%	4/71
Motorscraper	3	3	-	-	100%	3/76
Total	143	58	47	38	40%	

Source: DOT, Sahel Transportation Infrastructure, 1978.

9.4 Surface Miles

St. Louis - Nouakchott	190 mi	(5 hrs)
Rosso - Akjoujt	300 mi	
Nouadhibou - F'Derik and Zouerate	420 mi	(railway)
Rosso - Boghe - Kaedi	300 km	
Nouakchott - Nema	1,000 km	

	Nouakchott(km)	Rosso(km)
Atar	475	680
Aleg	454	240
Boghe	429	215
Kaedi	539	325
Kiffa	859	
Aioun-Él-Atrous	1,214	645
Nema	1,394	1,000
Nouakchott - Atar	5 hrs by all weather road	
Atar - Chinguetti	3 hrs	
Chinguetti - Ouadane	60 miles by track	
Tichitt - Tidjika	125 miles (6 day trek by camel)	

9.5 Railroads

670 km, (419 mi.) standard gauge (1.435 m.) single track rail line runs from port of Nouadhibou stopping at Choum\* to iron ore deposits near Zouerate and F'Derik, terminating at Tazadit. Ore shipments constitute bulk of traffic, but small amounts of general merchandise and some passengers are carried on back-haul.

\* IDA 3rd project provided for improvement of road linking rail stop at Choum with Atar, the trade center of the northwest, in order to encourage development of general traffic and better connect Nouadhibou with rest of country.

SNIM-COMINOR, Mauritania railway; Nouadhibou; state-owned, responsible for all freight and passenger service on Nouadhibou-F'Derick railway. All motive power is diesel.

9.6 Ports

Three ports: Nouakchott and Nouadhibou in Mauritania and Dakar, Senegal, handle shipping to Mauritania. Nouadhibou, located on western

shore of Levrier Bay on north coast, has protected harbor free from siltation, handles iron ore shipping, fishing industry vessels and petroleum imports. Due to low population of hinterland, little general cargo passes through Nouadhibou and facilities for handling it are comparatively underutilized.

Less favored by nature, Nouakchott is being developed as major port by GIRM because of role as administrative and refugee resettlement center. Extension of wharf completed expanding capacity from 200,000 tons to 320,000 tons; deep water port construction started. GIRM would like ports of Nouakchott and Nouadhibou to become self-sufficient to reduce use of Dakar as much as possible.

### Dakar

Coordinates: Lat. 14° 40' N; Long. 17° 24' W

General Holidays: New Year's Day (January 1), \*El Mauloud, National Holiday, Easter Monday, \*Labour Day (May 1), Ascension Day, Whit Monday, Assumption Day, (August 15), Korite\*, All Saints Day (November 1), Tabaski\*, Christmas Day (December 25). Labor difficult to obtain.

Currency: Franc C.F.A. (Communaute Financiere Africaine).

Accommodation: A safe harbor formed by two jetties. Water area: 216 ha. Quays: 7,618 m. Good anchorage for any size vessel. Depth at entrance, 10.36 m. (being dredged to 10.97 m.); at quays 6.40 to 11.89 m. Wharves and berths as follows -- southern zone: mole I, 460 m. by 150 m.; four berths with 10 m. water and five with 8 m. Mole II, 290 m. by 100 m. 8.5 m. water. Median bank wharf, two berths, one of 10 m. depth and one of 6.5 m. Mole III, three berths, length 350 m. for large steamers, depth 10 m. Eastern bank wharf, length 200 m., one berth with 10 m. water. Northern zone -- mole IV, three berths (length 460 m.) with depth of 10 m. Mole V, two berths, length 180 m. depth 11 m. on W side, 8 m. on E side. Mole VI: two berths, length 180 m., depth 9 m. North bank wharf, one berth (200 m.) depth 8.5 m. Mole VIII (for fuel) 400 m. long; western side two berths at

wharf for colliers and, oil bunkering, depth 10 m. Table and eastern side--three berths with 10 m. depth. One water barge.

Development: In W zone, a fishing quay is under construction with 1,104 m. of berths, draft 7 m. and 370 m. of berths, draft 10 m.

Shiprepairs: Available

Pilotage: Compulsory in and out

Airport: Aeroport de Dakar, Yoff, 12.8 km transport

Working Hours: Monday - Friday, 08.00-12.00, 14.00-18.00 hrs.  
Saturday, 08.00-12.00 hrs

#### Nouadhibou

Coordinates: Lat. 20° 54' 30"N; Long. 17° 03' W. Terminal for iron ore fields at Fort Derick, over 300 miles in the interior, to which it is linked by railway.

Accommodation: Two berths: 1) depth 7.20 m., length 100 m. 2) depth 4.80 m., length 90 m. Shed space, 300 sq m. open storage area, 24,000 sq m. lock-up storage, 2,200 sq m.; lighters and one tug, 150 h.p. at point-central (mineral pier). 15 km away from Nouadhibou, maximum depth of water alongside quay, 16 m., 17.5 m. in channel. Winds N to NE. Water available.

Development: Proposed enlargement of wharf

Bunkers: Bunkers and fresh water available alongside at Nouadhibou

Shiprepairs: Minor repairs

Pilotage: Not compulsory except for mineral pier

Airport: Nouadhibou, 5 mins. by road

Working Hours: 08.00 to 12.00, 14.00 to 18.00 hours; 07.00 to 08.00, 12.00 to 14.00, 18.00 to 20.00 hours worked in overtime, with extension to 22.00 to finish a vessel. Saturday, 08.00 to 12.00 with overtime up to 20.00. Overtime can be worked on Sunday from 07.00 to 20.00.

Nouakchott

- Coordinates:** Lat. 18°02' N; Long. 16°02' W. Nouakchott wharf is situated about 7 km SSW of Nouakchott.
- Accommodation:** Winds vary from NNW to NE, the predominant wind being NNW, which can affect navigation. Rapid onset of bad weather should be noted. When conditions are bad, vessels should weigh anchor and proceed seaward as the coast offers no natural shelter. At the lighterage, quay depth of water varies between 7 and 8.5 m. The working platform is 86 m. by 21 m. and lies in a NW/SE direction. It is connected to the shore by a gangway 246 m. long and 7 m. wide. There is a strong swell January-March and heavy rain July-September.
- Working Hours:** 08.00 to 16.00 hours. Overtime between 16.00 to 19.00 hours

9.7 Shipping

Compagnie Mauritanienne de Navigation Maritime (COMAUNAM): BP 587, Nouakchott; National Shipping Company.

Societe Ouest Africaine d'Enterprises Maritimes (Mauritanie): BP 351, Nouakchott.

Several shipping companies serve Nouadhibou and Nouakchott, the most important being La Compagnie Paquet and La Compagnie Maurel-Prom.

9.8 Airports

Three international airfields, at Nouadhibou, Nouakchott and Atar, and 18 smaller airstrips. Only Nouadhibou can handle long-distance jets. Smaller airfields at Aioun, Akjoujt, Aleg, Bir-Moghrein, Boghe, Boutilimit, F'Derik, Kaedi, Kiffa, M'Bout, Mederdra, Nema, Rosso, Selibaby, Tamchakett, Tichitt, Tidjikja and Timbedra can accommodate DC 3 and DC 4 planes for domestic transport. New airport being built at Nema.

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.

## AIOUN-EL-ARTOUSS/Aioun-EI-Artouss

<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>		
16°43'N 09°38'W	290 34.6	04/22 N-INSTR	0.30	1590 1590	C C	AUW 34 AUW 34	None

Remarks: Alternate aerodrome--Bamako/Senou.

AIDS: MD, MC, MT, MTX, MO.

## KAEDI/Kaedi

<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>		
16°09'N 13°31'W	25 34	07/25 N-INSTR	0.003	2500	B	DC-8 Acceptable	None

Remarks: Alternate aerodrome--Matam/Oro Sogui.

AIDS: MD, MC, MT, MTX, MO.

## NOUADHIBOU/Nouadhibou

<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°55' 44"N 17°02' 01"W	5 31.6	03/21 INSTR	0.041	DC-8 2425	A	DC10-30 AUW 218	100, JAI

Remarks: Alternate aerodromes--Conakry/Gbessia, Dakar/Yoff, Las Palmas/Las Palmas de Gran Canaria, Nouakchott/Nouakchott, Sal I./Sal, Villa Cisneros/Villa Cisneros.

AIDS: H, ILS 03-1, VOR, LR, LTX, LO, MD, MC, MT, MTD, MTX, MO.

## NOUAKCHOTT/Nouakchott

<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 05° 46"N	2	05/23	0	SE 210	B	SE 210	100,JA1
15 57° 06"W	36.8	INSTR		2000'		Acceptable	

Remarks: Alternate aerodromes--Dakar/Yoff, Nouadhibou/Nouadhibou, Saint-Louis/Saint-Louis.

AIDS: RL, SA 05, LR, LTX, LO, D, H, MC, MT, MTX, MO.

## SELIBABY/Selibaby

<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°11'N	80	07-25	--	DC3	C	DC3	None
12°12'W	28(est.)	N-INSTR		1220		Acceptable	

Remarks: Alternate aerodrome--Kayes/Kayes.

AIDS: D, MC, MT, MS, MTX. MO planned but not in accordance with ICAO specifications.

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)

### 9.9 Personnel Entry Requirements

Passport and visa required. Smallpox and yellow fever vaccinations except for arrivals from non-infected areas remaining in Mauritania for less than two weeks.

### 9.10 Aircraft Entry Requirements

All private and non-scheduled commercial aircraft overflying or landing for commercial or non-commercial purposes must obtain prior permission from the director of civil aviation, B.P. 91, Nouakchott, Islamic Republic of Mauritania (telegraphic address: Minicomtransport Nouakchott/telex: none) at least 72 hours (7 days for aircraft landing for commercial purposes) prior to departure. All requests must include: name of operator, flight number, if any, type of aircraft, registration marks, date, time and complete route of flight from point of origin, including intermediate stops, fuel type and amount and other services required; if landing, purpose of flight and number of passengers. All requests must include pre-paid response and certified copies of the requests should be sent to the Dakar flight information center.

Non-scheduled commercial aircraft landing for commercial purposes must also include in the request: purpose of flight, number of passengers, their point of origin, destination and purpose of trip, type, amount, and origin of cargo, representative or contact in Mauritania and origin/destination of cargo unloaded/loaded in Mauritania.

All aircraft must have a flight plan on file at least 24 hours prior to departure.

Aircraft arriving from or destined to Israel, Rhodesia or South Africa will be denied permission to overfly or land.

Aeronautical information source: AIP "ASECNA" (France)

### 9.11 Airlines

Air Mauritanie: B.P. 41, Nouakchott; scheduled domestic passenger and cargo services from Nouakchott and Nouadhibou and international services to Las Palmas, Canary Islands, and Dakar, Senegal; fleet of 2 F.27A, 2 DC-4, 2 DC-3 and 2 Navajo.

Air Afrique: Mauritania has a 7 per cent share in Air Afrique.

Mauritania is also served by the following airlines: Iberia, Royal Air Maroc and Union des Transports Aeriens (UTA).

### 9.12 Air Distances

<u>City</u>	<u>Statute Miles</u>		<u>Statute Miles</u>
Aloun to:		Kaedi to:	
Dakar	541	Kayes, Mali	183
Kaedi	264	Kiffa	141
Kiffa	118	Nouakchott	268
St. Louis, Senegal	146	St. Louis	196
Akjoujt to:		Nouadhibou to:	
Dakar	402	Nouakchott	208
Nouadhibou	191	Paris	2,198
Nouakchott	152	St. Louis	340
St. Louis	288		
Atar to:		Nouakchott to:	
Dakar	494	Bamako	906 (via Dakar)
Nouadhibou	259	Dakar	254 (via Pt Etienne and las Palmas)
St. Louis	380	Marseilles	2,272 (via Dakar)
		New York	4,066 (via Dakar)
		Paris	2,419
F'Derik to:			
Nouadhibou	301		
Paris	1,981		

10. Power and Communications10.1 Electric Power

1976 capacity: 70,000 KW; production: 100 million kWh, 74 kWh per capita. At present all electric power is thermally generated by diesel fuel; limited potential for hydropower rests on building of barrages on Senegal River as part of OMVS development plan. Most electricity consumed by mining operations and port facilities; Nouakchott is largest non-commercial user.

Authority: Societe Mauritanienne d'Eau et d'Electricite, (MAURELEC) BP 355 Nouakchott. Mauritania Water and Power Society supplies urban areas of Nouakchott, Nouadhibou, Zouerate, Kaedi, Rosso, Akjoujt and Atar.

10.2 Power ProductionProduction and Consumption of Energy, 1973-77

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Electrical energy		(in thousands of kilowatt hours)			
Installed capacity	38.0	40.0	42.5	44.0	45.5
		(in million of kilowatt hours)			
Production	79.4	92.5	79.5	151.4	154.6
Consumption	78.8	87.7	77.4	136.4	139.0
Petroleum products		(in thousand of metric tons)			
(consumption)					
Gasoline for planes	2.9	2.0	1.7	1.9	2.4
Kerosene	7.7	7.9	7.4	2.4	3.1
Gasoil	81.0	85.2	81.8	103.9	111.5
Gasoline for cars	13.6	10.8	17.7	20.5	25.2
Fuel oil	45.4	44.9	17.6	30.2	27.7
Diesel oil	3.0	4.7	5.1	5.6	8.0
Total	153.6	155.5	131.3	164.5	177.9

Source: World Bank, Recent Economic Developments, 1979.

### 10.3 Radio Network

Radiodiffusion Nationale de Mauritanie: B.P. 200, Nouakchott; four transmitters, two of 100 kW; broadcasts in French, Arabic, Wolof, Toucouleur and Sarakole. 81,000 radio receivers in 1973.

### 10.4 Telephone System

Rudimentary telecommunications system: fragmentary open wire lines, minor radio-relay link and radio communications stations. Administrative connections within country maintained by radiotelephone connections with Nouakchott. Direct telephone link to Paris also permits radiotelephone and wireless connections to US and Europe.

Telephone services available at 15 of total 25 post offices. Estimates of number of telephones in use range from 1,500-2,400, in early 1970's.

Communications available in 10th district (capital-Selibaby) may indicate extent of system outside modern sector. Post office at Selibaby is communications center for region; one telegraph line to Kiffa used to relay all wired messages outside region. (In 1975-76, normal time to relay telegrams was 3 days.) Radiotelephones, located at governor's and gendarmerie's offices in Selibaby and in prefect's offices in Goray and Ould Yenge, are often out of order due to lack of batteries or mechanical breakdown.

Scheduled weekly flight (sometimes cancelled) from Selibaby to Nouakchott carries correspondence and packages.

### 10.5 Television

Agence Mauritanienne de Television et de Cinema (AMATECI): Television programs are broadcast for 48 hours per week in Arabic and 12 hours in French.

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