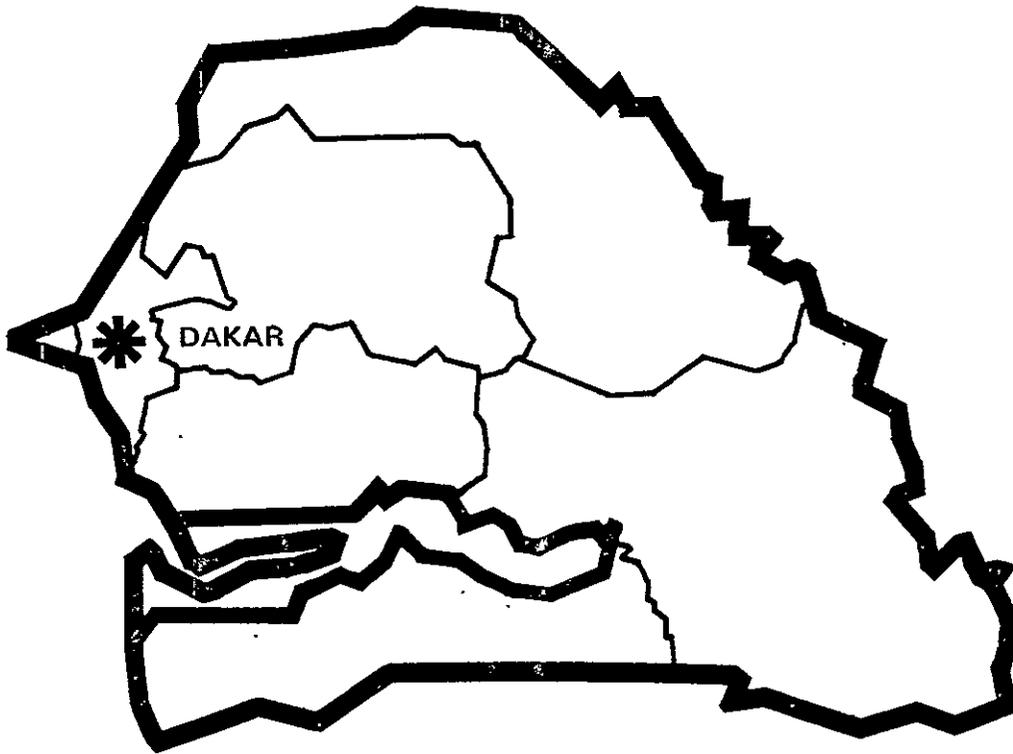


Senegal

A Country Profile



February 1979

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

Senegal



502736 9-77 (541834)
 Lambert Conformal Projection
 Standard parallels 8° and 32°
 Scale 1:3,800,000
 Boundary representation is
 not necessarily authoritative

- Railroad
- Road
- ✈ Airport

OFDA COUNTRY PROFILES: AUGUST 1980

AFRICA

Cape Verde
Chad
Djibouti
Ethiopia
Mali
Mauritania
Niger*
Sahel Transportation Survey
Senegal
Somalia
Uganda
Upper Volta
Zaire

ASIA

Bangladesh
Burma
India
Indonesia
Malaysia
Nepal
Pakistan
Philippines

CARIBBEAN

CARICOM Regional Profile
Dominican Republic
Haiti

LATIN AMERICA

Bolivia
Chile
Ecuador
El Salvador*
Guatemala
Honduras
Nicaragua
Peru

NEAR EAST

Turkey

SOUTH PACIFIC

FIJI
Tonga
Western Samoa

INDIAN OCEAN

Island Countries of the
Indian Ocean. *

* in preparation

SENEGAL: 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 Senegal 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.

August 1980

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1. General Information1.1 Geographic Codes

AID	685
FIPS	SG
State region.	AF

1.2 Country Names

Official	Republic of Senegal
Local	Republique du Senegal
Short	Senegal

1.3 Calendar and Holidays

New Year's Day.....January 1
National Holiday.....April 4
Labor Day.....May 1
French National Day.....July 14
Assumption.....August 15
Independence Day.....August 20
All Saints' Day.....November 1
Christmas.....December 25

Moveable religious holidays: Id al-Fitr, Id al-Adha, Ashura, Milad al-Nabi, Easter Monday, Ascension and Pentecost Monday.

1.4 Currency

207.05 francs CFA = US \$1.00 (April 1980)
100 centimes = a franc CFA

Coins: 1, 2, 5, 10, 25, 50, 100 francs CFA
Notes: 50, 100, 500, 1,000, 5,000 francs CFA

1.5 Time Zones

Time = GMT or EST + 5

1.6 Host Country Embassy and Staff In US

Address: 2112 Wyoming Avenue, N.W.
Washington, D.C. 20008

Tel: 234-0540 (0541)

Staff: Ambassador.....Andre Coulbary
Counselor (Press).....Emile J. Senghor
First Secretary.....Henri-Claude Avril

1.7 US Mission to Senegal and Staff

Address: Boite Postale 49
Avenue Jean XXIII
Dakar

Tel: 21-41-96
Telex: 517 AMEMB SG

Staff: Ambassador.....Herman J. Cohen
Deputy Chief of Mission.....Fred J. Galanto
Economy/Commerical Officer.....C. Lawrence Greenwood Jr.
Political.....David Rawson
Labor Officer.....Raymond Pardon
Consular.....Joseph B. Nowell
Administrative Officer.....Oscar Reynolds
Regional Security Officer.....John Chornyak
Agricultural Section.....Kenneth L. Murray
(resident in Abidjarn)
Agency for International
Development.....M. Norman Schoonover
Public Affairs Officer.....Arthur S. Giuliano

1.8 Treaties and Agreements

With US:

- Agricultural Commodities
- Defense
- Economic and Technical Cooperation
- Investment Guarantees
- Peace Corps

1.9 International Organization Memberships

UN and Related Agencies, World Intellectual Property Organization, INTELSAT, African and Malagasy Common Organization, Organization of African Unity, Agency for Cultural and Technical Cooperation of French-Speaking People, African Development Bank, Senegal River Development Organization, Interstate Committee to Combat the Sahel Drought, European Economic Community, West African Common Market, ECOWAS Treaty.

1.10 Consulates

Arizona, California, Colorado, Connecticut, Florida, Georgia, Illinois, Louisiana, Maryland, Massachusetts, Missouri, Nebraska, Nevada, Oregon, Texas, Utah, Vermont, Virginia, Wisconsin. All of preceding honorary consuls.

1.11 Travel and Visa Information

Yellow fever certificate required of all arrivals over the age of one year but no certificate required if arriving from non-infected area and if stay is less than 2 weeks. Smallpox certificate required of all arrivals over the age of 6 months if arriving from infected areas. Small pox certificate also required from travelers who, within preceding 14 days, have been in a country any part of which is infected.

1.12 Ethnic and Sociocultural Groups

Although as ethnically diverse as most African countries, Senegalese culture primarily homogeneous: shared dress, diet, language, religion, and extended family structure; few serious ethnic hostilities or rivalries. Six major groups constitute 90% of population: Wolof, Serer, Peul, Toucouleur, Diola and Manding; approximately 1% European, mostly French. Wolof found mainly in northwest, Serer in Sine-Saloum, Thies regions. Few Wolof, Serer, or Diola live outside Senegal. Majority of remaining populations found in neighboring countries; often constitute bulk of Senegalese migrant worker force.

Extent of ethnic group participation in political/economic life inconsistent with regard to numerical importance; degree of urbanization, geographic location main determinants. Latter have favored Wolof and Serer.

Ethnic Groups By Number and Percentage

<u>Group (1971)</u>	<u>Number</u>	<u>Percentage</u>
Wolof (Oulof)	1,375,000	36.2
Serer (Serere)	722,000	19.0
Peul (Fulbe, Fulani) and Toucouleur (Tokolar, Tukolor)	1/ 817,000	21.5
Diola (Djola, Jola)	266,000	7.0
Manding (Malinke, Mandingo, Mandinka, Maninka) and Bambara (Bamana)	243,000 ^{1/}	6.4 ^{1/}
Sarakole (Soninke) and Diankhanke	79,800 ^{1/}	2.1 ^{1/}
Lebou (Lebu)	68,400	1.8
Bassari, Balante, Mandjaque, Mancagne, and others	83,000	2.2
Maures	57,000	1.5
Cape Verde Islanders	30,000 ^{2/}	0.8
Europeans (chiefly French)	40,000 ^{2/}	1.0
Lebanese	18,000	0.5
Total	3,800,000 ^{3/}	100.0

- 1/ Groups in braces speak same or related languages and are occasionally intermixed; individual numerical size of these groups has been combined to accommodate variations reflected in available source materials.
- 2/ French estimates show Senegal's 1970 French population as only 29,000 (27,500 in Dakar alone); Senegalese estimates are higher.
- 3/ Figures do not total because of rounding.

Source: Area Handbook for Senegal, 1974.

Ethnic Groups/Region 1960-61*

	<u>CV</u>	<u>CA</u>	<u>DI</u>	<u>FL</u>	<u>SO</u>	<u>SI</u>	<u>TH</u>	<u>Total</u>
<u>Group</u>								
Wolof	204	14	367	86	3	253	176	1,103
Serer and Niominka	26	1	73	1	-	316	178	595
Toucouleur	50	56	4	229	22	47	14	422
Peuh	25	22	39	13	56	61	14	230
Diolas	8	203	-	-	-	4	1	216
Other								
Casamance	6	93	-	-	-	1	1	101
Bambaras, Manding, Malinke	15	117	1	4	34	22	5	198
Sarakole	6	17	16	2	32	5	2	65
Maures	8	1	1	6	-	8	9	48
Lebou	37	-	-	-	-	3	2	42
Other	12	5	-	1	5	3	3	29
<u>Total</u>								
African	<u>397</u>	<u>529</u>	<u>502</u>	<u>342</u>	<u>151</u>	<u>722</u>	<u>406</u>	<u>3,049</u>
Europeans	30	1	-	2	-	1	4	38
Lebanese	10	-	1	-	-	4	-	15
Other	7	-	-	1	-	-	-	8
<u>Total Non-</u>								
<u>African</u>	<u>47</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>-</u>	<u>5</u>	<u>4</u>	<u>61</u>
<u>Total</u>	<u>444</u>	<u>530</u>	<u>503</u>	<u>345</u>	<u>151</u>	<u>727</u>	<u>410</u>	<u>3,110</u>

* in thousands

CV...Cap Vert
CA...Casamance
DI...Diourbel

FL...Fleuve
SO...Senegal Oriental
SS...Sine Saloum

TH...Thies

1.13 Languages

Major indigenous languages are Wolof, Serer, Pulaar (language of Peul and Toucouleur groups), Diola, Manding and Sarakole. All Senegalese languages part of Niger-Congo linguistic family with most belonging to western branch of West Atlantic subfamily.

80% of population speak Wolof; percentage growing yearly. Wolof only ethnic group not required to learn a second language. Wolof, mixed with French vocabulary, lingua franca of Dakar. French the official language of Senegal, and the language of education; administrative, technical and international communication mostly in French. Approximately 12% of Senegalese literate in French, but many understand/speak it. Other languages by region: Diola in Casamance area, Serer in Thies and Sine-Saloum areas, and Pulaar along Senegal River. Wolof a second language for most groups in preceding areas.

Rank by % of Population

<u>Region</u>	<u>Departments</u>		<u>1st</u>		<u>2nd</u>		<u>3rd</u>
Cap-Vert	Combined						
	Région	Wolof	78.1	Peul	13.1	Bambara	2.2
	Rufisque	Wolof	90.4	Peul	4.1	Bambara	1.6
Casamance	Velingara	Peul	41.6	Bambara	27.2	Wolof	22.6
	Department of Velingara	Peul	79.7	Bambara	6.3		
	Sedhiou	Bambara	66.8	Wolof	20.1	Peul	6.9
	Department of Sedhiou	Bambara	43.7	Diola	22.4	Balant	12.0
	Ziguinchor	Wolof	3.9	Bambara	25.1	Diola	19.8
	Bignona	Diola	59.4	Bambara	18.2	Wolof	12.9
	Department of Ziguinchor and Bignona	Diola	78.8	Bambara	5.4	Mandjak	3.7
Diourbel	Combined						
	Region	Wolof	85.4	Peul	6.4	Serer	4.0
Fleuve	Saint-Louis	Wolof	87.3	Peul	7.6	Maure	3.2
	Dagana	Wolof	82.2	Peul	12.3	Maure	4.1
	Podor	Peul	53.7	Wolof	35.7	Maure	7.4

<u>Region</u>	<u>Departments</u>		<u>1st</u>		<u>2nd</u>		<u>3rd</u>
Senegal Oriental	Department of Bakel	Peul	49.0	Sarakole	40.4	Bambara	7.4
	Department of Tambacounda	Bambara	40.5	Wolof	18.8	Peul Diak- hanke	18.5 15.7
	Department of Kedougou	Bambara	29.9	Bassari	29.9	Peul Diak- hanke	29.0 10.6
Sine- Saloum	Kaolack	Wolof	73.2	Peul	10.8	Bambara	5.8
	Department a l'Ouest of Kaolack	Serer	53.3	Wolof	35.1	Peul	6.3
Thies	Department a l'Est of Kaolack	Wolof	63.9	Serer	16.0	Peul	7.9
	Thies Mbour	Wolof	77.7	Peul	10.6	Bambara	3.7
	Department of Tivaouane	Wolof	93.7	Peul	2.9	Maure	2.0

1.14 Religions

Approximately 80% of Senegalese are Muslim, 10% are Christian (mostly Roman Catholic) and the rest animist.

Senegalese Islam divided into brotherhoods which coincide partly with ethnic membership. 95% of Senegal's Muslims said to belong to brotherhoods, the two largest of which, Tidjaniya and Muridiya, represent 57% and 26% of total membership respectively. Brotherhoods wield enormous political, social and economic influence via enterprises including groundnut cultivation, transport and cooperatives. Leaders (Saints) exact labor, percentage of crop sales from members.

2. Government

2.1 National Government

Constitution of March 1963 provides for President elected by direct universal suffrage to a 5 year term; assisted by Prime Minister and Cabinet, both presidentially appointed. A unicameral, 100-member National Assembly also elected by direct universal suffrage to 5 year term. Proportional representation in National Assembly introduced in 1978 elections; majority rule retained for presidential, municipal and rural elections. Judges of Supreme Court appointed by President.

Recent constitutional amendment will permit operation of a fourth political party (conservative); other three are Socialist (ruling), Liberal and Marxist-Leninist.

2.2 Regional Organization

Senegal divided into eight administrative regions, each headed by presidentially appointed governor; assisted by regional assemblies. Regions divided into 28 departments headed by prefects which in turn are divided into 90 districts headed by subprefects. Regions and capitals: Cap Vert - Dakar; Casamance - Ziguinchor; Diourbel - Diourbel; Fleuve - Saint-Louis; Senegal Oriental - Tambacounda; Sine-Saloum - Kaolack; Thies - Thies; Louga - Louga.

1972 governmental reform made the Rural Community/(Communaute Rurale) basic administrative unit in countryside (excluding towns); usually comprises several villages with total population of 10,000. Rural Community elects Rural Council (RC), and has budgetary autonomy. Several RC's can form Groupement Rurale to create/operate certain infrastructure. All RC's represented in departmental and regional councils, and are under jurisdiction of Minister of Interior. Implementation of reform proceeding slowly; completed in Thies, near completion in Sine-Saloum.

2.3 Key Political Figures (March 1980)

President.....	Senghor, Leopold Sedar
Prime Minister.....	Diouf, Abdou
Dep. Prime Minister.....	Diagne, Babacar
Min. of State for Equipment.....	Senghor, Adrien
Min. of State for Finance & Economy.....	Seck, Ousmane

Min. of State for Interior.....Collin, Jean
Min. of State for Justice, Keeper of
the Seals.....M' Bengue, Alioune Badara
Min. of State for Natl. Education.....Fall, Abdel Kader
Min. of Armed Forces.....Sall, Amadou Cledor
Min. of Commerce.....Diop, Serigne Lamine
Min. of Culture.....Seck, Assane
Min. of Foreign Affairs.....Niassé, Moustapha
Min. of Higher Education.....Camara, Ousmane
Min. of Industrial Development &
Crafts.....Kane, Cheikh Amidou
Min. of Information, Telecommunications
& Relations with Assemblies.....Sow, Daouda
Min. of Plan & Cooperation.....Alexandrenne, Louis
Min. of Public Health & Social Affairs.....Diop, Mamadou
Min. of Public Offices, Work &
Employment.....Diagne, Alioune
Min. of Rural Development.....Sene, Djibril
Min. of Social Action.....Diagne, Babakar
Min. of Urban Affairs, Housing &
Environment.....Ba, Oumar
Min. Without Portfolio In Prime
Minister's Office.....Diop, Caroline

3. Disaster Preparedness

3.1 Host Disaster Plan

Senegal has no national disaster plan, but does have a Disaster Relief Coordinator who heads Disaster Relief Department within Ministry of Plan and Cooperation; established in 1974 in response to Sahelian drought; continues to be responsible for coordination of all disaster relief activities. Specific responsibilities: distribution/ transportation of all relief supplies in country, and payment of all transport/warehousing expenses.

3.2 US Team

<u>Name</u>	<u>Title</u>
James O'D Maher (MDRO)	Regional Food for Peace Officer
James Procopis (alternate MDRO)	Deputy Program Officer
Larry Grahl	Embassy Administration
Stephen Nolan	GSO
Warren Duerbeck	GSO
Mark Burns	Military
Dr. Arnold Weber	MD
Mary Flynn	Secretary
Victor Rotundo	USIS, Public Affairs Officer

3.3 MDRT/Function

<u>Function</u>	<u>Action Officer</u>
Food and Water Preparation, Treatment and Distribution	MDRO/MD
Medical Services	MD

<u>Function</u>	<u>Action Officer</u>
Shelter and Survival Supplies	GSO(s)
Engineering, Communication	RDO and US Engineer
Building Inspection and Condemnation	TDY from REDSO/WA, Abidjan
Transportation, Logistics, Fuel Supplies and Distribution	GSO(s)
Rescue and Relief Assessment	---
Coordination and Monitoring Activities	MDRO
Security	Embassy Administration
Administration and Reporting	Alternate MDRO
Information	USIS, PAO
Clerical and Typing	Secretary DCM

3.4 Host Contacts

The following organizations under Ministry of Health to be contacted regarding any medical supply requirements during a disaster.

Croix Rouge Senegalaise
Comite National
Boulevard Roosevelt
B.P. 299 - Phone: 227-75

Pharmacie Nationale d'Approvisionnement
du Senegal, Dakar, Hann
Phone: 327-14 and 316-14

Institut Pasteur
Avenue Pasteur
Dakar - Phone: 266-21

Union Pharmaceutique Inter-Africaine
 Km 2, Route de Rufisque
 B.P. 187 - Phone: 341-66/67, 368-39

3.5 US Contacts

James O'D Maher, MDRO, Avenue A Prolongee, Point E. Tel: 243-65

James Procopis, alternate MDRO, Villa B.P., Fann. Tel: 248-69

3.6 US Volags

<u>Agency</u>	<u>Personnel Intl/Local</u>	<u>Programs</u>
AFL-CIO African-American Labor Center (AALC)	4/8	Ed
The African-American Institute	-	Ed
Africare	-	Food Prod & Ag; Med & PH
Assemblies of God	-	Ed
Baptist World Relief	-	Food Prod & Ag
Catholic Medical Mission Board	-	Equip & Mat Aid; Med & PH
Catholic Relief Services - USCC	2/14	CD; Equip & Mat Aid; Food Prod & Ag; Med & PH
Credit Union National Association (CUNA)	-	Coops & Loans
Helen Keller International	-	Ed
National Council of Catholic Women	-	Equip & Mat Aid; Med & PH

<u>Agency</u>	<u>Personnel Intl/Local</u>	<u>Programs</u>
New Tribes Mission, Inc.	12/-	Communications; Med & PH
The Pathfinder Fund	-	Pop & Fam Serv
United Church Board for World Ministries	-	Food Prod & Ag
United World Mission	9/-	Ed; SW
World Vision Relief Organization	-	Med & PH
Y.M.C.A. of the US	3/9	CD; SW; Youth

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
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

3.7 Volags

CRS - usually stocks quantities of foods, medicine, clothing. However, callforwards made quarterly; items arrive in September, December, March and June. One month usually required to clear/distribute supplies. CRS vehicles include 2 Volkswagen buses, 4 Peugeot station wagons. CRS on extremely good terms with GOS; excellent collaboration in emergencies.

Clement Norbert, Director. [REDACTED]
Office Phone: 214621, 222275. [REDACTED]

YMCA - vehicles: one 404 Peugeot truck, one 2 CV Citroen, one Volkswagen van

Steve La Vake, Director. Office: Point E (opposite police station). Offices also at Deni Malick Gueye

3.8 Other Volags

UNDP - Mr. Martin Borna
Regional Representative
2, Avenue Roume
Tel: 502-04, 502-08
[REDACTED]

W.F.P. - Mr. Paul Westdal
2, Avenue Roume
Tel: 502-04 and 262-20
[REDACTED]

UNICEF - Mr. Knud Christensen, Representant de l'A.O.
43, Avenue Albert Sarraut - B.P. 429
Tel: 229-22, 269-70
[REDACTED]

CARITAS - Frere Picard (or Pere Charles Dieme)
Km 11, Rte de Rufisque, Thiaroye
Tel: 600-20, 600-28; B.P. 439

F.A.O. - Mr. Van-Den Aneele
2, Avenue Roume
[REDACTED]

O.M.S. - Mr. Ralinoro
55, Avenue Albert Sarraut
Tel: 269-62

Senegalese
Red Cross - (President Rito Alcantara)
Comite National
Boulevard Roosevelt
Tel: 227-75; B.P. 299

Note: at present no plan among international volags to exchange or coordinate information, although US MDRO empowered to form committee of international volag representatives during a disaster.

None of above organizations have any trucks except UNICEF (one 5-ton vehicle). All others above have 2/3 landrovers for personnel to use on project inspection trips.

3.9 Host Resources

Medicine - GOS keeps one or two month's supply of drugs; feels excellent air transport to Dakar makes larger stocks unnecessary. However, present stocks appear adequate only for estimated 15,000 people capacity for handling refrigerated drugs: cold chain inadequate; many difficulties in replenishing containers.

Food - As of August 1977, 45,000 MT of sorghum on hand. Flour mills in Dakar keep 3 month's supply of wheat, corn. Sorghum/millet and rice most likely needed emergency foods. Consumption of imported rice averaging 14,000 MT per month; ONCAD policy to maintain 3 months supply. (See Storage).

Transport - Senegalese and French Army, Senegalese Navy, Dakar Fire Department, as well as each rural hospital has at least one ambulance; city hospitals pool with 5 ambulances.

3.10 Storage

Grain silos, food storage warehouses concentrated in cities, scarce in rural areas. ONCAD (National Cooperative and Development Assistance Office) implementing ongoing storage capacity expansion project; both increased millet/sorghum production and 1973 drought intensified demand. Most existing facilities designed for bag storage; walls not resistant to lateral pressure from bulk grain. Estimated 85% of millet/sorghum stocks stored on farms.

ONCAD Grain Storage Centers

<u>Regions</u>	<u>Location</u>	<u>Capacity*</u>
Casamance	Bignona	10,000
	Kolda I	8,000
	Kolda II	8,000
	Velingara	10,000
	Diannah I	5,000
	Diannah II	5,000
	Subtotal	46,000
Diourbel	Bambey I	10,000
	Bambey II	10,000
	Mbacke I	10,000
	Mbacke II	10,000
	Darou Mousty	10,000
	Kebemer	10,000
	Louga	10,000
	Darah	10,000
Subtotal	80,000	
Senegal Oriental	Tambacounda	10,000
	Koussanar	8,000
	Subtotal	18,000
Sine Saloum	Kaffrine	20,000
	Gossas	8,000
	Buinguineo	10,000
	Niora Du Rip	10,000
	Keur Madiabel	10,000
	Fatick	10,000
	Subtotal	68,000
Thies	Base Aeriene (Air Base)	30,000
	Subtotal	30,000
Total Central Storage		242,000 MT

* In metric tons

Source: ONCAD, November 24, 1975

3.11 History

In addition to disasters listed below, drought presents greatest potential threat to Senegal; 1968-73 droughts more severe and widespread than others. Sporadic rain deficits a way of life in most of country as for entire Sahel. Timing/distribution of rain as important as quantity, especially in marginal rainfall areas.

Disaster History

<u>Disaster</u>	<u>Location</u>	<u>Date</u>	<u># Killed</u>	<u># Victims</u>	<u># Homeless</u>	<u>Dollar DMG</u>
Civil Strife	Casamance Area	7/64	0	30,000	20,000	\$0
Drought	Northwest	66	0	5,000		\$0
	Casamance	8/68	0	375,000		5,000
	Countrywide	71	0	5,000		1,500
	Northeast	73	0	1,400,000		74,800
		74	0	0		0
		75	0	0		0
Storm	St. Louis	2/66	0	2,000	2,000	\$50
Tornado	Casamance	9/64				0
Yellow Fever	Diourbel Region	10/65	60	210		0

4. Population

4.1 National Demographic Characteristics

Mid-1978 population estimated at 5.3 million: 30% urban residents, 70% rural. Annual growth rate 2.2% but latter a combined average masking a 4.1% urban growth rate, 1% rural. Most of population concentrated in western areas; half of all urban residents in Dakar, 60% of rural population live in Cap Vert Peninsula and Groundnut Basin (Sine-Saloum, Thies, Diourbel) within 200 ml of Dakar.

4.2 Regional Distribution

Urban migration greatly accelerated since WWII; many are seasonal migrants from inland areas and bordering countries (10,000-50,000/ year). Most are farm laborers, others are war refugees from Guinea Bissau. In 1975, GOS estimated total repatriated Guinea-Bissau refugees at 46,000: 38,000 in Casamance region, 8,000 in Dakar; 10,000 additional refugees from Guinea-Bissau in 1976.

Population by Region
April 1976 figures

<u>Region</u>	<u>Population</u>	<u>Total Area</u> <u>(sq miles)</u>	<u>People per*</u> <u>sq mile</u>
Cap Vert	984,660	212	3,618
Casamance	736,527	10,943	58
Diourbel	425,112	12,949	51
Fleuve	528,473	17,033	24**
Senegal Oriental	286,148	23,006	11
Sine-Saloum	1,007,736	9,243	91
Thies	698,994	2,548	226
Louga	417,737	---	---

* as of 1973

** misleading considering high-density centers are dispersed over large areas

4.3 Urban Centers

<u>Town</u>	<u>Geographic Location</u>	<u>Population*</u>	<u>% Annual+ Growth rate</u>
Dakar	west-central coast	798,729	6+
Kaolack	west-central	106,899	4
Thies	west-central	117,333	5
Saint-Louis	northern border	88,404	4
Ziguinchor	southern	72,726	4
Diourbel	west-central	50,618	4
Louga	northwest	35,063	4
Rufisque	west-central coast	54,000 (1973)	4
Tambacounda	Inland; southeast	24,500 (1973)	4

* as of April 1976

+ as of 1973

5. Health, Nutrition and Housing

5.1 Overall Health Status

Health data scarce; morbidity, vital statistics especially rare for 15-44 age group. However, generally agreed that rural population considerably worse off with regard to health care than urban counterparts. Disproportionate share of health facilities and expenditures directed to urban areas; Cap Vert region 19% of population, 45% of health budget. Total health expenditures, however, difficult to estimate given fragmented nature of services rendered by public and private sectors. Recent evaluation indicates marked deterioration and general breakdown of rural health facilities leading to heavy urban referrals (44%).

By best estimates, most prevalent diseases as of 1973 were: malaria, tuberculosis, measles, trachoma, gonococcal infections, trypanosomiasis, schistosomiasis, dysentery, influenza, and gastrointestinal diseases in children. Less prevalent diseases: leprosy, tetanus, meningitis. Malaria considered most serious health threat; endemic in all areas of Senegal with 500,000 cases reported in 1971. In addition, Senegal River basin an area of serious endemic and epidemic diseases; on-going water supply projects present serious hazard to existing vector ecology, expanding size of at-risk population. The following are diseases whose incidence in the basin could rise dramatically: malaria, schistosomiasis, onchocerciasis, cholera, yellow fever, dracunculiasis (Guinea worm) and zoonotic diseases.

5.2 Summary of Diseases

Malaria - 82% of population live in endemic areas; Fleuve region 56% infection rate, 48% in Ferlo region; positive findings among 76% of population under 30. Immigrants passing through Senegal River basin contribute to endemicity. Other causes: natural housing materials, poor sanitation, good vector breeding grounds, poor drainage. Breeding in rainy season from July-September but transmission is year round.

<u>Regions</u>	<u>Cases</u>	<u>Deaths</u>
Cap Vert	22,108	27
Casamance	62,288	16
Diourbel	19,218	7
Fleuve	23,782	38

<u>Regions</u>	<u>Cases</u>	<u>Deaths</u>		
Senegal Oriental	10,425	86		
Sine-Saloum	32,655	20		
Thies	14,255	10		
	184,731	204		
<u>Regions</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Cap Vert	823	736	380	312
Casamance	151	155	224	128
Diourbel	191	217	119	185
Fleuve	60	81	127	83
Senegal-Oriental	42	62	24	20
Sine-Saloum	73	123	162	104
Thies	7	12	57	100
Total - Cases	1,347	1,386	1,093	932
- Deaths	54	44	62	62

Source: Government of Senegal, Statistiques Sanitaires, 1974

Tuberculosis - reported cases declining, but uncertain whether infection rates decreasing or less active/complete case reporting. However, TB remains a major health problem.

Measles - overall case mortality rate 13%. In 1971 69% of all cases occurred in ages 1-4; peak incidence in May/June; endemicity diffuse. Despite considerable progress with vaccination programs, the number of inoculations has fallen off; vaccine shortages and the lack of an adequate cold chain are the main reasons.

Gastroenteritis - one of leading causes of death in children under 5; common for children to be weaned on brews and porridges made with polluted water, unboiled milk.

Tetanus - generally widespread. Umbilical tetanus most common with extremely high mortality rate; overall case mortality rate 39%. Massive inoculation campaign conducted between 1970-72.

Venereal Disease - endemic especially in urban areas, and considered a major public health problem; contributes to infant/ juvenile mortality and is a major cause of sterility among men and women.

Schistosomiasis - common throughout Senegal. Infection rate near 100% in eastern Casamance in early 1960's; high rates in central and eastern regions as well. Main stream of Senegal River primary dispersion axis for snail host.

Other diseases that present chronic health problems, but whose prevalence is either regional or whose case rate is limited to cyclical outbreaks: hepatitis, yaws (Casamance) onchocerciasis (Senegal Oriental, east and south of Tambacounda) leprosy, typhoid, diphtheria, cholera, trypanosomiasis, yellow fever, meningitis, and poliomyelitis (500 cases in 1974-76).

5.3 Mortality

High mortality rates for all ages: inadequate diet, disease, general lack of medical care. Leading causes of death by rank of children under one in 1973: perinatal deaths, measles, diarrhea and gastrointestinal illnesses, undefined causes, avitaminosis, anemia, and malaria.

5.4 Vital Statistics

Infant mortality:	158/1,000 (1975)
Infant mortality (rural):	181/1,000 (1973)
Crude death rate:	23/1,000 (1970's)
	10/1,000 (urban)
	36/1,000 (rural)
Crude birth rate:	47/1,000 (1975)
Life expectancy:	40 (1975)

5.5 Summary of Facilities

Most health services and facilities financed by GOS; private clinics play only a minor role in health care delivery. Three largest and best hospitals in Dakar, providing hospital bed to population ratio far above national average and receiving disproportionate share of health budget;

25% of total health budget in 1975/76. Six other hospitals in rest of country: in Thies, Tambacounda, Saint-Louis, Diourbel, Kaolack and Ziguinchor. Total number of beds as of 1977: 5,500.

A total of 7 health service regions (at least one hospital in each), divided into 27 Departments, each with a primary health center. Departments then divided into 85 arrondissements (administrative districts) with either a dispensary or secondary health post; 428 of latter with 5,785 beds in 1978. Estimated that only 20% of rural population covered by health infrastructure.

Remaining infrastructure made up of primary health centers, maternities, maternal and child health centers (PMI's), secondary health centers and dispensaries. Main duties of PMI's are to provide consultation in pre/postnatal care and to make referrals where necessary; 77 PMI's, 1,501 beds by end of 1977. In addition, few health centers (clinic, PMI, maternity ward, dispensary) reported to conform with preceding requirements or sanitary standards.

Although fourth Four Year Plan gives priority to improving rural health services, secondary health posts constitute furthest extent of health services, leaving most rural areas without basic or regular care. Chronic problems include shortage of trained personnel at all levels, poor sanitary conditions, shortage of medicine and heavy case referrals to Dakar. Laboratory and dental services virtually nonexistent.

5.6 Distribution of Facilities

Region	Hospitals		Health Centers		Maternities		Health Posts	PMI's	Endemic Sectors
	No.	Beds	No.	Beds	No.	Beds			
Cap Vert	4	2,207	1	94	17	613	62	24	1
Casamance	1	70	6	249	8	159	86	7	2
Diourbel	1	176	6	102	9	155	44	6	1
Fleuve	1	548	4	61	6	134	65	6	1
Senegal									
Oriental	-	---	3	95	3	29	30	3	1
Sine-Saloum	1	250	8	114	10	238	83	10	-
Thies	1	116	5	139	7	173	57	10	1
Total	9	3,367	33	854	60	1,501	428	66	7

Source: Government of Senegal 1974

Health Posts or Dispensaries as of December 31, 1974

<u>Region</u>	<u>AD</u>	<u>MD</u>	<u>PD</u>	<u>Closed</u>	<u>Operating as of 12/31/74</u>
Cap Vert	18	23	21	--	62
Casamance	68	2	17	1	86
Diourbel	39	2	3	--	44
Fleuve	56	5	4	--	65
Senegal					
Oriental	27	1	2	--	30
Sine-Saloum	61	6	16	--	83
Thies	<u>33</u>	<u>4</u>	<u>20</u>	<u>3</u>	<u>54</u>
Total	302	43	83	4	424

AD...Administrative Dispensaries
MD...Municipal Dispensaries

PD...Private Dispensaries

Source: Government of Senegal 1974

5.7 Personnel

Most physicians as well as other health workers concentrated in Dakar and Cap Vert region: national average 1 MD/1,000 people -- 1/4,370 in Dakar, 1/44,300 in rest of Senegal. As of December 1974, 281 physicians in Senegal (119 Senegalese); 19% in private practice. Others:

91 pharmacists (72 in Cap Vert region)
29 dentists (24 " " " ")
330 midwives (2/3 " " " ")
2,457 nurses: most equitable distribution of all medical personnel

Distribution By Region

<u>Regions</u>	<u>Inhabi- tants/MD</u>	<u>MD</u>	<u>Pharm.</u>	<u>Dent.</u>	<u>Midwives</u>	<u>Nurses</u>	<u>Ag. sociaux</u>
Cap Vert	3,760	214	72	23	211	864	108
Casamance	65,000	10	3	1	16	320	11
Diourbel	66,800	10	2	1	19	250	7
Fleuve	27,300	15	4	1	19	310	6
Senegal							
Oriental	52,000	5	1	-	5	127	1
Sine-Saloum	61,000	14	4	-	26	297	7
Thies	<u>45,000</u>	<u>13</u>	<u>5</u>	<u>3</u>	<u>34</u>	<u>289</u>	<u>12</u>
All of Sengal	15,000	281	91	29	330	2,457	152

5.8 Nutrition

Average daily intake of calories and protein significantly above minimum requirements, but geographic, social and seasonal factors contribute to gross deficiencies of secondary nutrients, especially vitamin A; malnutrition by age group a serious problem in rural areas and recent urban migrants in shanty-towns around cities. Average caloric intake for rural Senegalese estimated at 2,300 cal./ day. WHO estimates 9-14% of children under 5 suffer from kwashiorkor, marasmus. Anemia is common while goiter is also present but in limited areas; average rate among adults 3.6%. Present focus of GOS nutrition programs is on high-protein supplements, especially niebe beans and pulses, but results discouraging. Best local protein sources, peanut and cottonseed flour, too vulnerable to contamination. Beri-beri found in Dakar among recent migrants from Basse Casamance.

5.9 Diet

General - millet/sorghum and rice the staple of most people in rural areas; planted May-June after first rains, and first cereal available in autumn when stocks are low. Other foods whose importance varies by region/season: corn, beans, groundnuts, potatoes, citrus, cassava, green vegetables, baobab leaves. Groundnuts not generally popular; primarily cash crop although large use of peanut oil. Wheat, rice, sugar main imported foodstuffs. Fish, where available,

used in sauces, and eaten with rice, sorghum, millet. Meat eaten once a week or less, even among livestock herders; milk and butter traded, but consumed only in limited quantities. Roasted yams or manioc eaten as between meals snack. Palm toddy main alcoholic beverage.

Urban - breakfast eaten between dawn and 7:00 AM; usually a porridge (couscous) eaten with milk, sugar and bread; some drink heavily sweetened tea or coffee. Lunch and dinner primarily the same foods, but prepared differently; fish or meat added occasionally, but result is same porridge or couscous. Urban cereal consumption almost exclusively rice and wheat/bread.

Rural - cereal consumption mostly millet/sorghum. Breakfast is usually leftovers from previous meal. Lunch often flour balls fried in or moistened by sauce. Dinner seldom includes meat.

5.10 Dietary Preferences of Selected Ethnic Groups

Serer - live in western coastal areas. Millet a staple; peanuts used as cash crop for non-food purchases. Also raise cattle, goats, and sheep.

Toucouleurs - live in mid-Senegal River Valley. Diet based on cereals, fish, and milk; one of best diets in country.

Diolas - live in Casamance River basin. Eat rice with beans, fish, oysters; millet, sorghum, tubers eaten occasionally. Raise cattle, but not for meat, although they do drink curdled milk.

Note: Common practice in rural areas to distribute/eat food by sex, age and productivity; men and boys over 8 eat first, then women and children. A debilitating custom leading to illness unrelated to actual nutritional content of food. Sexes also eat separately, as do the elderly and the very youngest.

5.11 Food Cycle

Rural subsistence agriculture vs. urban food demands results in importation of 1/3 of all nutrients; geographic and seasonal limitation of food supplies also a problem. In the north, food cycle dependent upon Senegal River; November to January, sorghum, corn and sweet potatoes plentiful. From February to May, people live on stores; crops planted June to July on dry terrain in expectation of August rains and floods. By end of summer, stores exhausted; diet of wild leaves and berries common. Cereals and beans plentiful in August, bridging gap until main harvest. Pre-harvest period known as soudure; time of serious rural hunger. Casamance region south of Gambia an exception; greater seasonal variety than in drier north.

5.12 Storage

Food storage varies by region and type of food. Paddy rice often stored communally in large (12 ton) cribs; made of millet stalks and bamboo; crib dimensions also vary.

5.13 Housing

Urban: Heavy urban migration after WWII gave rise to sprawling shantytown areas around all urban centers. Houses often made of reed or millet stalks; others made of packing cases or gasoline tins covered with roofing paper held on by stones; water hand-carried from public fountains. Candles or kerosene lamps most common lighting; few houses have electricity. Sanitation services virtually non-existent.

Rural: Wolof houses arranged in family compounds along main paths through villages. Compounds often enclosed by 5 foot fence of reeds, millet stalks or thornbush. Most houses built with natural materials and earthen floors; usually abandoned after deterioration. Chiefs and well-to-do use bricks and corrugated iron roofs. Traditional huts on coast are round with walls made of swamp rushes. Living areas usually small and cramped. Number of rooms varies, but men usually have their own section or partitioned area. Animals sheltered within compound; harvested food stored in huts clustered at edge of village.

Toucouleur, Diola, and other groups build houses similar to Wolofs'. Serer houses in west-central areas separated by family fields. Diola and Manding of Casamance area have scattered, formless villages with houses in compounds built around a courtyard or other central meeting place.

5.14 Urban and Rural Services

Water: All household water for towns and cities in Senegal pumped untreated from environment (lakes, rivers, depressions). Only exception is Dakar; supply pumped from Lake Guiers and treated at modern facility. However, distance between treatment plant and Dakar is 280 km; water often repolluted in transit. Impending water shortage for all urban areas unless water system drastically extended. Saint-Louis, water drawn from marigots, natural surface depressions where water collects. Overall, 75% of urban population obtains water from public taps. Shallow wells most common source of water in rural areas; heavily polluted by underground leaching from contaminated surface water.

Sewerage: Only Dakar and Saint-Louis have even limited sewerage systems. In Dakar, only 2/3rds of houses with water connections also joined to disposal system. Drainage in Dakar also inadequate; large areas periodically flooded by polluted water, disrupting road, traffic.

6. Economy

6.1 Overview of Economy

After stagnating during 1960's and healthy growth rates during early to mid-1970's (except 1972/73 drought years), growth rate of Senegalese economy once again slackening; depressed markets/prices for phosphates and groundnut oil, two main exports, keep earnings low, nearly offsetting growth of real output. Real income from exports further limited by rising oil imports and food prices.

Although GOS encourages decentralization, modern sector of economy (Industry) still centered in Dakar; bolstered by excellent port facilities, rapid growth of tourism. Other on-going GOS endeavors include modernization of rainfed agriculture (successful during good rain years), irrigation and hydroelectric developments along Senegal, Casamance and Gambia Rivers, and expansion of fishing sector, now Senegal's 3rd most important source of production; 217,000 ton catch in 1977 (artisanal fisheries), 346,000 ton catch for industrial fisheries.

1976 GNP \$1.68 billion, \$390 per capita. GNP grew 7% in 1977, but offset by even higher inflation. Per capita figure also deceptive; average income in Dakar 5 times higher than in rural areas. One cash crop and rapid population growth continue to imperil subsistence of rural population. For analysis of agricultural sector and its vital role in economy, see agriculture, section 7.1.

6.2 Current Status (1977)

Secondary: industrial sector 20% of GNP, but industrial production index down slightly in first 8 months of 1977; decline in peanut oil production (1/5 of total industrial output) the main cause. Phosphate production still strong at 1.5 million tons. Textile industry also expanding, but investment levels low in new duty-free Industrial Zone 18 km from Dakar.

Tertiary: still the largest fiscal sector of economy; 39% of GNP in 1977 including transport, state-owned commerce, tourism, and other services. 1977 a record year for tourism: \$38 million in foreign exchange, 180,000 visitors.

6.3. Finance

Decline of groundnut revenues and phosphate profits created unexpected deficits for 1976/77, troubling public finances. 1977 GOS fiscal policies adjusted by postponing all current/new capital expenditure programs and increasing taxes on EEC imports and domestic production (mainly groundnuts and cotton). Wheat flour subsidies abolished while fertilizer subsidies reduced 50%, with latter apparently dampening import demand. Expenditures also trimmed; 1977/78 budget \$154.1 billion CFA francs; budget brought out of deficit for first time in 3 years.

However, inflation rate reached 11% in 1977 while balance of payments remained in deficit. By August 1977, net foreign assets down to minus \$62 million; foreign debt service payments expected to reach 13% of export earnings in 1978. Domestic credit, limited to CFA 134 billion in 1977, allowed only small growth for 1978.

6.4. Prospects

GOS long-term goals: improve balance of payments with modest phosphate mining expansion, reduce food imports, and develop both light export industry and tourism. Prospects for success tenuous; trade deficit may stay high, world phosphate prices falling, while local cereal substitution for imports dependent upon expensive irrigation projects. Public savings unlikely to keep pace with public spending; further groundnut tax increases likely to damage long-term growth. Despite all this, investment climate seen as good; history of equitable treatment of foreign investors. Current US investment \$7 million, primarily petroleum marketing and phosphate mining; US second largest supplier of goods, but only averaging 7% of market share.

6.5 Key Economic Indicators*

	<u>1976</u>	<u>Change</u> <u>75/76</u>	<u>Estimates</u> <u>1977</u>
<u>Income Production</u>			
GNP at Current Prices	1,684	+ .3%	1,806
GNP at 1975 Prices	1,640	- 2.3%	1,588
GNP Per Capita, Current Prices	331	- 2.4%	345
GNP Per Capita, 1975 Prices	323	- 4.7%	304

	<u>1976</u>	<u>Change 75/76</u>	<u>Estimates 1977</u>
Gross Investments (Inc Inventories)	275	+ 9.1%	n.a.
Indices:			
Industrial Production (1974=100)	136.1		125.1
Minimum Industrial Wage: (100-\$.31/hr)	148		148
Minimum Agricultural Wage: (100-\$.26/hr)	148		148
Population (000)	5,085	+ 2.6%	5,220
<u>Money and Prices</u>			
Domestic Money Supply (M ₁)	397	+14.1%	453
Domestic Credit	573	+13.0%	558
Consumer Price Index (1974=100)			
African	133.7		148.0
European	128.9		139.5
Central Bank Discount Rate	5.5%		5.5%
<u>Balance of Payments and Trade</u>			
Foreign Exchange Reserves	25.3		23.7
External Public Debt	349.6		436.0
Annual Debt Service	39.8		55.4
Balance of Payments	- 10.9		- 13.3
Balance of Trade	-160.3		-178.3
Exports FOB	502.7		530.8
Imports CIF	663.0		709.1

* All values in US \$ million and represent period averages unless otherwise indicated

1) 1974 data

6.6 Industrial Production*

<u>Item</u>	<u>Unit</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Phosphates				
Limestone	1,000 †	1,250	1,533	1,472
Crude oxides	1,000 †	165.6	218.8	405.4
Dehydrated	1,000 †	52.3	63.8	96.8
Salt	1,000 †	125.0	140.0	150.0
	million			

<u>Item</u>	<u>Unit</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Cement	1,000 +	334.9	295.6	331.9
Peanut oil				
Refined	1,000 +	251.8	128.6	142.1
Sugar	1,000 +	26.0	29.6	22.3
Cotton fiber	tons	295.7	326.0	269.7

6.7 Exports

See agriculture, section 7.1.

6.8 Imports

Group Imports by Value*

<u>Group</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975+</u>
Food, Beverages and Tobacco	19,324	28,617	40,500	14,160
Fuels and Lu- bricants	3,975	4,854	15,524	6,481
Raw Materials				
Animal or vegetable	2,630	3,722	3,781	2,869
Mineral	206	199	215	132
Manufactures and Semi-Manufactures	10,925	11,139	20,178	15,130
Agricultural Machinery	356	310	582	341
<u>Total</u>	<u>70,289</u>	<u>79,766</u>	<u>119,376</u>	<u>60,583</u>
Dairy Products				
Eggs, Honey	14,170	8,853	8,013	5,213
Vegetables and Edible Fruits	52,824	52,111	51,906	17,662
Petroleum Products	604,773	697,923	718,600	79,940
Pharmaceuticals	962	871	1,061	558
Fertilizer	14,374	16,018	20,120	29,052
Wood and Wood Workings	30,964	27,448	28,941	14,853
Non-Patterned Fabrics	3,657	2,313	2,675	2,079
Basic Metals	43,540	42,270	54,664	13,500
Machines and Appliances	9,059	8,902	10,227	7,285

7. Agriculture

7.1 Overview of Agriculture

Although contributing only 35% of GDP, agriculture still a mainstay of Senegalese economy; employs 70% of labor force, exercises considerable leverage via its impact on exports and on purchasing power for local goods and services. Agricultural production divided nearly equally between groundnuts for export and millet/sorghum for domestic consumption; groundnuts represent 60% of agricultural value added, 35-55% of exports*. [ONCAD (National Cooperative and Development Assistance Office) has virtual monopoly on marketing groundnuts, and millet/sorghum, causing considerable discontent among rural farmers over pricing policies.] Other crops (maize, wheat, rice) also grown, but quantities grossly insufficient to meet demand, resulting in large, supplemental imports. In addition to food grains, livestock production contributes 7% of GNP; herds decimated by early 70's drought recovered in '75 and '76, but lack of rainfall in '77 once again reducing herd size.

In general, Senegal divided into two growing regions: heavily populated Groundnut Basin with 215,000 farms (avg. 2.4 ha each) and outlying regions isolated from Groundnut Basin by semi-desert areas and country of Gambia (farm size avg. 1.5 ha each). Overall, smallscale rainfed farming accounts for 95% of agricultural production; 360,000 total units, each farmed by 5-10 family members; fertilizer and animal traction implement use fairly common. Commercial farming limited to a few urban entrepreneurs and agrobusinesses on west coast with vegetables and sugarcane the main crops. Cooperatives also play sizeable production role; of 2,200 coops, 1,700 engaged in groundnut production; important in distributing inputs/credit, and for collecting produce from their 200,000 members.

Despite erratic rainfall patterns in most of country and generally poor soils, agricultural sector operating below potential. Major constraints are inadequate input distribution channels, high transport costs, few feeder roads (especially in developing areas), all of which account for reluctance of population in Groundnut Basin to settle elsewhere, relieving already overcropped soil. In addition, historic disincentives to grow millet and store surpluses in favor of groundnut production perpetuates Senegal's increasing dependence on foreign food grains. GOS long-term agricultural strategy aimed at crop diversification, particularly cotton, maize, and upland rice in areas of less rainfall fluctuation (Casamance and Eastern Senegal). Major irrigation schemes in Senegal River Basin and Casamance also part of diversification efforts.

7.2 Crops by Region

Groundnut Basin: most important agricultural region of Senegal: 65% of rural population, 80% of total agricultural production. Encompasses areas of Sine-Saloum, Thies, Diourbel, Kaolack. Main crops: groundnuts, millet, sorghum, cassava, cowpeas. Groundnuts sown at start of rainy season; seedling blight, rosette infestation common.

Senegal River Valley (Fleuve): relatively poor soils and rainfall patterns. Rice, millet, sorghum, maize, and cowpeas are main crops; grown mostly along river banks.

Eastern Senegal (Oriental): relatively favorable rainfall; millet sorghum, cotton, and maize the principal crops.

Casamance: agriculturally, most underutilized of all regions. However, important quantities of millet/sorghum grown here. 80% of domestically produced rice, as well as some maize also grown here.

Cap Vert: as major urban center, little cereal production, although commercial vegetable production centered here: peppers, lettuce, cabbage, onions, melons, cucumbers, string beans. Great demand for rice and wheat in densely populated capitol.

7.3 Selected Crops

Groundnut Production by Region

<u>Region</u>	<u>Acreage (ha)</u>	<u>Yield (kg/ha)</u>	<u>Production (tons)</u>
Groundnut Basin			
Diourbel	296,126	897	265,719
Thies	154,813	905	144,407
Sine-Saloum	430,000	925	398,080
Senegal Oriental	41,065	850	34,929
Fleuve	5,890	650	3,830
Casamance	122,219	1,190	146,067
Cap Vert	<u>2,000</u>	<u>600</u>	<u>1,200</u>

<u>Region</u>	<u>Acreage (ha)</u>	<u>Yield (kg/ha)</u>	<u>Production (tons)</u>
Total - Groundnut Basin	<u>880,939</u>	<u>917</u>	<u>808,206</u>
Grand Total:	<u>1,152,113</u>	<u>862</u>	<u>994,222</u>

Millet/Sorghum Production by Region

<u>Region</u>	<u>Acreage (ha)</u>	<u>Yield (kg/ha)</u>	<u>Production (tons)</u>
Groundnut Basin			
Diourbel	290,000	376	109,000
Thies	153,000	386	59,000
Sine-Saloum	300,000	533	160,000
Senegal Oriental	70,000	642	45,000
Fleuve	70,000	400	28,000
Casamance	95,000	863	82,000
Cap Vert	<u>1,500</u>	<u>467</u>	<u>700</u>
Total:	<u>979,000</u>	<u>493</u>	<u>483,000</u>

Rice Production by Region

<u>Region</u>	<u>Area (ha)</u>	<u>Yield (kg/ha)</u>	<u>Production(000 tons)</u>
Groundnut Basin			
Diourbel	---	---	---
Thies	500	910	.5
Sine-Saloum	1,700	507	.9
Senegal Oriental	5,600	1,100	6.2
Fleuve	10,000	1,936	19.0
Casamance	65,000	1,152	75.0
Cap Vert	---	---	---
Total:	<u>85,000</u>	<u>1,220</u>	<u>101.0</u>

Cotton Production by Region

<u>Region</u>	<u>Area (000 hectares)</u>	<u>Yield (kg/ha)</u>	<u>Production (000 tons)</u>
Groundnut Basin			
Diourbel	---	---	---
Thies	---	---	---

<u>Region</u>	<u>Acreage (ha)</u>	<u>Yield (kg/ha)</u>	<u>Production (tons)</u>
Sine-Saloum	6	866	5.2
Senegal Oriental	17	1,000	17.0
Fleuve	---	---	---
Casamance	16	1,006	17.0
Cap Vert	---	---	---
Total:	<u>39</u>	<u>1,005</u>	<u>39.2</u>

Source: V^e Plan Quadriennal de Developpement Economique et Social, July 1976.

7.4 Production

Gross cereal production in 1976/77 estimated at 712,000 T. For 1977/78, GOS estimates total production will be considerably lower, (perhaps 50% below 1976 levels) at 568,898 T, with groundnut harvest below average because of insufficient rainfall.

Production, Acreage, Yields

<u>1976/77</u>	<u>Groundnuts</u>	<u>Millet/Sorghum</u>	<u>Rice</u>	<u>Maize</u>	<u>Cotton</u>
A	1,330	952	81.2	47.4	43.8
P	1,195	554	112.4	47.2	44.7
Y					
<u>1975/76</u>					
A	1,017	900	80	48	43
P	1,170	715	140	45	43
Y					
<u>1974/75</u>					
A	1,152.1	1,155.1	85.6	48.6	38.6
P	993	777	117	43.2	42.4
Y	862	673	1,366	888	1,098

	<u>Groundnuts</u>	<u>Millet/Sorghum</u>	<u>Rice</u>	<u>Maize</u>	<u>Cotton</u>
<u>1973/74</u>					
A	1,026.2	1,093.5	64.6	39.2	28.6
P	674.9	510.8	64.3	33.8	33.1
Y	657	467	996	862	1,155

A = Acreage 1,000 ha Surface

P = Production 1,000 tons

Y = Yields kg/ha Rendement

Source: 7^e Plan Quadrjennal de Developpement Economique et Social, 1976.

7.5 1978 Status

Outlook not bright. Sparse rainfall adversely affected crops in northern areas, although rainfall in south normal and crop conditions reported good. Nonetheless, total shortfall in food crop production substantially higher than annual average. Total grain imports placed at 500,000 tons. Deficit has prompted forecast of economic contraction on the order of 5-10% in 1978.

7.6 Exports

In 1976, exports totaled \$425.6 million; \$349.3 million in 1975. Major items: groundnuts, phosphates, and fish, with latter yielding \$30 million/yr making it fourth largest foreign exchange earner.

<u>Products*</u>	<u>1973</u>	<u>1974</u>	<u>6 mons</u> <u>1975</u>
Husked Peanuts			
Volume	3,375	5,941	4,018
Value	290	791	580
Crude Peanut Oil			
Volume	55,105	79,232	25,487
Value	5,727	19,131	4,761
Refined Peanut Oil			
Volume	22,159	25,410	6,761
Value	2,597	6,524	1,541

<u>Products*</u>	<u>1973</u>	<u>1974</u>	<u>6 mons</u> <u>1975</u>
Peanut Cakes			
Volume	166,474	184,333	59,495
Value	6,532	6,918	1,938
Total Peanut Products (1)			
Volume	<u>248,440</u>	<u>300,596</u>	<u>96,963</u>
Value	<u>15,275</u>	<u>33,977</u>	<u>8,981</u>
Fresh Fish			
Volume	18,171	22,910	6,692
Value	1,265	2,429	797
Frozen Fish			
Volume	8,190	8,593	3,015
Value	2,519	3,428	1,262
Wheat Flour			
Volume	8,989	10,615	5,521
Value	321	572	326
Salt			
Volume	98,672	105,816	50,966
Value	493	793	383
Cement			
Volume	64,338	92,217	55,703
Value	503	840	642
Phosphates			
Volume	112,952	1,898,040	349,129
Value	243	24,946	11,899
Phosphate Fertilizer			
Volume	71,090	119,004	21,075
Value	646	2,615	892
Other Products			
Volume	329,221	317,246	---
Value	12,106	18,144	8,517
Total Peanut Products (2)			
Volume	<u>2,057,592</u>	<u>2,629,404</u>	<u>---</u>
Value	<u>27,962</u>	<u>29,996</u>	<u>26,908</u>
Total (1) + (2)			
Volume	<u>2,306,032</u>	<u>2,930,000</u>	<u>---</u>
Value	<u>43,237</u>	<u>93,973</u>	<u>35,889</u>

* Volume - tons
Value - million francs CFA

7.7 Imports

Annual average food grain imports: 150,000-200,000 tons rice, 80,00-110,000 tons wheat, 50,000 tons of other cereals including millet, sorghum and maize; sugar also major import item. Imports absorb 15-20% of total export earnings and account for 40% of vital food supplies; \$730.8 million in 1976, \$576.4 million in 1975. 1978 food aid requirement estimated by FAO Multi-Donor Mission at 150,000 tons, mainly sorghum, wheat, rice, and maize. See Imports in economy section 6.8.

8. Physical Geography

8.1 Climate

Dominant characteristics of Senegal's climate are relatively high annual daytime temperatures and a long dry season. Temperatures in coastal areas rarely fall below 60° F; limited daily/ monthly/annual ranges. Inland and north Sahel zone temperatures often above 100° F; monthly range differential may be 35° F, while daily range differential often more than 40° F; cooler weather prevails from January-March. Warm rainy season from June-October; lesser time in north, longer in south. Average number of rainfall days and amounts per year: 30 days and 350 mm in the north, 100 days and 1,300 to 1,500 mm at southwest border.

Rainfall generated in broad contact zone by warm equatorial and maritime air masses that shift northward in first half of year. Moisture from equatorial land and sea areas rides northward on warm winds from south and southwest. Prevailing wind for most of year from northeast -- dry, dusty harmattan from central Sahara. Meanwhile, cooler air masses that prevail in temperate zones then interact with maritime mass to produce broad belt of instability and rain; latter shifts northward in winter, retreats southward in autumn. Harmattan then desiccates vegetation and evaporates remaining surface water. Country-wide rainfall pattern highly variable.

Winds mostly gentle except along northwestern coast. Gale strength winds occur at beginning and end of rainy season. These "tornadoes" move rapidly from east to west accompanied by lightning and thunder. Tornadoes may exceed 50 mph and usually of short duration; often followed by one or two hours of torrential rains.

8.2 Temperatures

	<u>In C'</u>												Year
	<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>	<u>Avg</u>
DA*	12	21	21	22	23	26	27	27	28	27	26	23	24.3
DI**	24	25	28	29	30	30	29	28	28	29	27	24	27.5
KA+	25	27	29	30	30	30	29	28	28	29	28	25	28.0
KE++	24	27	30	32	32	28	27	27	27	28	27	25	27.7
KO	24	27	29	31	31	30	28	27	27	28	27	24	27.7
LI	24	26	28	30	31	31	29	28	28	29	28	24	28.2
MA	23	26	29	31	34	33	30	29	29	30	28	24	28.7

	<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>	Year Avg
PO	23	25	28	30	32	32	31	30	30	30	28	23	28.5
SL+++	22	22	22	22	22	26	28	28	29	28	26	23	28.2
TA	25	28	30	32	33	30	27	27	27	28	27	25	28.2
ZI	24	26	27	28	29	28	27	26	27	28	27	25	26.8

DA...Dakar KE...Kedougou MA...Matam TA...Tambacounda
 DI...Diourbel KO...Kolda PO...Podor ZI...Ziguinchor
 KA...Kaolack LI...Linguere SL...Saint-Louis

* Years 1947-70 ** Years 1951-70
 + Years 1931-60 ++ Years 1953-65 +++ Years 1931-70

8.3 Rainfall

	<u>Rainfall</u> (in mm)												Year Total
	<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>	
DA*	.4	.7	.0	.0	1	9	91	224	175	64	2	3	569
DI**	0	1	.1	.2	6	40	140	260	189	55	5	4	700
KA+	.5	.9	.0	.1	8	61	160	295	201	64	4	3	797
KE++	2	4	5	7	47	171	258	320	307	129	16	2	1267
KO	.0	.3	.0	.0	20	150	258	399	303	116	12	.5	1254
LI	.1	2	2	.0	4	31	101	209	136	45	4	2	535
MA	1	1	.3	.1	4	50	129	202	122	22	2	2	537
PO	1	2	1	.1	3	16	68	133	84	23	3	2	336
SL	1	1	.0	.2	1	7	44	161	97	29	2	3	347
TA	.1	.6	.1	2	20	131	197	289	231	70	2	.1	942
ZI	.1	.9	.0	.1	10	125	363	532	361	146	8	10	1547

DA...Dakar KE...Kedougou MA...Matam TA...Tambacounda
 DI...Diourbel KO...Kolda PO...Podor ZI...Ziguinchor
 KA...Kaolack LI...Linguere SL...Saint-Louis

* Years 1947-70 + Years 1931-60
 ** Years 1941-70 ++ Years 1961-70

BOUNDARY REPRESENTATION IS NOT NECESSARILY AUTHORITY

Senegal and Gambia

- International boundary
- - - Region (Senegal) or division (Gambia) boundary
- ⊙ National capital
- Region or division capital
- Railroad
- Road

0 25 50 75 Miles
0 25 50 75 Kilometers



	<u>By Region</u>					
	<u>North</u>	<u>Groundnut Basin</u>		<u>Eastern Senegal</u>	<u>Casamance</u>	<u>Senegal River</u>
		<u>Center</u>	<u>South</u>			
Rainfall	400-600	600-800	800-1000	600-1500	1000-1500	- 400
Season (days)	30-45	45-50	50-70	long	long	20-30

Source: Senegal Agriculture Sector Survey 1975

8.4 Topography

Senegal located on the bulge of West Africa south of 17° N latitude and extends inland from 300 miles of coastline on Atlantic Ocean; Cap Vert peninsula near coastal center is the westernmost point in all Africa. Total area of 76,000 sq mi, about the size of South Dakota, most of it flat plains -- the western section of a broad savanna extending across Africa at southern edge of Sahara. Bordered by Mauritania in northwest, Mali in west, Guinea in southeast, Guinea Bissau in south. Gambia, an elongated enclave surrounded by Senegal, extends eastward from Atlantic coast encompassing Gambia river basin. Most of Senegal less than 300 feet above sea level; dominated by a flat expanse of sparse grasses, woody shrubs; near total absence of natural landmarks and changes in elevation.

8.5 Geographic Regions

Coastal Belt: Area called Cayor sweeps southwest from estuary of Senegal river to westernmost point of land near Dakar; covered by small swamps or pools separated by old dunes. Swampy areas extend inland as much as 15 miles. Sandy beaches on coast backed by dunes, some 100 feet high, and interspersed with clay soil depressions. Freshwater swamps and lakes, formed in depressions during rainy season, become fertile bottomlands of luxuriant growth in dry season. Discontinuous beach dunes near Cap Vert peninsula with marshes and lagoons frequently invaded by sea.

South of Dakar coastal belt narrows sharply; ground behind beaches rises to low, wooded hills. Between latter, seasonal streams run to sea, often through muddy, mangrove-lined marshes. North of Sine-Saloum river estuary, coastal belt becomes maze of creeks, channels, swampy islands choked with mangrove thickets. South of Gambia and Casamance river estuaries, creeks clogged by silt and sand in a wide area of salt flats.

Senegal River Valley:

A narrow strip of land containing Senegal River on its course from Mali border to Atlantic; north bank of main channel forms border with Mauritania. Between low, parched ridges river moves sluggishly through green, alluvial flood plain, 10-12 mi wide in upper reaches, over 40 mi wide approaching sea. Floodplain broken by channels and marshes. Downstream from Dogana, channels form maze in silt-choked plain; when river level is high, area resembles a delta. In valley above Dogana, a narrow island several hundred miles long (Ile a Morfil) lies between main channel and sluggish Doue channel on opposite side. Annual floods the lifesource of region. Salt water moves upstream in dry season, reaching Dogana in June.

Western Plains: Except for coastal dunes, only noteworthy feature is small hills (elevation to 200') northwest of Thies. Lowlands extending southeast from Thies to Kaolack contain main agricultural region; original vegetative cover nearly gone. Land is barren in dry season except for clumps of dry grass, stunted bushes. After first rains of June, landscape turns dramatically to green with new grass and field crops.

The Ferlo:

An inland continuation of Western Plains; generally a featureless savanna covering region between Senegal and Gambia rivers. Rainfall so scant, soil so porous, water in dry season taken from wells dug in shallow depressions. Nomads and their herds get forage during short rainy season. Dry grasses, scrub, and thorn trees dominate most of year.

Casamance: Separated from most of Senegal by Gambia. Inland valleys are flat; subject to yearly flooding, but separated by elevations high enough to escape inundation. In southeastern corner, a divide rises to 200' south of Casamance and Gambia river basins. Vegetation in coastal areas markedly different from rest of country; includes mangroves, thick forests, oil palms. Latter shades into wooded or open savanna in central and eastern Casamance where soils are poor, and population is sparse.

The East: A poorly defined plain extending southeastward toward Mali and Guinea borders. Straddles a north-south divide separating watershed of Gambia river on west from Faleme river basin on east. Faleme, Gambia, and their tributaries only perennial watercourses in area. Rainfall and climate same as Ferlo except at southern end where rainfall substantially higher. Most of region is poor seasonal pastureland covered with forests: wooded savanna in north (dotted with acacias, scrub growth) becoming thicker in south. Region one of least developed.

8.6 Land Use

	<u>Groundnut Basin</u>			<u>Eastern Senegal</u>	<u>Casamance</u>	<u>Senegal River</u>
	<u>North</u>	<u>Center</u>	<u>South</u>			
Pop. density per km sq	15-25	80-100	3-6		15-80 ^{a/}	b/
No. of Farms	18,000	57,000	20,000 57,000	22,000	30,000 47,000	25,000 6,000
Av. Size of Farm	6.0	6.0	7.0	4.0	3.0 5.0	5.0 4.0

a/ Basse Casamance, Ziguinchor region

b/ Less than 1 in wide areas and high densities in the Senegal River Valley

Source: Senegal Agriculture Sector Survey, February 20, 1975

Total land usage: 13% forested, 40% agricultural (12% cultivated), 47% built-up areas, waste etc.

Note: Bulk of farm labor provided by family of farm operator. No equivalent to landlord/tenant, or sharecropper relationships.

8.7 Soils by Region

Groundnut Basin: Varied soils; very sandy in north to heavier, but still rather sandy in south; latter becoming shallower toward the east.

Eastern Senegal: Soils generally shallow; forest cover affords protection from serious erosion. Two main types of ferruginous soils dominate: beige soils on plateaus, reddish soils on slopes.

Casamance: Soils generally deep. In east, dominated by silt from Casamance river and its tributaries. Salinity a problem.

Senegal River Valley: Predominantly sandy soils; coarser soils of levees along Senegal river used for flood-recession cropping.

8.8 Rivers

Senegal River: 2,500 miles long; main upper tributary the Bafing river until joined in eastern Mali by Bakoy river to form the Senegal. As it enters country, joined by Faleme river; no falls or rapids downstream. Annual flood crests arrive in mid-September and take 6 weeks to reach sea. Maximum annual average 45 feet above minimum at Mali border, decreasing to well under 12 feet within 100 mi of mouth at Saint-Louis. Above latter, river forms estuary divided southward by long sandbar, Lagune de Barbarie; 1/2 mi wide, length varies between 10 and 20 mi; a dangerous, shifting bar where river meets the open sea, sometimes preventing ship passage for several weeks.

- Saloum River: In western Senegal with Sine river its major affluent. Both are sluggish streams feeding extensive tidal swamps north of Gambia. Only lower reaches of both carry water, albeit brackish, year round.
- Gambia River: Middle reaches within Senegal, entering latter in southeastern corner, then swings northward winding 200 mi to Gambia border. Receives flow of perennial Koulountou river running between Guinean and Gambian borders.
- Casamance River: In southwestern Senegal. Drains a narrow basin less than 20 mi wide between Gambia and Guinea-Bissau. Casamance sluggish and swampy for most of 200 mi length. Songrougrou its main tributary; joins Casamance from north 65 mi from sea. Downstream from this point, Casamance a broad estuary 6 mi wide at mouth; smaller outlets separated by flat islands. Tides penetrate approximately 100 mi inland.
- Note: Senegal, Saloum, and Casamance rivers navigable most of year, but traffic volumes only modest; declining in favor of road transport.

9. Transportation and Logistics

9.1 Road Network

Several unique features have shaped Senegal's overall transportation system: 1) economic activity and population concentrated in Cap Vert peninsula and Groundnut Basin, resulting in short travel distances and a substantial flow of agricultural commodities from rural to urban areas. 2) strategic location of Dakar for international port facility. 3) transportation infrastructure relatively well developed at independence in 1962.

Most roads concentrated in western regions; few links to eastern areas. One of latter parallels Dakar-Bamako railroad and is partially paved; fully paved from Dakar to Tambacounda by end of 1978. Most roads built before independence; subsequent deterioration due mainly to truck overloading above legal axle limits, particularly trucks carrying phosphates from Ta'iba and Thies to Dakar. Traffic levels on rural roads vary by seasonal; groundnut evacuation between mid-December and mid-May nearly doubles traffic load average. However, sandy tracks in Groundnut Basin easier to negotiate in rainy season (higher bearing capacity) than in peak-traffic dry season. Projects underway to improve and maintain feeder road network in main agricultural regions as well as in Eastern Senegal.

Total road network 13,300 km; 2,600 km paved, 3,300 all-weather gravel; the are rest partly improved earth roads and ill-defined tracks. Lack of roads in rural areas and poor maintenance for existing ones.

9.2 Surface Types

Paved roads: Dakar to Saint-Louis (via Rufisque, Thies, Louga)
 Dakar to Mboro (via M'bayeck, Sao)
 Dakar to Joal (via Mbour)
 Dakar to Kaolack (via Mbour)
 Dakar to Kaffrine (via Kaolack)
 Dakar to Ziguinchor (via Kaolack, Bignona)
 Dakar to Linguere (via Diourbel, Touba, Dahra)
 Dakar to Rosso (via Saint-Louis)
 Ziguinchor to Kolda (via Tanaff)
 Saint-Louis to Matam (via Dagana, Podor)
 Touba to Tiougoune (via Sagata, Kebemer)

Gravel roads: Thies to Sinndia
 (west) Mekhe to Foundiougne (via Bambey)
 Diourbel to Kaolack
 Khombole to Baba-Garage
 Diourbel to Fatick

(south): Zinguinchor to Oussouye
 Bignona to Sedhiou
 Sedhiou to N'diama
 Tamindala to Guinea border

(east): Kedougou to Niokol Koba (via Mako)
 Kedougou to Salemata (via Bandafassi)

9.3 Road Administration

Ministries of Public Works, Urbanism and Transport (MPWUT) regulates various transport modes via GOS policy implementation and administers national highway system. Directorate of Public Works (DPW) within MPWUT responsible for construction/maintenance of highways.

9.4 Road Fleet Inventory

Central Equipment Fleet (PCM) controls road maintenance equipment. Central workshop in Dakar, with regional shops in Saint-Louis, Thies, and Tambacounda. Majority of equipment between 4 and 10 years old; 10% over 10 years.

Vehicle Type	Total	Vehicle Condition				Age in Years			
		1*	2*	3*	10	4 - 10	1 - 4	New	
Bulldozers	34	-	12	22	20	4	2	8	
Track Loaders	13	-	13	-	7	6	-	-	
Wheel Loaders	23	-	5	18	-	2	18	3	
Graders	Total	78	4	18	56	32	22	-	24
	70 CV								
	100 CV								
	130 CV								

Vehicle Type	Vehicle Condition					Age in Years		
	Total	1*	2*	3*	10	4 - 10	1 - 4	New
Towed Scrapers	7	-	7	-	7	-	-	-
Hydraulic Cranes	4	-	2	2	2	-	2	-
Pneumatic Rollers	5	-	-	5	-	-	-	5
Steel Rollers	16	-	7	9	8	-	8	-
Vibrating Rollers	23	11	-	12	5	8	7	3
Pneumatic Towed Rollers	33	-	13	20	16	17	-	-
Farm Tractors	44	19	-	25	26	14	-	4
Blade Mowers	5	-	3	2	3	-	-	2
Line Markers	6	1	-	5	3	-	3	-
Compressors	10	3	2	5	1	9	-	-
Concrete Mixers	13	1	2	10	10	-	-	-
Motor-pump Units	56	14	16	26	14	26	-	26
Dump Trucks	85	1	18	66	12	37	20	16
Water Trucks	42	1	9	32	-	-	16	9
Rear Engine Trailers	13	4	6	3	7	-	5	1
Repair Trucks	18	6	6	6	-	12	-	6
Tow Trucks	13	3	-	10	7	-	6	-
Service Trucks	41	11	-	30	19	9	-	13
Four Wheel Drive Vehicles	11	1	4	6	4	3	-	4
Lights Trucks	21	5	2	14	-	-	-	-
Flat Beds Trucks	8	-	-	8	6	2	-	-
Tractors	11	-	3	8	5	-	6	-
Total	699	102	158	439	234	201	108	115

1* = to be scrapped

2* = to be rebuilt

3* = working condition

9.5 Vehicles

Roads carry 75% of commercial inter-urban passenger and freight traffic, excluding phosphates. Of 20,000 trucks and pickups registered in Senegal, 2,000 specialize in transporting agricultural products, 1,500 of which owned by private transporters.

Annual Vehicle Registrations, 1963-73^{1/}
(Units)

<u>Year</u>	<u>Passenger Cars</u>	<u>Buses</u>	<u>Trucks and Pickups</u>	<u>Truck Tractors</u>	<u>Special Vehicles</u>	<u>Total</u>
1970	40,380	3,485	18,078	563	691	63,197
1971	42,169	3,724	18,728	568	715	65,904
1972	44,444	4,081	19,453	675	754	69,407
1973	47,177	4,222	20,202	767	775	73,143
1976	49,257	4,329	-----	---	---	-----

Note: 22,071 Goods Vehicles In 1976

Annual Compound
Growth Rate (%)

1963-68	7.6	8.1	3.2	7.3	2.5	6.1
1968-73	5.6	4.8	3.6	8.9	2.5	5.0

1/ Does not include motorcycles, or trailers and semi-trailers

Note: Statistics are believed to overstate the size of the fleet, since the removal of vehicle from the vehicles fleet is not always recorded.

Source: Directorate of Transport

9.6 Railroads

Main line from Dakar to Mali border; major branch from Dakar to Saint-Louis (262 km). Minor branches (all from Dakar): to Diourbel, Touba, Kaolack (via Diourbel), Linguere (via Louga). Total network: 1,034 km of meter gauge, but only 70 km double track between Dakar and Thies.

During last decade freight demand exceeded traffic capacity; grossly inefficient use of equipment the main cause; also frequent delays and bottlenecks at Dakar-Bel Air marshalling yard. Derailments a problem; 373 km of track between km 271 and Mali border in extremely poor condition.

Passenger traffic in 1975/76 1.8 million (158 million passenger km); represents 20% of revenues. Main decreases in short-run traffic in and around Dakar.

9.7 Railroad Agency

Regie des Chemins de Fer du Senegal (CFS) established 1960; operates all sections and branch lines of Dakar-Bamako railroad. CFS a state-owned public corporation under MPWUT (see Road Administration). CFS infrastructure in poor condition, reflected in revenue/passenger traffic losses. However, CFS carries 70% of Mali's imports and exports, nearly all domestic phosphate production, and part of groundnut crop.

CFS presently being reorganized. Project underway to rehabilitate equipment and general infrastructure.

9.8 Railroad Fleet and Traffic Capacity

Estimate of Freight Traffic Capacity 1975/1977

<u>Locomotive Availability</u>		<u>1975/76</u>		<u>1976/6/77</u>	
<u>Type</u>	<u>Horse Power</u>	<u>No. Avail.</u>		<u>No. Avail.</u>	
100	610	1	23	1	20
500	740	7	44	7	45
600	800	3	23	3	30
1,100	1,050	9	54	9	50
1,200	1,100	6	79	6	77
1,600	1,500	-	-	-	-
2,400	1,950	4	45	4	45
Available hp/year		16,783		16,490	
<u>Freight traffic</u>		<u>No. Avail.</u>		<u>No. Avail</u>	
Ton ('000)		1,606		---	
Ton-km (mill)		330		---	
<u>Performance/avail. hp</u>					
Ton/hp		96		106	
Ton-km/hp		19,663		20,313	
<u>Estimated traffic capacity ton ('000)</u>					
Ton-km (mill)		---		1,748	

Fleet of Motive Power (as of February 1977)

<u>Locomotives</u>	<u>Type</u>	<u>HP</u>	<u>No</u>	<u>Max. Load</u>	<u>Yearly</u>	<u>Avail.</u>	<u>Axle</u>
				<u>hailed</u>	<u>km/loco.</u>	<u>(%) Feb. 77</u>	<u>Load</u>
				<u>(tons)</u>	<u>75/76</u>		<u>(tons)</u>
<u>Line</u>							
<u>Locomotives</u>	BB 100	610	2 ^{1/}	600	7,400	0	12.5
	BB 500	740	8 ^{2/}	650	49,130	50	12.8
	BB 600	800	3 ^{3/}	600	11,900	33	13.0
	BB1100	1,050	10	900	51,000	50	15.0
	BB1200 ^{4/}	1,100	6	900	66,050	100	13.5
	BB1600 ^{4/}	1,500	3	1,200	-	-	-
	CC2400	1,950	4	1,800	44,700	50	15.0
<u>Total</u>			36			55	
<u>Shunting</u>							
<u>Locomotives</u>	AA 10	150	17 ^{5/}	250	13,380	65	11.0
	AA 50 ^{4/}	420	6	500	9,710	50	13.0
	AA 50 ^{4/}	420	2	500	-	-	-
	BB 60	300	3	350	20,180	33	08.5
<u>Total</u>			28			58	
<u>Railcars</u>							
	Z 130	550	6 ^{6/}	90	67,960	67	07.5
	Z 120	550	5	90	63,000	40	11.4
<u>Total</u>			11			45	

1/ To be scrapped 1977/78

2/ One to be scrapped 1977

3/ Two to be scrapped 1977/78; third one will be allocated to shunting services

4/ Ordered; supply expected mid-1977

5/ One to be scrapped 1977

6/ Two to be scrapped 1977

Fleet of Rolling Stock (as of February 1977)

<u>Freight Cars</u>	<u>No</u>	<u>Total Capacity</u>	<u>Age (Years)</u>		<u>Owner</u>	<u>Allocated to</u>
		<u>Seats/tons/m</u>	<u>0-25</u>	<u>over 25</u>		<u>Inter. Traffic</u>
<u>CFS-Owned Cars</u> ^{1/}						
Covered Box						
Cars	478	13,395	190	288	CFS	156
Open Cars	166	4,205	55	111	"	28

Flat Cars	54	1,360	6	48	"	13
Tank Cars	18	413	-	18	"	8
Total	716	18,960 tons	251	465		202

Privately-Owned Cars

Hopper Cars	95	4,437	95	-	TAIBA	-
	32	1,316	12	20	PECHINEY	-
Tank Cars	5	220	5	-	TAIBA	-
	3	123	3	-	PECHINEY	-
	32	1,315	26	6	CAT	32
	2	80	2	-	MOBIL	-
	1	25	-	1	BP	-
Refrigerator Cars	1	13	1	-	SOBOA	-
Total	171	5,766 tons	144	27		32
<u>Service Cars</u>	232	-	-	232	CFS	-

1/ Additional seventy-five cars are ordered under CCE-financing (10 tank cars, 15 open cars and 50 covered goods cars)

9.9 Ports

Port system consists of a major international facility at Dakar, supplemented by secondary ports at Saint-Louis, Kaolack, Ziguinchor. Port of Dakar an excellent sheltered location; free from heavy swells, and siltation; 46 well-equipped berths, good road/rail access. Public enterprise, Port Autonome de Dakar (PAD), operates/maintains port. Cargo tonnage handled at Dakar doubled during last decade; now 6 million tons per year. Major traffic includes: petroleum, phosphates and most of traffic for Mali and Mauritania.

Dakar

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

General holidays:

Holidays: New Year's Day (January 1)
* Easter Monday, El Mauloud, national holiday
* Labor Day (May 1)
Ascension Day
Whit Monday
Assumption Day (August 15)
*Korite
All Saints' Day (November 1)
*Tabaski
Christmas Day (December 25)

Working Hours: 08:00 to 12:00; 14:00 to 18:00 hours. Overtime possible on request. Saturday work after noon at overtime rates.

Documents

Required: Five crew lists of vaccinations, six lists of passengers in transit, six lists of passengers disembarking, four lists of crew's personal effects, four lists of ship's stores. Maritime declaration of health, two lists of ports of call. Five ships report inwards, hatch list.

Accommodation: A safe harbor formed by two jetties. Water area: 216 hectares. 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 by 100 m.; five berths with 8.5 m. water. Median bank wharf, two berths, one of 10 m. depth and one of 6.5 m. Mole II, 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.

Kaolack

Coordinates: Lat. 14° 08' N; long. 16° 04' 30" W. Approx. 112 km. up the R. Saloum. Maximum length of ship navigating river: 105 m.

Documents Required: Two crew lists, two store lists, two Manifests Pacoville.

Accommodation: Whistling and luminous buoy at the mouth of the river. Depth at entrance 3.7 m. (all depths based on French hydrographic zero). Maximum length of ship permitted to enter 105 m. One concrete wharf, 630 m. long with 4 m. alongside. No equipment. Five warehouses with 4,500 sq. m. storage and open storage platforms of 150,000 sq. m. Fresh water available on quay at 15 tons/hr. Rail connections with Dakar. Winds E from January to May, SW to W from August to October; other months variable.

Shiprepairs: Minor repairs carried out by C.F.A.O.

Pilotage: Compulsory. For this port and for Ziguinchor, pilots embark in Dakar and must be returned there. Embarking and disembarking may be effected on the roads in order to save berthing dues. For Saint-Louis, pilots are taken at sea in front of Senegal River entrance.

Ziguinchor

Coordinates: Lat 12° 35' N; long 16° 20' W.

Accommodation: on River Casamance. Depth on bar varies; maximum 5.18 m., being dredged to 9.14 m. A middle channel (depth 4.42 to 5.03 m.) marked by buoys. Passage by day only. Navigable

channel (maximum depth 9.14 m.) marked by beacons as far as Ziguinchor. Vessels load and discharge alongside private and government jetties. Depth at jetties 5.18 m., three berths 8.23 m.

- Pilotage: Pilots may be taken in Dakar roads.
- Traffic: Approx. 98,000 metric tons per year.
- Cargo Worked: Up to 200 tons of ground nuts can be loaded by mechanical means or by hand labor per day.
- Airport: 8 km. from port.

9.10 Airports

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.

DAKAR/Yoff

<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>		
14°44'41" N 17°29'59" W	27 28.5	01/19	0.18	3490	A SW30 DW31 DTW75	100JA

Remarks: Alternate Aerodromes: Conakry/Gbessia, Freetown/Lungi, Las Palmas/Las Palmas de Gran Canaria, Monrovia/Roberts Intl., Nouadhibou/Nouadhibou, Nouakchott/Nouakchott, Sal I/ Amilcar Cabral.

Aids: ILS(01-11), DME, VOR, RL, LPA(01-1), LVA, LR, LTX, LO, L4, L5, L9, MD, MC, MT, MTD, MS, MFD, MTX, MO. Stopway 01 & 19-60. Clearway 10-240. B747, DC-10 acceptable. LPA01-11 and LVA19 planned. No Telex.

MATAM/Ouro Sogui

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>	<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
15° 36' N 13° 19' W	26 29 (EST)	14/32		1600	C		

Remarks: Alternate Aerodrome: Kaedi/Kaedi.

Aids: DC4 acceptable. MC, MD, MT, MTX planned.

KAOLACK

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>	<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
14° 09' N 16° 03' W							

Remarks: aerodrome available upon prior approval only.

Aids: Longest runway estimated at 5,200 ft. No telex.

PODOR/Podor

<u>Location</u> <u>Coordinates</u>	<u>Eleva-</u> <u>tion M/</u> <u>Temp C</u>	<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/</u> <u>Length M</u>	<u>CL</u>	<u>Aircraft</u> <u>Strength</u> <u>(1,000 kg)</u>	<u>Fuel/</u> <u>Octane</u>
16° 41' N 14° 58' W	6 29 (EST)	15/33		1250	C		

Remarks: Alternate Aerodrome: Kaedi/Kaedi.

Aids: 1976 ICAO lists none, except Stopway 15-150. DC3 acceptable.

SAINT-LOUIS/Saint-Louis

<u>Location</u> <u>Coordinates</u>	<u>Eleva- tion M/ Temp C</u>	<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/ Length M</u>	<u>CL</u>	<u>Aircraft Strength (1,000 kg)</u>	<u>Fuel/ Octane</u>
16° 02' 30" N 16° 27' 30" W	4 29.4	01/19	0.048	1900	B	SW12 DW20 DTW40	

Remarks: Alternate Aerodromes: Dakar/Yoff, Nouadhibou/Nouadhibou, Nouakchott/ Nouakchott.

Aids: RL, LR, LTX, LO, L4, MD, MC, MT, MFD, MO. Stopway 01 & 19-100. Caravelle and DC6B acceptable. No telex.

ZIGUINCHOR/Ziguinchor

<u>Location</u> <u>Coordinates</u>	<u>Eleva- tion M/ Temp C</u>	<u>NR/Type</u>	<u>Slope</u> <u>%</u>	<u>Aircraft/ Length M</u>	<u>CL</u>	<u>Aircraft Strength (1,000 kg)</u>	<u>Fuel/ Octane</u>
12° 33' N 16° 17' W	25 32.6	10/28 INSTR		1345	C		100

Remarks: Alternate Aerodrome: Banjul/Yundum.

Aids: MD, MC, MT, MTX, MO. Stopway 10-300, 28-200. Clearway 10-550. DC4 acceptable. No telex.

Key

Abbreviations

- 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)

9.11 Personal Entry Requirements

Both visa and passport required. See Travel and Visa Information for health requirements.

9.12 Aircraft

All private and non-scheduled commercial aircraft overflying for non-commercial purposes must obtain prior permission from the Chief de la Division de L'Aviation Civil, Ministère des Travaux Publics de L'Urbanisme et des Transports, Division de L'Aeronautique Civile, Immeuble Administratif, Avenue Roume, B.P. 549, Dakar, Senegal (telegraphic address: AVIACIVIL DAKAR. TELEX: None) at least 15 days prior to departure (5 days if by commercial telegraph with prepaid reply).

All requests must include (a) name of aircraft operator, (b) type of aircraft and registration marks, (c) route of flight, (d) date and times of arrival or entry into the airspace of Senegal, (e) name of pilot and number of crew, (f) number of passengers, (g) type and amount of cargo, (h) purpose of flight.

Non-scheduled commercial flights landing for commercial purposes must obtain permission at least 45 days prior to departure from the Ministère des Travaux Publics. All requests must include the above information as well as (a) a copy of the operators license, (b) the number of flights involved, (c) charges assessed to passengers, (d) and the origin and destination of passengers and cargo.

9.13 Air Carriers

SONATRA -- Air Senegal -- 50% owned by GOS, 40% by Air Afrique; provides extensive internal service linking Dakar and outlying areas. Fleet of 3 DC 3's, 2 Twin Otters, 1 Aztec, 1 Cherokee, 3 Pawnees.

Senegal also served by following airlines: Aeroflot, Air Algerie, Air Zaire, Air France, Air Mali, Air Mauritaine, Alitalia, British Caledonian, Cameroon Airlines, CSA, Ghana Airways, Iberria, Lufthansa, Nigeria Airways, PAA, Pan American, Royal Air Maroc, Sabena, Swiss Air, and TACV.

9.14 Distances

Dakar to:	Statute <u>Miles</u>
Houston	5,233 (via New York)
Kaedi	284
Kaolack	105
Miami	4,904 (via New York)
New Orleans	4,983 (via New York)
New York	3,812
Nouadhibou	428
Nouakchott	252
Paris	2,614
Rome	2,584
Saint-Louis	115
Thies	37
Ziguinchor	172

10. Power and Communications10.1 Electric Power

Electric power generation entirely thermal. As of 1977: 183,850 kW capacity, 603 million kwh produced, 115 kwh per capita. Power network centered on 2 lines running from Dakar to Thies, a thirty-kilovolt line from Thies to Saint-Louis, and another thirty kilovolt circuit from Thies to Mbour, Fatick, Kaolack, Guinguineo, Diourbel, and back to Thies. Three regional power centers: at Diourbel, Tambacounda, and Ziguinchor.

10.2 Electricity Agency

Production/generation controlled by Senegalese Company for the Distribution of Electric Energy (SENELEC). SENELEC installations leased from Electricity of Senegal (EDS), a private French company until 1972; now state-owned.

Power Station Production
In Thousands of kw

	<u>Fuels</u>	<u>1970</u> (1)	<u>1971</u> (1)	<u>1972</u> (1)	<u>1973</u> (1)	<u>1974</u>
SENELEC						
Dakar	Fuel-oil	305,247	315,543	333,245	370,660	377,366
ST.-LOUIS	Diesel-oil	131	148	120	164	219
KAOLACK	Gas-oil	11	---	---	---	---
SEIC						
Ziguinchor	Peanut Hulls	2,769	3,029	4,119	4,322	5,166
SEIB						
Diourbel	Diesel-oil	1,272	1,309	1,293	1,589	1,448
SEIT (Tambacounda)	Diesel-oil	<u>1,274</u>	<u>1,354</u>	<u>1,670</u>	<u>1,930</u>	<u>1,727</u>
Total		310,704	321,383	340,447	378,665	385,826

(1) adjusted figures

	<u>Number of Consumers</u>				
	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
SENELEC (EEOA)	61,236	61,792	68,224	73,304	77,281
SAINT-LOUIS	6,949	7,136	7,341	7,608	8,483
KAOLACK	5,199	5,583	5,657	6,059	6,408
SEIC	1,743	1,996	2,157	2,356	2,487
SEIB	1,522	1,580	1,634	1,656	1,834
SEIT	<u>624</u>	<u>690</u>	<u>760</u>	<u>836</u>	<u>933</u>
Total	77,273	79,777	85,773	91,819	97,426

10.3 Radio and Telecommunications

ORTS, BP 1765 Dakar, the GOS radio and TV organization: Broadcasts in French and 4 vernacular languages from Saint-Louis, Ziguinchor, Kaolack, and Tambacounda. In 1974, estimated 286,000 receivers in use; 66 receivers/1,000 population.

10.4 Telephones

Communications network relatively well developed, but costly. Telephones mainly in Dakar; 76% of main lines, 89% of secondary lines located within Cap Vert Peninsula; 39,000 telephones and one Atlantic Ocean satellite station.

10.5 Television

17,000 TV sets in 1974; TV transmitters at Dakar and Thies.

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Written and Researched by Thomas Phillippi, November 1978
Selected updates: April 1980