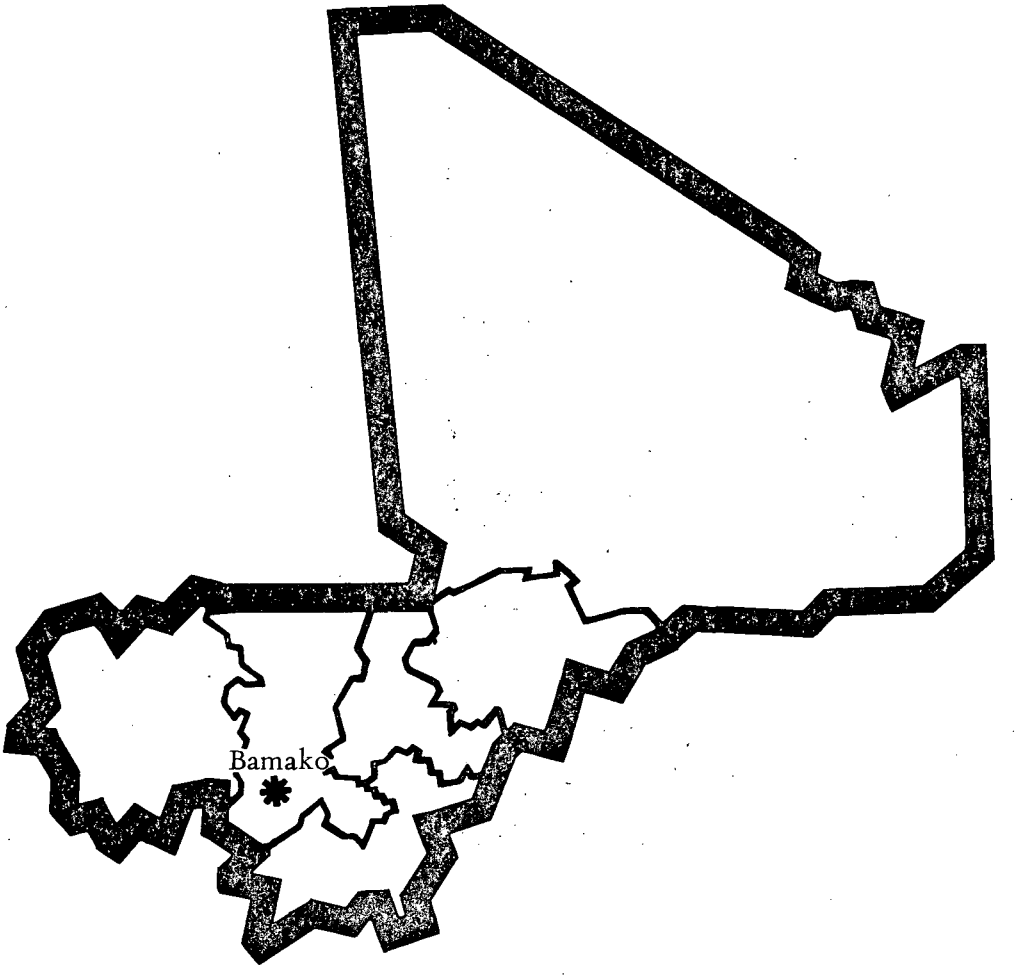
PN-AAK-316

Mali
A Country Profile



January 1980

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

Mali

502728 9-77 (542164)
Lambert Conformal Projection
Standard parallels 8° and 32°
Scale 1:11,000,000
Boundary representation is not necessarily authoritative

Railroad
Road
Airport

MALI: 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 Mali 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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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.

NAME/OFFICE:_____ PHONE:_____ Date:_____

TOPIC	COMMENTS

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1. General Information

1.1 Geographic Codes

AID	688
State Region	AF
FIPS	ML

1.2 Country Names

Legal - Republic of Mali
Local - Republique du Mali
Short - Mali

1.3 Holidays and Calendar

New Year's Day.....January 1
Army Day.....January 20
Mohammed's Birthday.....March 3
African Freedom Day.....May 25
Independence Day.....September 22
Liberation Day.....November 19
Christmas.....December 25

Muslim religious holidays are also observed: Id-ul-Fitr, Id-ul-Adha, Ramadan. Dates are approximately 10 days earlier each year.

1.4 Currency (Nov. 1979)

407.0 Mali francs = US $1.00

1.5 Time Zones

EST + 5; GMT

1.6 US Mission and Staff to Mali (July 1979)

Embassy of the United States
Rue Testard and Rue Mohammed V
Bamako
Phone: 256-63/4, 258-34, 248-35

Ambassador.....Patricia M. Byrne
Deputy Chief of Mission.....Ralph E. Graner
Commercial Section.....James W. Gamble
Political Section.....Edward P. Brynn
Economic Section.....Daniel P. Carbognin
Consul, Consular Section.....Steven Wagenseil
Administrative Section.....Harold W. Geisel
Agency for International Development....Ronald D. Levin
Public Affairs Officer (USICA).....Joseph J. Sadlik

1.7 Sister Cities

Bamako Rochester, NY

1.8 Host Mission and Staff in US (Aug. 1979)

Embassy of the Republic of Mali
2130 R Street, N.W.
Washington, D.C. 20008
Phone: 202/332-2249, 2250

Ambassador.....Maki Koreissi Aguibou Tall
Counselor.....Sidiki Diallo
Third Secretary.....Sinaly Maiga

1.9 Treaties and Agreements

Agricultural commodities agreement
Economic and technical co-operation agreement
Geodetic survey
Investment guaranties
Military assistance
Military equipment, materiel and services agreement

1.10 International Organization Memberships

AFDB, APC, CEAO, ECA, ECOWAS, FAO, G-77, GATT (de facto), IAEA, IBRD, ICAO, IDA, ILO, IMF, ITU, Niger River Commission, NAM, OAU, OMVS (Organization for the Development of the Senegal River Valley), U.N., UNESCO, UPU, WHO, WMO, WTO

1.11 Travel and Visa Information

Visa valid 1 wk ($8); obtain before arrival; 2 photos required. Apply Embassy, Washington, D.C. 20008, or permanent mission of Mali to the UN, New York, 10021. Include stamped self-addressed envelope when applying by mail. Apply for renewals in Mali. If in country without Malian Mission, cable visa request to "Le Directeur des Services de Securite", Bamako, Mali. Check embassy for specific requirements.

1.12 Ethnic and Sociocultural Groups

Main ethnic groups are Bambara, Fulani, Marka, Songhai, Malinke, Tuareg, Minianka, Senufo, and Dogon. Bambara, mostly farmers, occupy area along Ivory Coast border and north to Bamako and Segou. The Fulani, semi-sedentary herdsmen, are found throughout the country; the Marka are mainly in the regions of Kayes and Nioro; the Songhai, farmers, fishermen and merchants, live along the Niger River, upland from the Sahel and river delta; the Malinke live chiefy in the areas of Bafoulabe, Kita and Bamako. The nomadic Tuareg, of Berber origin, are mainly in north in Adrar des Iforas. The Manianka and Senufo, both farming peoples, populate regions of Koutiala and Sikasso, respectively. The Dogon, known for handicraft work, live in remote villages in the Homori cliffs. Majority of population are Negroid; the Tuareg are Caucasoid and the Fulani are of mixed origin.

1.13 Languages

Official: French
Lingua franca: Bambara; comprehended by 80%
Majority language: Bambara; 1st language for 42%, 2nd for 8%
Minority languages (spoken by 5% or more): Fulani, Senefou, Sarakole, Tuareg, Songhai

1.14 Education

1976 primary school enrollment 28%; literacy rate 10%; only native written languages are Arabic and Tuareg.

1.15 Religions

Estimated 65% of population are Muslims; about 30% animists and 5% Christian, with Roman Catholics comprising 1% of total population.

2. Government

2.1 National Government

Republic, under military rule since 1968 coup; president is chief of state and head of government. Policy determined and administered by 18-member central executive bureau made up of civilians and army officers. National Council of Democratic Union of Malian People (UDPM), the sole political party, consisting of 137 members (104 civilians, 27 military and 6 reresentatives of the women's, youth and workers union), serves as legislative branch. New constitution approved by national referendum in 1974; will not be fully in effect until 1980.

Legal system based on French codes somewhat modified to conform to Malian situations. Supreme Court highest judicial authority.

2.2 Regional Organization

Six regions, under appointed governors; each consists of 5 to 9 districts (cercles) administered by commandants under direction of Minister of the Interior. Most districts have one or more sub-districts and administrative posts.

5 municipalities 'de plein exercice' - Bamako, Kayes, Segou, Mopti, Gao - are governed by elected council and mayor elected by its members.

6 cities 'de moyen exercice' have elected councils with mayors appointed by administration: Kati, Koulikouro, Sikasso, San, Tombouctou, Koutiala.

2.3 1979 Status

Elections in June confirmed power of General Moussa Traore by 99.89% of voters. (Traore has governed country sice army overthrew Modibo Keita in 1968.) 82 candidates presented by the UDPM were elected to the National Assembly by the same percentage.

2.4 Key Leaders (Nov. 1979)

President.....Traore, Moussa, Gen.
Min. of Finance & Commerce.....Diallo, Mady
Min. of Foreign Affairs & International
Cooperation.....Beye Alaioune Blondin
Min. of Industrial Development & Tourism....Keita, Lamine
Min. of Information & Telecommunications....Hamani, Ahmed Mohamed Ag
Min. of Interior & Urban Affairs.....Ly, Sekou, Lt. Col.
Min. of Justice, Keeper of the Seal.....Sidibe, Boubacar
Min. of Labor & Civil Service.....Diallo, Boubacar
Min. of National Defense.....Traore, Moussa, Gen.
Min. of National Education.....Diarra, Thierno
Min. of Planning & Transportation.....Ndao, Robert Tiebele
Min. of Public Health & Social Affairs.....Traore, Ngolo, Dr.
Min. of Public Works & Tourism.....Diallo, Djibril
Min. of Rural Development.....Kone, N Fagnanama
Min. of Sports, Art & Culture.....Konare, Alpha Oumar
Min. of State Firms & Enterprises.....Sy, Abdoulaye Amadou

3. Disaster Preparedness

3.1 Host Disaster Plan

Government of Mali has no national disaster plan. However, Sahel Disaster Relief Organization, coordinated by ministers of interior and national defense and comprising representatives from ministries of defense, education, health and social welfare, interior, labor, production and agriculture, and public works and from the Gendarmerie Nationale, now operational and "effectively dealing with foreign donor relief" (Mission Plan). Office located in Ministry of Defense; coordinated by defense Chef de Cabinet and Attache.

GOM has limited resources available for response to disaster. As in past, will need outside aid. Present food stockpile due to donor community response.

3.2 US Plan

Ambassador or MDRO contacts GOM disaster relief coordinator, offers assistance in survey and assessment, updates information on relief supplies, personnel and transportation; if US assistance warranted, notifies OFDA and State AID/Africa.

MDT establishes direct communications with GOM coordinator, provides daily sitreps to Washington during emergency phase, analyzes requests from GOM, assigns roles to MDRT members, coordinates US military relief services. Indicates need for supplementary equipment, supplies and personnel to AID/OFDA. Determines transport needs. Requests specialists as needed and arranges emergency entry for all US government support personnel. Requests necessary supplies from nearby country missions.

3.3 Contact List

Special mission disaster relief team and functions:

MDRO	E. G. Ruoff, X205 Tel 240-04, Badalabougou Coordinates activities; monitors overall activity; rescue and relief assessment/OPS.

GSO	James Hester, 224-70 Tel 232-36, Badalabougou Shelter and survival supplies; communications; tranportation and logistics.
FFP Officer	Robert Roussel, 225-40 Tel 235-19, Badalabougou Food and water preparation; engineering, sanitation, debris clearance, etc.
Embassy Nurse	Maxine Bradrick, 238-84 Tel 248-03, Badalabougou Medical services.
PAO	Frank Gomez, X215 Tel 235-83, Quartier de Fleuve Information, press, news media, etc.
Vice Consul	Glen Price, X231 No Home Phone, Korofina Consular affairs; administration and reporting.

3.4 Multilateral Groups

The following international and bilateral organizations represented in Mali and active in the Sahel Drought Relief Organization: UNDP, WFP, FAO, WHO, UNICEF, UNESCO, European Economic Community (EEC), French Aid (FAC), Canadian Aid (CIDA), German Aid (FGA).

3.5 US Funding

Ambassador's disaster relief authority - $25,000
PL 480 food
AID contingency funds
Special appropriations
US-owned local currencies

3.6 Transportation

Tarmac or hard packed gravel roads connect Bamako with regional capitals of Sikasso, Segou and Mopti. Bamako connected to Kayes by train and to Gao by river transport (June to January) and by a poor road (four

wheel drive). Regularly scheduled Air Mali flights from Kayes, Mopti and Gao to Bamako. The train which connects Bamako/Koulikoro (via Kayes) to Senegal has the following equipment in service: 28 passenger cars, 330 freight cars. Companie Malienne du Navigation (CMN), providing seasonal barge and passenger service on the Niger between Bamako, Koulikoro and Gao has: 2 passenger boats; 20 tug boats; 58 barges. Air Mali has the following aircraft for emergency: 1 Boeing 727; 1 Iliouchine 18; 1 Antonov 24; 2 Twin Otter; 1 DC 3.

In addition to the GOM, a number of construction firms operating in Mali have heavy equipment:

SNTP (Societe Nationale des Travaux Publics) Tel. 222-32
ENTP (Enterprise Nationale des Travaux Publics)
ABU (A German road construction firm) Tel. 229-61
SONETRA (Societe National d'Enterprise des Travaux) Tel. 226-45
SATOM (Societe Anonym des Travaux d'Outre Mer) Tel. 231-40

Equipment	ABU	SONETRA	SNTP	TP	SATOM	Total
Bulldozers	3	2	8	13	3	29
Graders	3	1	10	15	3	32
Scrapers	3	2	16	27	5	53
Rollers	6	2	10	0	3	19
Trucks	9	3	17	113	7	149
Tankers	0	2	4	37	4	47
Spreaders	0	1	7	0	0	8

3.7 Facilities

Numerous buildings in major cities could be used as hospitals in an emergency. School buildings used for emergency medical facilities in past. This would no doubt be done again.

3.8 Supplies

No wholesale outlets for tents, blankets, sand bags, in Mali. Retail outlets very small and the number of articles they can supply limited. Disaster supplies must be imported.

The Mali Red Cross: P.O. Box 280, Bamako. Telex: 572 BAMACRED. Telephone: 240-06; operates on a limited budget, has no disaster plan or organization, and does not have significant stocks of medical or disaster supplies. Small organization with chapters in regional cities: 4 mobile medical vans. Medical supplies stored in the Pharmacie Populaire in Bamako.

3.9 Host Resources

Following grains are stored in the office des Produits Agricoles du Mali (OPAM) warehouses (as of 1976):

	Millet	Corn
	(in metric tons)	
Region I (Kayes)	4,575	5,761
Region II (Bamako)	12,177	10,260
Region III (Sikasso)	7,536	3,284
Region IV (Segou)	12,173	2,065
Region V (Mopti)	17,170	6,400
Region VI (Gao)	3,376	5,633
Total	57,007	33,403

OPAM Storage Capacity 1976

Region	Stores		Silos		Total	
	Number	Capacity	Number	Capacity	Number	Capacity
Kayes	7	7,300	6	3,000	13	10,600
Bamako	27	27,900	22	12,100	49	40,000
Sikasso	4	8,800	-	-	4	8,800
Segou	5	14,052	-	-	5	14,052
Mopti	29	27,600	16	8,800	45	36,400
Gao	15	18,070	6	3,300	21	21,370
Tam	90	103,722	50	27,500	140	131,222

N.B. OPAM also mentions hired storage space available (84,000 tons) and "other stores" of uncertain ownership and condition (38,000 tons).

Source: USAID, Mission Disaster Plan, 1976.

3.10 US Volags

Agency	Intl/Local Staff	Programs
AFL-CIO African American Labor Center	1/	Equip & Mat Aid; Ind Dev; Med & PH
Africare	1/	Equip & Mat Aid; Food Prod & Ag; Ec & Dev Pl
American Friends Service Committee	1/	CD; Food Prod & Ag; Ind Dev; Med & PH
American National Red Cross		Equip & Mat Aid
American ORT Federation, Inc.	3/	Food Prod & Ag
CARE, Inc	4/12	CD; CHP; Equip & Mat Aid; Food Prod & Ag; Nutrition
CRS		Food Prod & Ag
Christian and Missionary Alliance	4/	Food Prod & Ag; Med & PH
Direct Relief Foundation		Equip & Mat Aid; Med & PH
Gospel Missionary Union	32/	Med & PH
Map International		Med & PH
United Methodist		Food Prod & Ag; Ind Dev;
Committee on Relief		Med & PH
United World Mission	13/12	Food Prod & Ag; Med & PH
World Relief Commission		Food Prod & Ag
World University Service		Equip & Mat Aid
World Vision Relief		Food Prod & Ag

Key

CD	Community Development
CHP	Construction, Housing, Planning
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

3.11 Disaster Types and History

Drought, famine, epidemic.

Summary Disaster History

Disaster	Location	Strike Date	No. Killed	No. Victims	Dmg ($000)
Food shortage	Central, E & S	6/0069	n.a.	187,500	$100
Drought	Nationwide	4/25/73	n.a.	900,000	$83,000
Drought	Nationwide	74	n.a.	n.a.	n.a.
Drought	Nationwide	75	n.a.	n.a.	n.a.
Drought	Nationwide	76	n.a.	n.a.	n.a.
Drought	Nationwide	78	n.a.	n.a.	n.a.
Meningitis	Mopti Region	1/79	17	38	n.a.

4. Population

4.1 National Population

Estimated population mid-78: 6.3 million
Annual rate of growth 1977: 2.5%
Population density/sq km 1977: 5.0
Density/sq km agricultural land: 14.0
Urban population 1977: 13.4%
Urban growth rate/annum: 4.5%
(Bamako has 50% of total urban population; density about 150/ha; by 1976 squatters represented 25% of city's population.)

Age structure:			
	0-14	-	44.0%
	15-64	-	53.3%
	65+	-	2.6%

Source: World Bank, World Development Report, 1979.

4.2 Regional Population

Region	Cercle	Number of Arrondissements	No. of Villages	1971 Est. Population	Density/ sq. km.
Kayes	Kayes	11	308	150,613	6.8
	Bafoulabe	8	255	93,764	4.7
	Kenieba	6	192	82.690	5.9
	Kita	9	286	141,754	4.0
	Nioro	13	290	202,295	9.0
	Yelimane	4	86	67,186	11.7
Total		51	1,417	738,302	6.2
Bamako	Bamako	8	843	395,015	24.2
	Banamba	6	159	77,659	10.1
	Dioila	6	284	124,644	9.6
	Kangabe	2	55	46,018	9.8
	Kolokani	4	235	112,172	9.6
	Koulikoro	8	195	84,373	14.1
	Nara	6	200	118,887	3.9
Total		40	1,971	958,767	10.6

Region	Cercle	Number of Arrondissements	No. of Villages	1971 Est. Population	Density/ sq. km.
Sikasso	Sikasso	9	474	241,871	15.7
	Bougouni	9	458	168,835	8.8
	Kadiolo	4	124	77,778	14.5
	Kolondieba	5	210	89,160	9.7
	Koutiala	10	383	223,849	16.7
	Yanfolila	8	166	82,521	9.4
	Yorosao	9	92	64,499	12.4
Total		49	1,907	948,513	12.4
Segou	Segou	13	687	311,598	24.4
	San	9	480	179,644	25.0
	Macina	5	221	100,535	15.3
	Niono	4	186	81,096	3.5
	Tominian	6	295	106,252	16.2
Total		37	1,869	779,125	13.9
Mopti	Mopti	11	279	161,955	17.3
	Bandiagara	8	393	140,214	19.3
	Bankass	7	255	126,086	18.3
	Djenne	6	159	104,346	22.9
	Douentze	6	244	135,868	5.8
	Koro	7	300	136,954	12.5
	Niafunke	11	430	188,041	12.2
	Tenenkou	6	200	93,481	8.4
Total		62	2,260	1,086,945	12.2
Gao	Gao	5	113	97,118	3.6
	Ansongo	4	80	66,847	2.9
	Bourem	4	101	104,054	2.5
	Dire	4	104	68,739	39.3
	Goundam	8	---	105,946	1.1
	Kidal	7	63	23,964	0.2
	Gourme-Rharous	5	168	72,755	1.6
	Menaka	4	42	37,208	0.5
	Tombouctou	6	95	54,243	0.2
Total		42	776	639,632	0.8

Source: GOM, Annuaire Statistique, 1971.

4.3 Urban Centers

Town	1969 estimated population	Town	1969 estimated population
Bamako	189,200	Mopti	33,990
Banamba	7,168	Bandiagara	5,837
Kangaba	6,656	Bankass	2,560
Dioila	2,764	Djenne	9,523
Kolokani	7,475	Douentze	5,120
Koulikoro	12,595		
Nara	2,867	Koro	3,584
Kati	12,083	Niafunke	5,120
Nyamina	3,379	Tenenkou	8,192
		Diafarabe	7,373
Gao	13,699		
Ansongo	4,198	Segou	31,930
Bourem	3,379	San	14,336
Dire	5,120	Macina	2,765
Goundam	6,144	Tominian	1,229
Gourma Rharous	2,253	Dioro	4,096
Kidal	1,331	Markala	4,710
Menaka	1,220	Niono	5,632
Tombouctou	10,445		
		Sikasso	23,840
Kayes	29,870	Bougouni	8,192
Bafoulabe	1,741	Kadiolo	2,253
Kenieba	2,150	Kolondieba	3,581
Kita	10,240	Koutiala	12,800
Nioro	11,571	Yanfolila	2,252
Yelimane	1,843	Yorosso	7,168

Estimated population as of 1977:

Bamako	470,000	Segou	72,000
Gao	33,000	Sikasso	52,000
Kayes	50,000	Koutiala	30,000
Mopti	62,000		

Source: GOM, Annuaire Statistique, 1971.

5. Health, Nutrition and Housing

5.1 Health Overview

Tetanus, malaria, measles and diarrhea most frequent registered causes of deaths in infants under one. Malaria countrywide, including cities; no significant measures. High maternal mortality from post-partum complications. Enteric diseases highly prevalent, with amoebiasis and bacillary dysentery most common. Other diseases include: poliomyelitis; typhoid; TB; diphtheria; endemic syphilis (Gao); cerebro-spinal meningitis (peak February - April); trachoma; brucellosis (in northern grazing areas); schistosomiasis (mainly vesical); onchocerciasis in SW (some control measures); and trypanosomiasis (near Bamako and in SE). Cholera reported in 1974.

Ministry of Public Health and Social Affairs responsible for health services. Director-general of public health executive authority. Regional directorates oversee regional hospitals, mobile health units and health establishments in administrative areas. Technical divisions: supplies, army health services, medical care services and preventive and social medicine.

5.2 Vital Statistics

Birth rate	49/1000 (1977)
Death rate	22/1000 (1977)
Infant mortality	189/1000 (1973)
Life expectancy	38.1 years (1975)

Source: World Bank, World Development Report, 1979.

5.3 Health Facilities

In 1977 Mali had 239 government hospitals and establishments for inpatient care, providing 4,709 beds - equivalent to 1 bed per 1,270 population.

		Number of Beds
General hospitals.....	10	2,162
Rural hospitals.....	35	679
Health centers.....	42	707
Maternity centers.....	152	1,161

Outpatient facilities available in hospitals and 51 dispensaries in urban areas; 291 dispensaries in rural areas; 11 mobile health units and 37 private dispensaries also available. Special services include TB dispensaries, leprosy hospitals and 52 PMI (maternal and child health) centers. Regional hospitals located in Sikasso, Kayes, Segou, Mopti and Gao. Gao also has the Tombouctou Hospital.

Bamako:
- Gabriel Toure Hospital (Tel: 227-12)
- Point G Hospital (Tel: 221-31)
- Institute Marchoux (Tel: 221-31)
- Iota Eye Hospital (Tel: 227-22)
- Endemic Diseases Center (Tel: 226-07)
- Central Veterinary Lab. (Vaccine production) (Tel: 233-44)
- Institute Nationale de Biologie Humaine (Tel: 249-09)

5.4 Medical Supplies

List of standard medicines available from Ministry of Health. Central government pharmaceutical depot (Pharmacie Populaire d' Approvisionnement), with warehouse in Bamako, is responsible for import, storage and distribution of supplies. One-year supply supposed to be stocked (labelling in French). Cold storage very limited; one small refrigerated room in Bamako at Pharmacie Populaire.

5.5 Health Personnel

Health Personnel in 1972

Personnel	Number
Physicians	140
Medical assistants	4
Dentists	6

Personnel	Number
Dental technicians	4
Pharmacists	10
Midwives	146
Traditional birth attendants	127
Professional nurses	351
Nurses	1,009
Assistant male nurses	518
Medical laboratory technicians	22
X-ray technicians	11
Sanitary engineers	2
Sanitarians	25
Medical statisticians	1
Health educators	1

Source: WHO, Statistics Annual, 1976.

In 1972 Mali had 135 doctors employed by the government. Doctor/population ratio 1/32,460 inhabitants; nursing person/population ratio 1/3,040 (1976).

5.6 Diet/MDR

Minimum daily requiremetns (FAO): 2,341 calories as follows:

Protein	Fat	Carbohydr	Calcium	Phosp	Iron	Vit-A	Na	K
43.5g	117.1g	263.4g	800mg	800mg	14mg	IU		

Weighted net energy requirement for population of Mali 2,160 calories per person per day. In rural farming areas 75-78% of calories derived from grain. For pastoral and urban population, percentage lower. Mission set grain ration of 480g (1,680 calories) per day as sufficient to meet energy requirements.

Rate of population growth apparently increasing due to improved health measures, especially vaccination. Per capita availability of food seems to have declined in rural areas since 1960's. Average per capita year-long cereal availability declined from 250kg in 1961-63 to 220kg in 1970-72; per capita meat consumption in rural areas is 20kg annually. (In Bamako 40kg, other cities over 5,000 32kg.) Lower rural consumption may be locally offset by milk or fish intake. Shift in cultivation from grain to manioc, which has high yields but lower nutritional value, may be partially responsible.

5.7 Food and Drink

Diet in Bamako area: 3,000 calories/person/day average available in mid 60's in Bamako, 80% of protein from vegetable sources; sufficient fats from shea butter and peanut butter.

Typical meal: millet or rice with sauce made of meat, gumbo (okra), soumbala, onion, cherry tomato, peanuts, salt.

In Niger delta: 2,350 calories/person/day. Deficiency of vitamin A in savannah as vegetable sources only seasonally available. 25% of total protein from animal sources.

Overall: 80% of calories from cereals, which together with oil seeds and nuts (shea nuts and peanuts) supply most of protein. Small amounts from meat and fish. Vegetables and greens used as sauce for cereals.

In rural areas diet may fall as low as 800 calories/person/day in pre-harvest period. August and September mark maximum in kwashiorkor curve. November to mid-February is season of abundance; from March to mid-June ration gradually drops. In urban areas, especially Bamako, most people adequately supplied with energy producing foods because storage and distribution systems exist and incomes are less disparate.

Eggs considered harmful - 40% of eggs produced not eaten. Infants abruptly weaned from breast to adult diet; malnutrition becomes apparent about 1 year of age; growth peaks at 6 months. 50% of infants aged 1-5 years show symptoms of moderate protein deficiency.

5.8 Emergency Foods

CARE considers following acceptable emergency foods:

basic	sorghum, millet, rice, cornmeal
secondary	peanuts, dried fish, beans, peanut oil

5.9 Housing

High rural to urban migration has caused large squatter settlements in major cities. Nearly 80% of dwellings in Bamako are simple mudbrick structures; rural housing varies with location; nomads in north live

primarily in tents; building materials of sedentary southerners include mudbrick with corrugated iron or thatched roofing. Average household size: 4.8; access to safe water: 9% of total population (1975); sewer system serves less than 10% of population.

6. Economy

6.1 Overview of Economy

Agriculture dominates economy accounting for nearly 50% of GNP. Standards are low and techniques primitive; in many areas, soils, basically of low fertility, rapidly being exhausted by continuous cropping and lack of fertilizer. Because of Mali's landlocked location and limited transport system, transportation costs for imports and exports high. However, situation could be ameliorated by providing extension, credit, input, marketing services. Most farming unspecialized and subsistence oriented. In normal years Mali self-sufficient in food production, though changing preferences in urban areas have increased demand for rice and wheat.

Drought years, 1972-74, affected all economic sectors; large scale cereal imports increased resource gap to nearly 1/3 of GDP in 1974. Normal rainfall resumed in 1975 and real GDP rose by 12.7, 9.0 and 7.4% respectively for next 3 years. Resource gap reduced to 10% of GDP by 1977, but current revenues did not increase sufficiently to cover growing government expenditures. A poor harvest in 1977/78 led to setback in development prospects and 3% decline in GDP. Nevertheless, real growth in 1979 expected to be about 5% due to good 1978/79 crop season.

6.2 GDP

GDP at Current Market Prices by Sector
(billion MF)

	1972	1973	1974	1975	1976
Primary Sector	75.5	66.4	64.7	98.9	110.3
Agriculture	36.9	31.9	31.1	47.6	53.9
Traditional sector	(27.3)	(24.1)	(24.6)	(38.3)	(43.7)
Modern sector	(9.6)	(7.8)	(6.5)	(9.3)	(10.2)
Livestock	30.6	27.4	26.7	40.9	43.8
Forestry	4.1	3.4	3.3	5.0	5.5
Fisheries	3.9	3.7	3.6	5.4	7.1
Secondary Sector	24.1	31.3	35.9	42.8	47.7
Energy	2.1	2.3	2.7	3.1	3.4
Manufacturing, handicrafts	16.4	21.0	24.0	28.7	31.5
Textiles	(9.3)	(14.3)	(16.6)	(16.9)	(16.0)
Food	(3.7)	(2.7)	(3.1)	(6.6)	(9.8)
Others	(3.4)	(4.0)	(4.3)	(5.2)	(5.7)

	1972	1973	1974	1975	1976
Construction, public works	5.6	8.0	9.2	11.0	12.8
Tertiary Sector	24.1	31.3	35.9	42.8	47.7
Transportation	6.9	7.6	8.4	10.4	11.8
Trade	42.5	47.5	53.0	65.6	70.7
Traditional sector	(16.3)	(16.5)	(17.1)	(19.8)	(21.6)
Modern sector	(26.2)	(31.0)	(35.9)	(45.8)	(49.1)
Public administration	21.3	22.8	25.4	31.4	36.2
Other services	6.5	7.1	8.0	9.9	11.3
Gross domestic product	176.8	182.7	195.4	259.0	288.0

Source: World Bank, Economic Memorandum, 1978.

6.3 Industry

Modern industrial sector disappointing both in employment and impact on balance of payments, while traditional artisan sector has continued to flourish with almost no government support. In 1975 industry accounted for 17% of GDP, of which artisan production was almost two-thirds. Since 1968, emphasis has been on developing private enterprises; sector comprised of small, mainly foreign owned firms, in miscellaneous import intensive activities. Financial performance of public sector (mostly processing local products) has been poor except for cigarettes and textiles. Employment in modern industry totalled 8,600 in 1975. Labor intensive artisan sector most important employer with about 200,000 workers; based on simple techniques and much re-cycling "waste" products of modern sector (scrap metal; groundnut mill waste for soap).

Industrial Production

	Unit	1972	1973	1974	1975
Rice	tons	28,140	25,380	38,940	55,440
Cotton lint	tons	25,800	25,150	18,989	22,989
Vegetable oils	tons	7,105	11,915	6,302	7,175
Oilcakes	tons	10,735	-	13,716	14,037
Soap	tons	4,567	4,493	4,100	5,282
Sheanut butter	tons	10	547	-	-
Tomato concentrate	tons	80	-	-	-
Sugar	tons	5,614	3,723	5,170	4,070
Alcohol	hectoliters	3,530	2,072	1,905	917

	Unit	1972	1973	1974	1975
Cigarettes	1,000 cartons	33,898	38,435	38,598	40,175
Matches	1,000 cartons	21,498	26,037	23,791	27,525
Textiles	1,000 meters	10,100	16,267	14,317	24,400
Cement	tons	42,000	49,100	42,200	49,200
Electricity(1)	1,000 mWh	52.3	61.5	68.0	73.0
Water	1,000	7,765	6,078	11,090	9,787
Bicycles and motorcycles	Numbers	13,940	14,727	16,357	17,503

1. Output of Electricite du Mali; does not include electricity generation by industrial units.

Source: World Bank, Economic Memorandum, 1978.

Traditional Industry: A Partial List of Activities

	Value of Production (1971) (million MF)
Sheanut cooking butter	840
Sorghum beer	n.a.
Bakeries	983
Salt mining	54
Sauce and condiments	576
Fire wood production	4,025
Sheanut oil for lamps	420
Clay bricks and other construction materials(a)	n.a.
Wood milling	241
Scrap iron, recycling of waste	25
Agricultural implements	n.a.
Metal housewares (e.g., knives, funnels)	120
Sheanut soap	836

		Value of Production (1971) (million MF)
Textiles:	Cotton ginning	254
	Wool carding	44
	Preparation of dah (kenaf)	172
	Yarn spinning	3,600
	Weaving	2,160
	Dyeing	n.a.
	Ropes and sacks of dah	444
	Tailors	1,800
	Leather tanning and working	192
Pottery		660
Articles of wood		630
Basket and wall-work from straw		n.a.
Miscellaneous containers (e.g., calabashes, recycled innertubes)		n.a.
Mattresses		n.a.
Total		18,076

(a) includes stone-cutting, tiles, limestone blocks, quicklime.

Source: World Bank, Economic Memorandum, 1978.

6.4 Balance of Payments

Mali had balance of payment problems prior to 1972. However, drought and international inflation aggravated situation. Notable improvement recorded in 1976 owing to good crops, better export prices, decline in imports and increase in net inflow of public capital. Nevertheless balance of payments remains vulnerable to fluctuations in primary production and international price trends.

Balance of Payments

	1974	1975	1976	1977
Merchandise exports fob(1)	64.0	71.9	94.4	124.6
Import of goods fob	129.1	131.3	111.3	114.4
Net imports NFS	79.0	84.4	63.0	68.3
Merchandise imports c.i.f.	179.0	175.9	154.2	158.7
Food	101.7	44.1	25.1	21.0
(Cereals)	(72.8)	(14.0)	(..)	(..)
Petroleum products	15.8	23.3	22.0	28.5
Other merchandise	61.5	108.5	107.1	109.3
Resource gap(2)	-129.7	-113.6	-65.3	-33.3
Investment income payments(net)	-8.5	-21.7	-16.5	19.8
Net private transfers(3)	10.0	19.6	15.9	20.3
Net official transfers	100.2	82.1	35.8	70.4
Official capital(net)	16.6	22.2	36.4	47.7
SDR allocation	-	-	-	-
Use of IMF oil facility	4.6	1.2	4.8	-
Errors and omissions(net)	0.4	-3.7	-	.1
Change in reserves(increase -)	30.1	60.7	33.1	-13.0
Net negative reserves (end of period)(4)	-128.7	-205.1	-215.2	-199.9

1. Excluding unrecorded trade
2. Including unrecorded trade
3. Including workers remittances
4. Net foreign assets of the banking system

Source: World Bank, Economic Memorandum, 1978.

6.5 Imports

In 1976 c.i.f. cost of imports amounted to 25% of GDP; of which foodstuffs were largest share. Principal import sources are China, France, Ivory Coast and US.

Merchandise Imports c.i.f.
(quantity in thousand tons, value in billion MF)

	1973		1974		1975	
	Quantity	Value	Quantity	Value	Quantity	Value
Foodstuffs	265.7	29.2	331.5	48.9	101.9	18.9
Sugar	34.0	6.4	22.8	3.9	21.5	5.7
Cereals	170.2	16.4	234.9	35.0	23.1	6.0
Cola nuts	8.5	0.7	10.9	0.9	17.9	1.2
Coffee, tea, cocoa, spices	1.5	1.1	0.9	0.7	0.6	0.5
Wheat flour	24.0	1.9	27.0	2.9	3.0	0.4
Milk, eggs & honey	2.1	1.0	6.6	2.7	3.2	1.5
Others	25.4	1.7	28.4	2.8	32.6	3.6
Petroleum Prod	109.6	4.9	96.3	7.6	106.9	8.6
Construction	17.9	2.2	19.3	3.2	48.8	6.4
Cement	4.7	0.1	3.6	0.1	22.1	0.8
Others	13.2	2.1	15.7	3.1	26.7	5.6
Metal Products	0.3	0.2	0.3	0.4	0.3	1.3
& Equipment	2.5	3.9	2.5	4.1	6.4	6.2
Railway equip	0.1	0.2	0.1	0.2	0.1	..
Non-electrical machinery	1.2	2.6	1.5	3.3	4.4	4.0
Agricultural machinery	1.0	0.6	0.8	0.5	1.4	1.6
Others	0.1	0.5	0.1	0.1	0.5	0.6
Motor Vehicles & Spares	5.1	5.4	8.9	8.8	9.3	11.5
Vehicles	2.2	2.2	4.3	4.6	4.5	4.9
Spare parts	0.4	0.5	1.2	1.5	0.8	1.2
Tires & tubes	0.7	0.6	1.8	0.9	1.5	2.0
Bicycles, motor-cycles	1.1	1.2	0.7	0.5	0.7	1.3
Other transport equipment	0.7	0.9	0.9	1.3	1.9	2.1

	1973		1974		1975	
	Quantity	Value	Quantity	Value	Quantity	Value
Electrical Appliance and Hardware	1.8	2.5	1.7	2.2	2.3	3.0
Electrical appliance	1.7	2.4	1.6	2.0	2.1	2.7
Hardware, cutlery & tools	0.1	0.1	0.1	0.2	0.2	0.3
Chemicals & Pharamaceuticals	24.0	4.4	16.0	4.8	25.9	8.9
Pharamaceuticals	0.5	1.3	0.7	1.5	3.0	2.6
Fertilizers	16.1	1.1	10.5	1.0	16.8	2.9
Pesticides & insecticides	0.8	0.5	0.5	0.4	1.6	0.9
Others	6.6	1.5	4.3	1.9	4.5	2.5
Textiles & Leather Goods	3.8	1.7	5.5	2.0	8.0	5.6
Cotton yarn & fabrics	1.2	0.7	0.9	0.7	2.5	3.4
Apparel	0.1	0.1	0.1	0.2	1.2	0.5
Other textiles, leather goods	2.5	0.9	4.5	1.1	4.3	1.6
Other Manufactures	4.1	2.1	5.5	4.1	9.8	5.0
Total	434.8	56.5	487.5	86.1	319.6	75.4

Source: World Bank, Economic Memorandum, 1978.

6.6 Exports

Exports consist almost entirely of agricultural products and livestock and are thus highly dependent on production levels. Transportation difficulties are also major obstacle to export expansion. France, China, Ivory Coast and Senegal are main export destinations.

Merchandise Exports fob
(quantity in thousand tons, value in billion MF)

	1973		1974		1975	
	Quantity	Value	Quantity	Value	Quantity	Value
Cotton	44.3	10.7	26.5	10.9	38.4	8.6
Cotton fiber	21.6	9.6	17.5	10.5	19.0	7.8
Cotton seed	18.6	0.9	3.5	0.1	16.4	0.6
Cotton seed cake	4.1	0.2	5.5	0.3	3.0	0.2
Livestock	22.8	4.7	17.6	5.6	9.2	2.9
Cattle	16.5	3.2	11.8	3.5	5.3	1.6
Sheep & goats	5.4	1.2	4.9	1.8	2.9	0.8
Others	0.9	0.3	0.9	0.3	1.0	0.5
Groundnut products	27.7	3.5	18.8	3.8	31.5	4.4
Groundnuts shelled	12.2	1.7	12.1	2.9	18.7	3.5
Groundnut oil	3.6	0.8	1.5	0.6	0.6	0.2
Groundnut oil cake	11.9	1.0	5.2	0.3	12.2	0.7
Fish dried & smoked	1.6	0.4	1.1	0.4	2.4	1.3
Karite products	1.6	0.1	1.0	0.1	8.1	0.6
Sheanuts	1.1	..	0.9	0.1	8.1	0.6
Sheanut butter oil	0.4	0.1	0.1	..	-	-
Hides & skins	0.7	0.3	0.8	0.4	0.5	0.2
Gum arabic	1.2	0.6	5.6	4.6	0.8	0.2
Baskets & basketware	1.9	0.6	2.5	1.0	1.2	0.4
Other products	10.0	2.3	19.5	4.0	13.5	4.5
Total	111.8	23.2	93.4	30.8	105.6	23.1

.. Less than 50 tons or 50 million MF
- Nil

1) Data incomplete.

Source: World Bank, Economic Memorandum, 1978.

7. Agriculture

7.1 Overview of Agriculture

Sector accounts for about 38% of GDP (1977), provides livelihood for most of population, and furnishes bulk of exports. Production levels vary greatly with weather. Cultivation characterized by small family farms. Working methods simple; input of high-yield seeds, etc., limited.

Government provides producers of principal export crops (cotton and peanuts) with extension services, credit and efficient marketing facilities through projects ("Operations") in conjunction with foreign technical and financial advisors. Only 10-15% of cereal crops enter market, rest is home-consumed or exchanged at local level.

Mali has better prospects for agricultural expansion than most other Sahelian countries both in rainfed areas of the south and in the vast inland delta of the Niger River. Problems hindering development include: limited use of high-yield seeds; lack of pest control; high cost of equipment and transportation; scarcity, maldistribution and low quality of extension staff. To protect against drought Mali also needs balanced irrigation development of both full water control systems and controlled flooding systems.

1974-78 Five-Year Plan called for building up a reserve stock of 95,000 tons of grain (mainly rice) to protect against future droughts. However, plan fails to say how private sector will be induced to hold cereals, nor does it take into account lack of sufficient storage facilities. World Bank, FAO and other international agencies recommended limiting buffer stocks to 30,000 tons to tide country over until first shipments of relief came.

7.2 Crop Production

Estimates of Total and Per Capita Production of Major Cereals
(in 1,000 tons)

	1971/72	1972/73	1973/74	1974/75	1975/76
Millet, sorghum					
Census	715	624	-	-	-
Government	750	474	660	800	800
Maize					
Census	72	20	-	-	-
Government	70	44	63	83	90
Paddy					
Census	157	116	-	-	-
Government	195	100	130	215	659
WARDA (a)	157	110	110	200	-
Estimates Retained By Mission					
Millet, Sorghum	715	624	660	800	800
Maize	72	44	63	83	90
Paddy	152	110	110	215	259
Population (1000)	5402	5548	5693	5845	6001
Per Capita (kg per year)(b)					
Millet, Sorghum	132	113	116	137	133
Maize	13	8	11	14	15
Paddy	29	20	19	37	43
(Rice Equivalent)	19	13	12	24	22
Total Production Per Capita	164	134	139	175	176

(a) West African Rice Development Association
(b) Before deduction of losses and seed requirements

Source: World Bank, Economic Memorandum, 1978.

7.3 Agricultural zones

Because of the rainfall pattern, agricultural activities vary with latitude. Moving from north - at the fringe of the Sahara desert - to south the basic pattern changes as follows:

Livestock raising: Extensive herds of camels, cattle, sheep and goats owned by nomadic pastoralists. Staple foods are milk, millet and meat.

Subsistence agriculture: Millet principal crop and staple food; some domestic livestock such as goats and chickens. Yields and productivity low.

Sorghum/millet, cowpeas (niebe) and groundnuts: Sorghum replacing millet with increasing rainfall; cowpeas an important protein food; groundnut a cash crop. Mangoes almost the only fruit. Some domestic livestock; some use of animal-drawn equipment, and fertilizers.

Sorghum/maize, cowpeas and cotton: cotton replacing groundnuts as cash crop with increasing rainfall, and scope for maize to replace sorghum; some domestic livestock. Greater use of animal-drawn equipment as well as fertilizers and pesticides. Mangoes main fruit.

Some irrigated agriculture found in river valleys, usually with rice the principal crop and subsidiary crops such as sugar cane and vegetables.

7.4 Current Status (1979)

Overall rainfall normal; area under millet and sorghum higher than 1978 and there has been no need for reseeding. No crop pest infestation reported. FAO/WFP emergency food assistance approved in May to feed 95,000 vulnerable people in Tombouctou and Gao regions.

7.5 Agricultural Imports

See Imports, section 6.5.

7.6 Agricultural Exports

Rice: At present world market prices Mali is not yet fully competitive in coastal countries, but with an increase in price Mali should be able to sell rice at profit to Ivory Coast by 1980. Quality is not sufficient to sell at profit overseas.

Millet and sorghum: Potential export market in Senegal which imports 10-20,000 tons on average; Niger also a possibility. Since value/ton is half that of rice, quantities would have to be sufficient to offset high transport costs.

See also Exports, section 6.6.

8. Physical Geography

8.1 Climate

4 climatic zones: desert north of 17th parallel (less than 10" rainfall, occuring in summer; great extremes of temperature - daily range up to 35°C); Sahelian between 16th and 17th parallels (transitional, 10-20" irregular rainfall, 3 month rainy season); Sudanese between 11 and 16 degrees north (20-40" rainfall, 5 month rainy season, June-October); Guinean in far southwest (over 40" rainfall), length of dry season varies from 7 months in south, November-May, to essentially year round in north. During this period, east and north-easterly winds (Harmattan) prevail everywhere; bring extremely hot weather in April and May (temperatures over 40°C). Moderate temperatures only occur in mid-dry season, mid-December through February, when nights range from 15-18°C in south to under 10°C in Sahel and desert. Southwesterly winds from Atlantic bring summer rainfall, maximum in August.

8.2 Temperatures (Fahrenheit)

City	Range	Jan	Apr	Jul	Oct	Extreme	Lat.	Long.
Araoune	Max	81	110	111	103	130	18°54'N	03°33'W
	Min	48	67	79	70	37		
Bamako	Max	91	103	89	93	117	12°39'N	07°58'W
	Min	61	76	71	71	47		
Gao	Max	83	105	97	100	116	16°16'N	00°03'W
	Min	58	77	80	78	44		

Source: Climates of the World, 1972.

8.3 Precipitation (inches)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Araoune	*	*	0.0	0.0	0.0	0.2	0.2	0.5	0.6	0.1	0.1	*
Bamako	*	*	0.1	0.6	2.9	5.4	11.0	13.7	8.1	1.7	0.6	*
Gao	*	0.0	*	0.1	0.4	1.0	2.9	5.4	1.5	0.2	*	0.0

Source: Climates of the World, 1972.

8.4 Landforms

Landlocked, area of 1,240,710 sq km, the size of Texas, Colorado and Nevada combined, bounded on north by Mauritania and Algeria, east and southeast by Niger, south by Upper Volta and Ivory coast, southwest by Guinea, and west by Senegal. Boundaries based on colonial divisions rather than natural frontiers. Generally flat, uniform terrain of low plateau and basins, with altitudes of 300-400 meters, often covered with laterite. Iforas Adrar range in northeast (elevations of 500-800 meters) and Fouta Djalou mountains in southwest, which extend as plateau to Koulikoro, constitute major highlands. Niger River flows northeast through vast depression, where it forms inland delta between Mopti and Tombouctou. Guinean and Sudanese zones are wooded tall grass savannah, replaced by short grass and thorny shrubs in Sahelian zone. Desert north of Tombouctou has little vegetation except at oases.

8.5 Coordinates

City	Coordinates		Administrative Unit
Araoune	18°54'N	0°38'W	Gao
Bafoulabe	13°48'N	10°50'W	Kayes
Bamako (capital)	12°39'N	8°00'W	Bamako
Bougouni	11°25'N	7°29'W	Sikasso
Bougouni	16°44'N	2°31'W	Gao
Bourem	16°57'N	0°21'W	Gao
Bourem	16°22'N	3°20'W	Kayes
Gao	14°09'N	10°30'W	Kayes
Gao	16°16'N	0°03'W	Gao

City	Coordinates		Administrative Unit
Kayes	14°27'N	11°26'W	Kayes
Ke Maçine	13°58'N	5°22'W	Segou
Kidal	18°26'N	1°24'W	Kayes
Kita	13°03'N	9°29'W	Kayes
Koulikoro	12°53'N	7°33'W	Bamako
Mopti	14°30'N	4°12'W	Mopti
Nara	15°10'N	7°17°W	Bamako
Nioro du Sahel	15°14'N	9°35'W	Kayes
San	13°18'N	4°54'W	Segou
Sikasso	11°19'N	5°40'W	Sikasso
Taoudenni	22°40'N	3°59'W	Gao
Tessalit	20°12'N	1°00'E	Gao
Tombouctou	16°46'N	3°01'W	Gao

8.6 Land Use

Land area 1,240,710 sq km (124,071,000 hectares), over 40% desert and totally unsuited for agriculture. Sahelian zone, 33% of total, suitable only for stockraising. Irrigation agriculture possible in a few valleys. Rainfed agriculture limited to 25% of country with 300-600mm rainfall. 2 million hectares under cultivation: 1.7 planted in food crops, 90,000 in cotton and 250,000 in groundnuts.

	hectares
Arable/under permanent crops	11,600,000
Meadows and pastures	30,000,000
Forest	4,457,000
Other land	75,943,000
Inland water	2,000,000
Total	124,000,000

8.7 Waterways

Niger river flows 2,500 mi west to east through Mali and, with its tributary, the Bani, regularly rises over its banks, forming interior delta (between Segou and Tombouctou), an important fishing ground. Large areas cultivated under irrigation (rice major crop); provide excellent pasture in dry season.

Niger navigable between Koulikoro and Gao and between Bamako and Kouroussa, Guinea; total navigable length in Mali 1,782 km, approximately from June through January (Koulikoro to Markala dam for 5 months, Mopti to Dire for 8 months). Bani navigable during rainy season.

Major river ports: Koulikoro, Dire, Segou, Mopti, Bamako and Gao. River is usual route for 6th region via Koulikoro, Segou and Mopti. Little traffic carried on upper reaches of Niger south of Bamako.

9. Transportation and Logistics

9.1 Road Network

As of 1976, 15,699 km of roads; 1,669 km paved; 3,670 km gravel or graded and drained; 10,360 km unimproved earth roads or tracks, often impassable in rainy season. Main centers of economic activity linked with each other and with transport networks of Niger, Upper Volta and Ivory Coast. However, maintenance standards low due to lack of government funds.

As of July 1975, paved roads over 5 meters wide run from Bamako to Koulikoro; Segou to Koutiala via Bla, Koutiala to San to Bla; from Bougouni to Sikasso, then to Abidjan, Ivory Coast, from Kayes to Segala; from Bamako to Fana.

Paved roads less than 5 meters wide connect Bamako and Bougouni; San and Mopti; Fana and Segou, Kimparana and Kouri (runs across Ivory Coast border). An engineered earth road connects Bamako and Mourdiah; another, Nioro and Youri. Paved road from Gao to Ouagadougou.

NB: For more detailed transportation information see OFDA Sahel Transportation Survey, 1979.

Road Network 1977 (km)

	Paved roads	Ordinary earth road	Improved track	Seasonal track
National roads	1,501	1,161	1,076	1,894
Regional roads	97	543	936	4,019
Local roads	9	---	40	1,664
Non-classified tracks	56	---	1,049	---
Totals by type	1,663	1,704	3,101	7,577

National Roads (km)

Nahe-Kayes-Sandare-Nioro-Mauritania Border	418
Bafoulabe-Djiburo-Kenieba-Guinea Border	184
Bamako-Kati-Kolokani-Diema-Nioro	432
Taotomo-Mourdish-Goumbou-Nara-Mauritania Border	285
Bamako-Narena-Kouremale	122
Bamako-Fana-Segou-Bla-San-Sevare-Mopti	631
Bamako-Bougouni-Sikasso-Zegoua-Ivory Coast Border	461
Bougouni-Yanfolila-Badogo-Guinea Border	113
Bougouni-Manankoro-Ivory Coast Border	123

Sikasso-Finkolo-Upper Volta Border	44
Sikasso-Koutiala-Upper Volta Border	138
Bla-Koutiala-Upper Volta Border	185
Koutiala-Kimparana-Sienso	125
Kimparana-Koury	78
Sevare-Bandiagara-Bankass-Koro-Upper Volta Border	182
Sevare-Kona-Douentza-Hombori-Gossi-Gao	579
Gao-Labzanga-Niger Border	212
Gao-Bourem-Anefis-Kidal-Tinzaouaten	632
Anefis-Tessalit-Algeria Border	378
Ansongo-Menaka-Anderemboukane	310

Source: DOT, Sahel Transportation Infrastructure, 1978.

9.2 Vehicles and Traffic

Compagnie Malienne des Transports Routiers - state trucking company, carries about 20% of total road freight. Address: BP 208, Rue du Commandant Riault, Bamako

In 1978 there were approximately 20,047 passenger cars and 4,670 trucks and buses.

9.3 Road Maintenance

Ministry of Transport and Public Works assigns public works department responsibility for maintaining all roads. Work is carried out by subdivisions attached to each public works region (arrondisement).

As with all Sahelian countries, Mali's financial resources are too meager to maintain road network at a satisfactory level of service. However, Mali has a relatively high percentage of skilled workers in the public works department but poor management leads to their chronic underutilization.

9.4 Railroad

640 km of track linking Bamako with Koulikoro and Kayes and via Senegal Railway, with Dakar; meter gauge. Passenger service twice weekly, freight daily; petrol train weekly. Rail authority: Regie du Chemin de Fer du Mali, BP. 260, Bamako.

9.5 Ports

Mali landlocked. Principal ports for entry of imports: Dakar, Senegal - Rail connection from Bamako to Abidjan, Ivory Coast - road and rail to Bamako; 20% of external traffic, though cost/ton-kilometer is 1/3 higher than from Dakar. Cotonou, Dahomey, via Niamey to Gao is quicker and less expensive than trans-Sahara from Oran across desert to Gao. Alternate routes to Bamako: Conakry, Guinea, Buchanan, Liberia, and San Pedro, Ivory Coast, not developed for historical or political reasons. For more details see Sahel Transportation Analysis; and section 8.7, Waterways.

9.6 Airports

New airports at at Senou, 14 km outside Bamako (finished in 1974). Older airport in Bamako not suitable for large jets. 7 other aerodromes.

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.

BAMAKO/Senou

		Runway Characteristics					
Location Coordinates	Elevation M/ Temp C	NR/Type	Slope %	Aircraft/ Length M	CL	Aircraft Strength (1,000 kg)	Fuel/ Octane
12°30'22"N	380	07/25	0.72	DC8-63	A	AUW 126	100JA2
07°56'47"W	33.4	PA-I		3200	B	DC10-30-77	

Remarks: Alternate Aerodromes-Abidjan/Port Bouet, Bobo-Dioulasso/Bobo-Dioulasso, Conakry/Gbessia, Monrovia/Roberts Intl, Ouagadougou/Ouagadougou

Aids: ILS 07I, VOR PA 07-I, LAV 25+, LR, LTX, LB, LO, MD, MC, MT, MTD, MFD, MTX, MO, H89, L4, 5, 9. No Telex.

GAO/Gao

Location Coordinates	Elevation M/ Temp C	Runway Characteristics NR/Type	Slope %	Aircraft/ Length M	CL	Aircraft Strength (1,000 kg)	Fuel/ Octane
16°15'N	265	07/25	0.55	B727-200	B	AUW 65	100JA2
00 00	37.6	INSTR		2200	C		

Remarks: Alternate Aerodromes-Bamako/Senou, Mopti-Barbe/Mopti-Barbe, Tombouctou/Tombouctou

Aids: VOR, LSA, LR, LTX, LO, MD, MC, MT, MS, MFD, MTX, MO, H61. No Telex.

KAYES/Kayes

Location Coordinates	Elevation M/ Temp C	Runway Characteristics NR/Type	Slope %	Aircraft/ Length M	CL	Aircraft Strength (1,000 kg)	Fuel/ Octane
14°26'N	47	08/26		DC3	C	AUW 12	100
11°26'W	39.9	N-INSTR		1220			
				1165			

Remarks: Alternate Aerodromes-Selibabi/Selibabi

Aids: MC, MS, H38. No Telex.

MOPTI-BARBE/Mopti-Barbe

Location Coordinates	Elevation M/ Temp C	Runway Characteristics NR/Type	Slope %	Aircraft/ Length M	CL	Aircraft Strength (1,000 kg)	Fuel/ Octane
14°30'N	276	06/24	0.188	B727-200	B	AUW 65	100JX
04°05'W	34.3	INSTR		2200	C		
				1600			

Remarks: Alternate Aerodromes-Gao/Gao

Aids: RL, LR, LO, MD, MC, MT, MS. No Telex.

NIORO/Nioro

Location Coordinates	Elevation M/ Temp C	Runway Characteristics NR/Type	Slope %	Aircraft/ Length M	CL	Aircraft Strength (1,000 kg)	Fuel/ Octane
15°14'N	237	08/26		DC3	C	AUW 12	
09°35'W	37.0	N-INSTR		1220	C		
				1500			

Remarks: Alternate Aerodromes-Aioun-El-Atrouss/Aioun-El-Atrouss

Aids: MD, MC, MT, MS, MTX, MO.

TOMBOUCTOU/Tombouctou

Location Coordinates	Elevation M/ Temp C	Runway Characteristics NR/Type	Slope %	Aircraft/ Length M	CL	Aircraft Strength (1,000 kg)	Fuel/ Octane
16°44'N	263	08/27		AN24	D	AUW21	
03°00'W	37.3	N-INSTR		1130			

Remarks; Alternate Aerodrome-Gao/Gao

Aids: MD, MC, MT, MS, MTX, MO.

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)

9.7 Airlines

Domestic: Air Mali BP 27 Bamako. State airline, daily service to West Africa, weekly to Paris; local services. Fleet: One Boeing 727, three DC-3's, one Iliouchine 18, one Antonov 24B, two AN2; 529 employees.

Other: Air Afrique, Air Algerie, Air Guinee, Aeroflot, Interflug and UTA.

9.8 Air Distances

Domestic (statute miles)

Bamako to:	Gao	592
	Goundam	391
	Kayes	261
	Kenieba	217
	Mopti-Barbe	294
	Nara	188
	Niafounke	355
	Niono	181
	Nioro	208
	Segou	129
	Tombouctou	439
	Yelinane	243

International (statute miles)

Bamako to:	Brazzaville	1,078
	Conakry	435
	Dakar	653
	Freetown	447
	Kaedi	441
	Lagos	879
	Lome	774
	Monrovia	475
	New York via Paris	6,184
	Niamey	689
	Nouakchott	648
	Ouagadougou	439
	Paris	2,562
	St Louis, Sen.	612
	Tamale	543
	Zurich	2,589

10. Power and Communications

10.1 Electric Power

Mali has 12 electric power facilities; with exception of hydroelectric installation at Kayes, all generators are diesel. Total national production in 1975 was 92 million kWh, of which the Bamako station produced 80%.

Dam begun in 1975 by OMVS at Manantali on Bafing River due completed in 1981. Project expected to produce 777 million kwh for use by Mali, Senegal and Mauritania. Plan also drawn for earth and reinforced concrete dam at Selingue 30 miles southwest of Bamako on Sankarani River; on completion (1980), its hydroelectric station will have capacity of 35,200 kW.

Authority: Energie du Mali, BP 69, Ave. Lyautey, Bamako; production and distribution of electricity and water.

10.2 Radio Network

One radio network - no commercial programming. 350,000 receiving sets in 1976; 13.0 per 1000 population.

Radio Mali, BP 171 Bamako. Government station. Programs in French, English, Bambara, Peulh, Sarakole, Tamachek, Sonrai, Moorish, Ouolof. Regional station in Mopti.

10.3 Telephone System

One telephone exchange at Bamako with capacity of 2,000 lines. Long distance telephone communications generally unsatisfactory. Local telegraph service not reliable. In 1977 78,000 telephones in Mali. Future plan will connect all capital cities to outside world by decameter wave links.

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