Country Health Profile

MALI

Health Situation & Statistics Report
1994
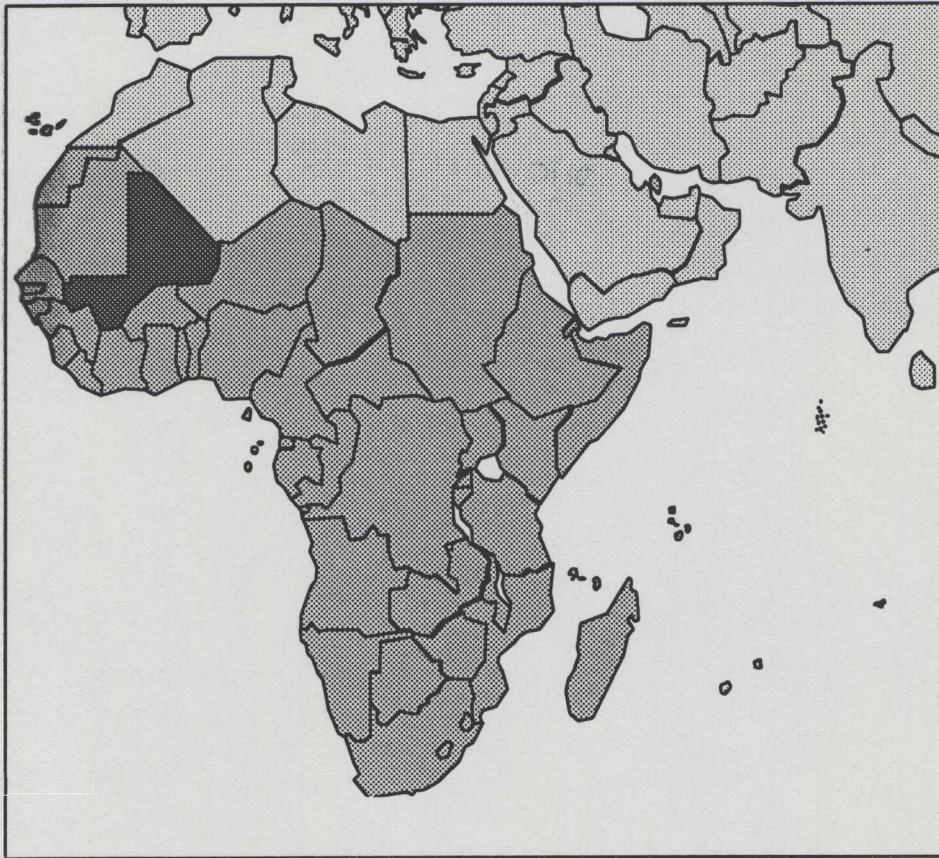
MALI
Country Health Profile

This is one of a series of Country Health Profiles produced by the Center for International Health Information (CIHI). Each profile contains descriptive information and tables on the country's health and demographic characteristics, health indicators and trends, and when available, the health care system. Profile information is compiled from CIHI's databases and reference library, as well as through research and analysis of other data sources and reports.

The profiles are intended to provide current and trend data in a concise format for policy and decision-making, planning and evaluation, and monitoring of health status for use by individuals and organizations. Contact CIHI at the address on the preceeding page for information on the availability of other health profiles and standard reports.

This profile contains national level health and demographic statistics available in CIHI's databases as of the date noted in each section. In order to enable CIHI to report the most current health and demographic statistics, please provide any more recent or more accurate data by contacting the center at the address on the previous page or through USAID, Office of Health and Nutrition, Center for Population, Health and Nutrition, Bureau for Global Programs, Field Support and Research.

TABLE OF CONTENTS

* Sources in this profile are referred to by a seven-digit code. Generally, the first three letters refer to an organization, agency, etc., and the first two numbers indicate the year of the publication or other source document. A complete list of sources appears at the end of the profile.

I: HEALTH & DEMOGRAPHIC OVERVIEW
Current Demographic and Health Indicators

JULY 1994

Demographic Indicators			
INDICATOR	VALUE	YEAR	SOURCE
Total Population	9,570,906	1993	CALXX02
Urban Population	2,623,200	1993	UNP9200
Women Ages 15-49	2,282,200	1993	UNP9200
Infant Mortality	108	1985	DHS8907
Under 5 Mortality	249	1985	DHS8907
Maternal Mortality	2,900	1,987	WHM9100
Life Expectancy At Birth	46	1,993	UNP9200
Number of Births	482,383	1993	CALXX02
Annual Infant Deaths	52,097	1993	CALXX01
Total Fertility Rate	6.9	1987	DHS8907

Child Survival Indicators			
INDICATOR	PERCENT	YEAR	SOURCE
Vaccination Coverage			
BCG	76	1993	WHE9401
DPT 3	46	1993	WHE9401
Measles	50	1993	WHE9401
Polio 3	34	1993	WHE9401
Tetanus 2	45	1993	WHE9401
DPT Drop Out	56	1990	MRF9004
Oral Rehydration Therapy			
ORS Access Rate	95	1989	WHD9100
ORS and/or RHF Use	41	1989	WHD9100
Contraceptive Prevalence			
Modern Methods (15-44)	3	1991	MRF9104
All Methods (15-44)	5	1987	DHS8907
Nutrition			
Adequate Nutritional Status	60	1987	WHA8824
Appropriate Infant Feeding	42	1987	DHS8907
A) Exclusive Breastfeeding	8	1987	DHS8907
B) Complementary Feeding	45	1987	DHS8907
Continued Breastfeeding	90	1987	DHS8907

Other Health Indicators			
INDICATOR	PERCENT	YEAR	SOURCE
HIV-1 Seroprevalence			
Urban	4	1992	BUC9301
Rural	NA		
Access to Improved Water			
Urban	53	1991	JMP9301
Rural	38	1991	JMP9301
Access to Sanitation			
Urban	81	1990	WHO9200
Rural	10	1990	WHO9200
Deliveries/Trained Attendants	32	1987	DH8907

NA = Not available

Trends in Selected Demographic and Health Indicators

JULY 1994

INDICATOR	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	SOURCE
Infant Mortality	279	256	235	217	200	185	172	148	128	112	98	WBK9302
Under Five Mortality	494	454	417	383	352	323	297	246	204	169	141	WBK9302
Crude Birth Rate	53	53	52	52	51	51	51	51	51	49	46	UNP9200
Crude Death Rate	33	31	29	28	26	25	23	22	20	18	16	UNP9200
Avg. Annual Growth Rate	2	2	2	2	2	2	3	3	3	3	3	UNP9200
Total Fertility Rate	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	6.9	6.4	UNP9200

INFANT & UNDER 5 MORTALITY RATES

CRUDE BIRTH & CRUDE DEATH RATES
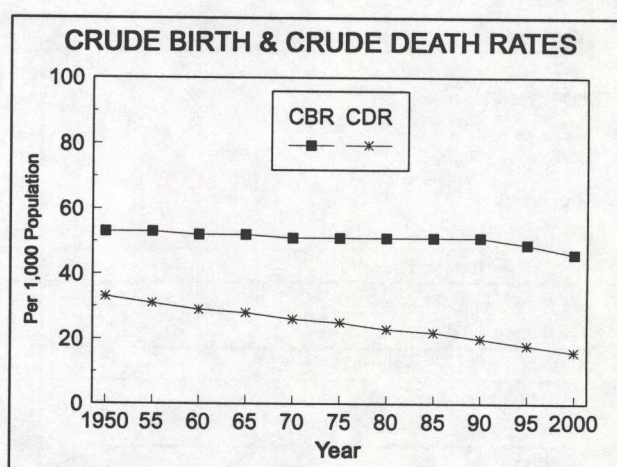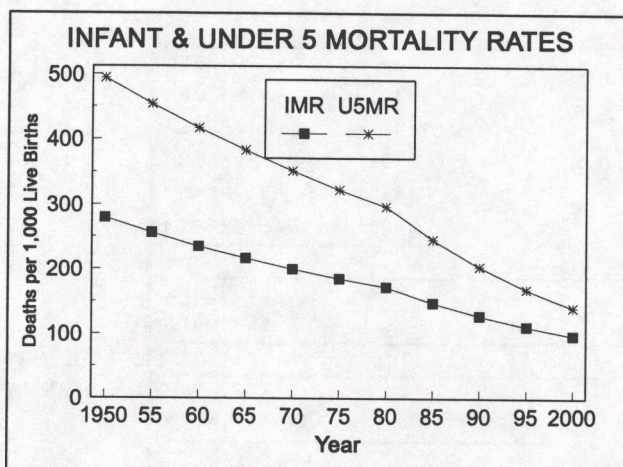
IMR and TFR

The relationship between IMR and TFR is currently a subject under review by the scientific community. While there is not conclusive evidence that the IMR and TFR are causally linked and necessarily decline together, there is empirical evidence for suspecting that such a reinforcing relationship exists as the pattern is observable in most countries.

INFANT MORTALITY & TOTAL FERTILITY RATES
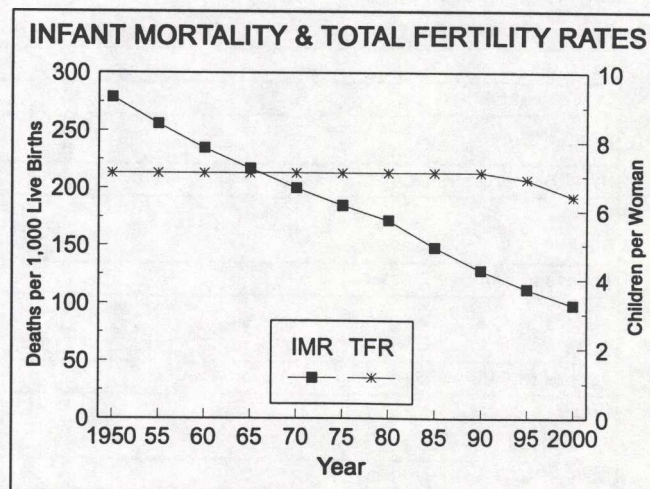
Population Estimates/Pyramid

JULY 1994

POPULATION ESTIMATES (000s)		
YEAR	VALUE	SOURCE
1950	3,520	UNP9200
1955	3,911	UNP9200
1960	4,375	UNP9200
1965	4,922	UNP9200
1970	5,484	UNP9200
1975	6,169	UNP9200
1980	6,863	UNP9200
1985	7,915	UNP9200
1990	9,214	UNP9200
1995	10,797	UNP9200
2000	12,561	UNP9200

POPULATION ESTIMATES
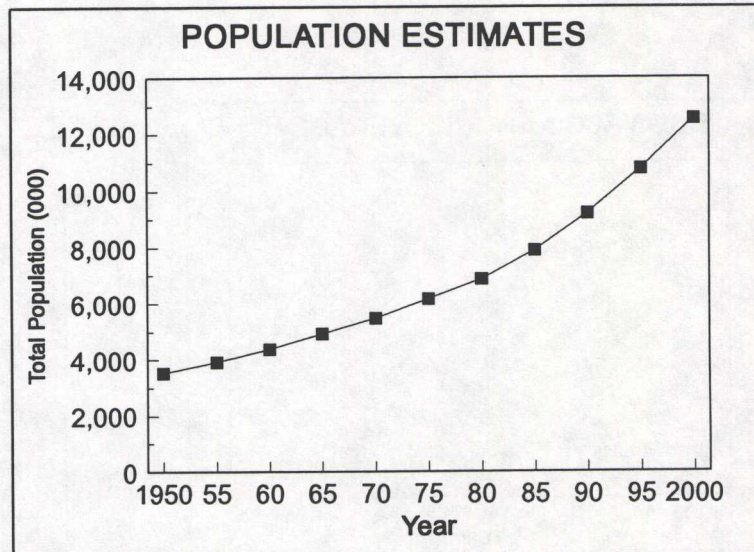
CURRENT & PROJECTED POPULATION

By Age & Gender: 1990 - 2020

Total Population 1990: 8,233,542 Total Population 2020: 20,427,491

MALE   FEMALE

1990   2020
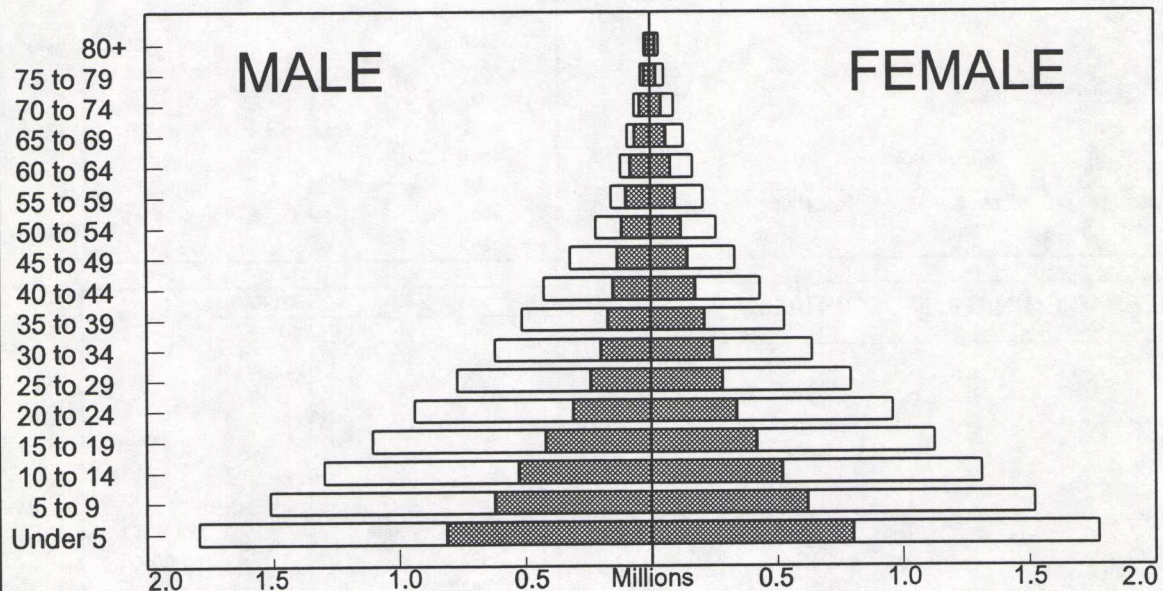
Source: BUC9401

Trends in Selected Health and Child Survival Indicators
Vaccination Coverage Rates
JULY 1994

BCG VACCINATION COVERAGE

BCG COVERAGE		
YEAR	PERCENT	SOURCE
1980	NA	
1981	19	WHE8700
1982	NA	
1983	NA	
1984	NA	
1985	NA	
1986	15	WHE8801
1987	22	WHE8900
1988	NA	
1989	67	WHE9001
1990	NA	
1991	68	WHE9202
1992	54	WHE9301
1993	76	WHE9401

DPT3 VACCINATION COVERAGE

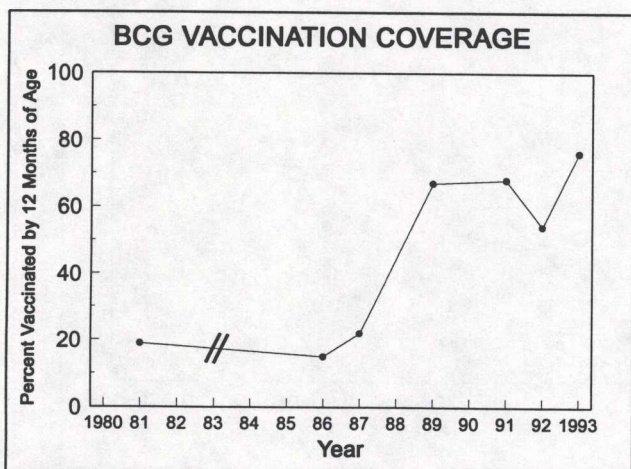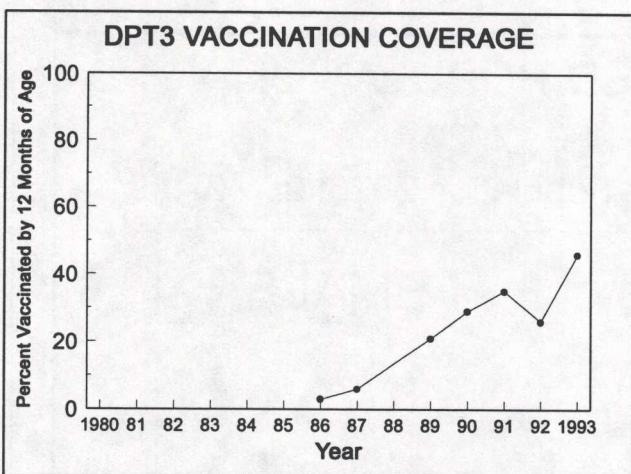| DPT3 COVERAGE		
YEAR	PERCENT	SOURCE
1980	NA	
1981	NA	
1982	NA	
1983	NA	
1984	NA	
1985	NA	
1986	3	WHE8800
1987	6	WHE8900
1988	NA	
1989	21	WHE9001
1990	29	MRF9004
1991	35	WHE9202
1992	26	WHE9301
1993	46	WHE9401

MEASLES VACCINATION COVERAGE
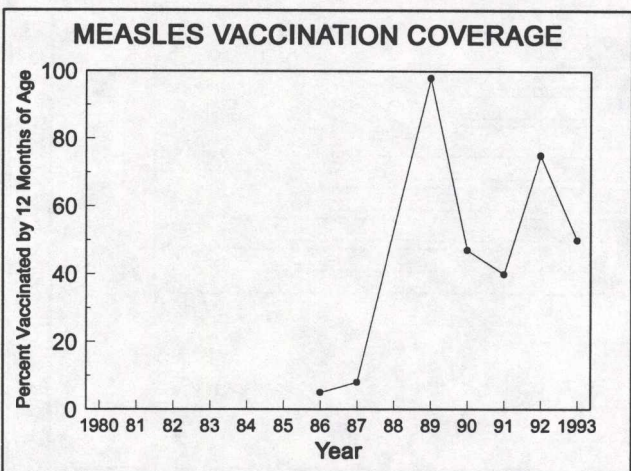
MEASLES COVERAGE		
YEAR	PERCENT	SOURCE
1980	NA	
1981	NA	
1982	NA	
1983	NA	
1984	NA	
1985	NA	
1986	5	WHE8801
1987	8	WHE8900
1988	NA	
1989	98	WHE9001
1990	47	MRF9004
1991	40	WHE9202
1992	75	WHE9301
1993	50	WHE9401

Vaccination Coverage Rates, continued

POLIO3 VACCINATION COVERAGE
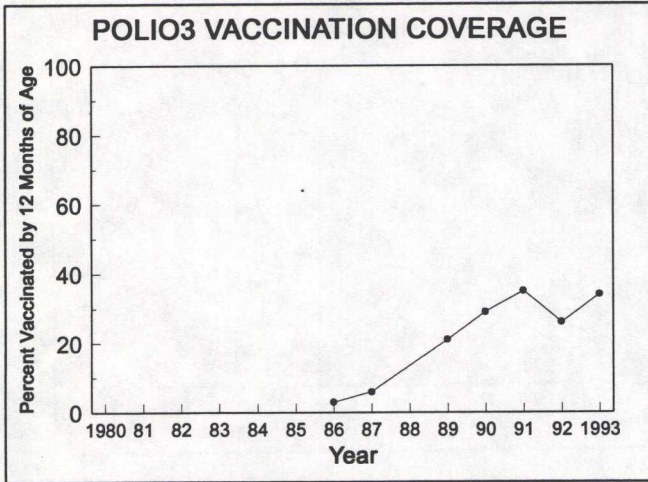
POLIO3 COVERAGE		
YEAR	PERCENT	SOURCE
1980	NA	
1981	NA	
1982	NA	
1983	NA	
1984	NA	
1985	NA	
1986	3	WHE8801
1987	6	WHE8900
1988	NA	
1989	21	WHE9001
1990	29	MRF9004
1991	35	WHE9202
1992	26	WHE9301
1993	34	WHE9401

TT2+ VACCINATION COVERAGE RATE
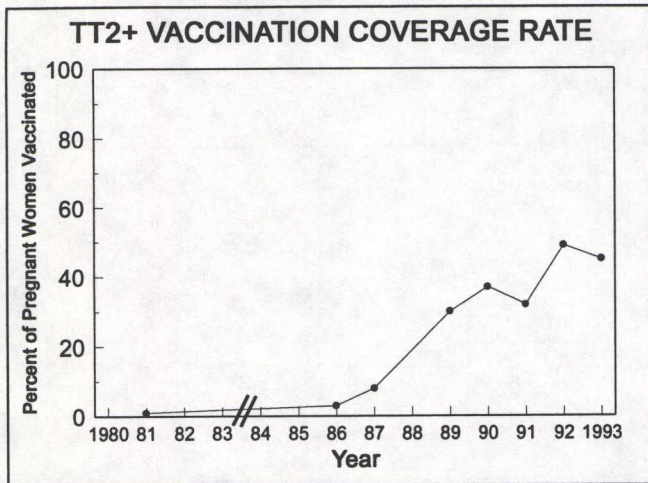
TT2+ COVERAGE		
YEAR	PERCENT	SOURCE
1980	NA	
1981	1	WHE8700
1982	NA	
1983	NA	
1984	NA	
1985	NA	
1986	3	WHE8801
1987	8	WHE8900
1988	NA	
1989	30	WHE9001
1990	37	WHE9200
1991	32	WHE9202
1992	49	WHE9301
1993	45	WHE9401

ORS Access, ORS and/or RHF Use Rates

JULY 1994

ORS ACCESS RATE
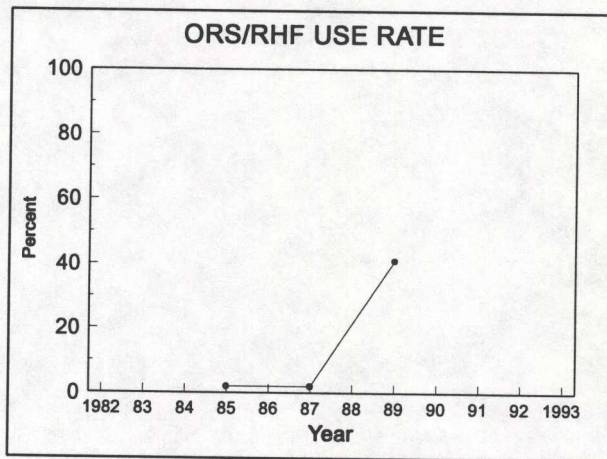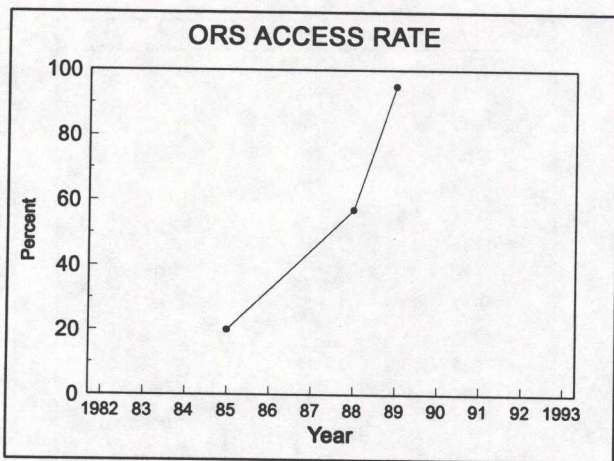
ORS/RHF USE RATE

INDICATOR	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
ORS Access	NA	NA	NA	20	NA	NA	57	95	NA	NA	NA	NA
Source				WHD8700			CAB8903	WHD9100				
ORS/RHF Use	NA	NA	NA	2	NA	2	NA	41	NA	NA	NA	NA
Source				WHD8700		DHS8907		WHD9100				

Contraceptive Prevalence Rate

JULY 1994

CONTRACEPTIVE PREVALANCE RATE

■ Modern Methods □ All Methods
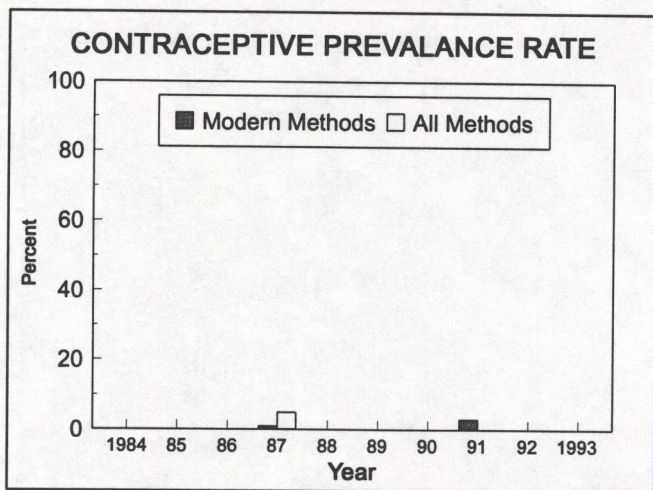
YEAR	MODERN METHODS	SOURCE	ALL METHODS	SOURCE
1984	NA		NA	
1985	NA		NA	
1986	NA		NA	
1987	1	DHS8907	5	DHS8907
1988	NA		NA	
1989	NA		NA	
1990	NA		NA	
1991	3	MRF9104	NA	
1992	NA		NA	
1993	NA		NA	

Access to Potable Water
JULY 1994

ACCESS TO POTABLE WATER
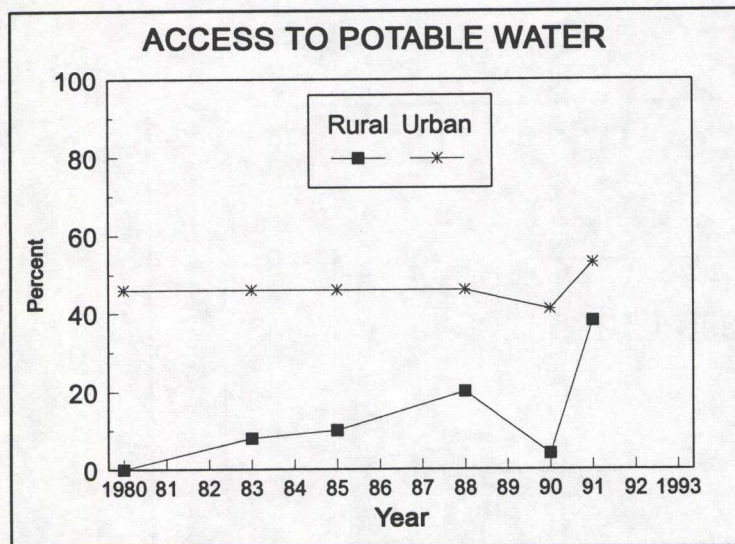
YEAR	RURAL	SOURCE	URBAN	SOURCE
1980	0	AID9012	46	AID9012
1981	NA		NA	
1982	NA		NA	
1983	8	WHO9101	46	WHO9101
1984	NA		NA	
1985	10	WHO9101	46	WHO9101
1986	NA		NA	
1987	NA		NA	
1988	20	AID9012	46	AID9012
1989	NA		NA	
1990	4	WHO9200	41	WHO9200
1991	38	JMP9301	53	JMP9301
1992	NA		NA	
1993	NA		NA	

Access to Adequate Sanitation
JULY 1994

ACCESS TO ADEQUATE SANITATION
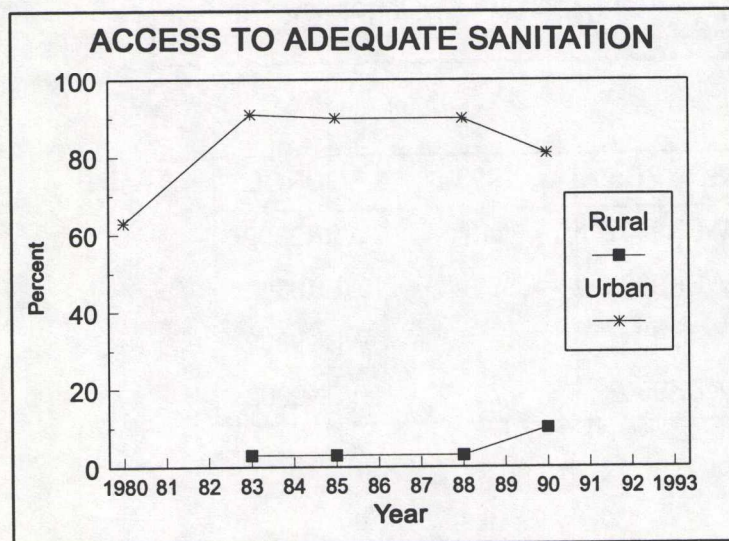
YEAR	RURAL	SOURCE	URBAN	SOURCE
1980	NA		63	AID9012
1981	NA		NA	
1982	NA		NA	
1983	3	WHO9101	91	WHO9101
1984	NA		NA	
1985	3	WHO9101	90	WHO9101
1986	NA		NA	
1987	NA		NA	
1988	3	AID9012	90	AID9012
1989	NA		NA	
1990	10	WHO9200	81	WHO9200
1991	NA		NA	
1992	NA		NA	
1993	NA		NA	

COMPARATIVE INDICATORS
Comparative IMR Rates
JULY 1994

INFANT MORTALITY RATES
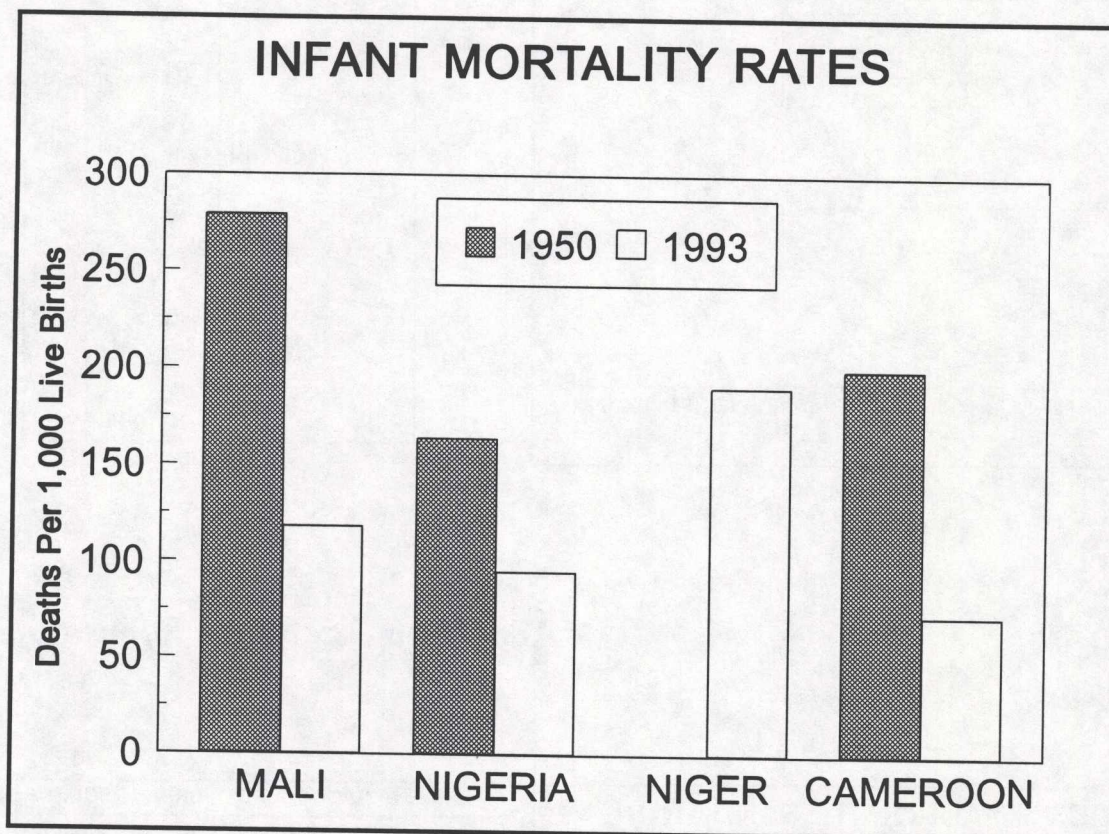
COUNTRY	1950	SOURCE	1993	SOURCE
MALI	279	WBK9302	118	WBK9302
NIGERIA	164	WBK9302	95	WBK9302
NIGER	NA		191	WBK9302
CAMEROON	200	WBK9302	73	WBK9302

Comparative Vaccination Coverage Rates

JULY 1994

VACCINATION COVERAGE

Percent Vaccinated (y-axis: 0, 20, 40, 60, 80, 100)

Categories: BCG, DPT3, MEASLES, POLIO3, TETANUS2+

■ MALI ▨ NIGERIA ☐ NIGER ▨ CAMEROON
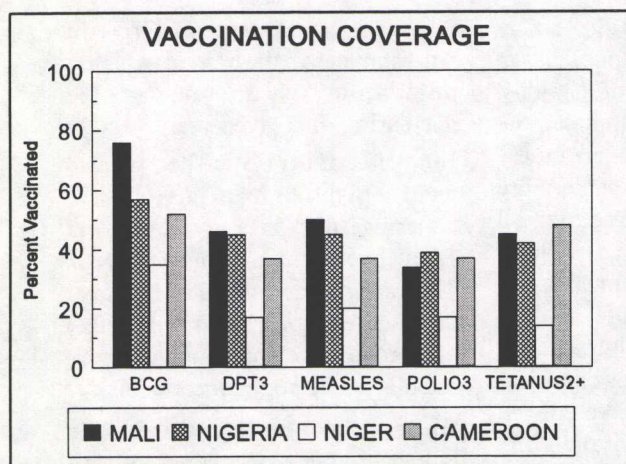
COUNTRY	INDICATOR	YEAR	VALUE	SOURCE
MALI	BCG	1993	76	WHE9401
	DPT 3	1993	46	WHE9401
	Measles	1993	50	WHE9401
	Polio 3	1993	34	WHE9401
	Tetanus 2	1993	45	WHE9401
NIGERIA	BCG	1992	57	WHE9301
	DPT 3	1992	45	WHE9301
	Measles	1992	45	WHE9301
	Polio 3	1992	39	WHE9301
	Tetanus 2	1992	42	WHE9301
NIGER	BCG	1992	35	DHS9306
	DPT 3	1992	17	DHS9306
	Measles	1992	20	DHS9306
	Polio 3	1992	17	DHS9306
	Tetanus 2	1992	14	DHS9306
CAMEROON	BCG	1992	52	WHE9401
	DPT 3	1992	37	WHE9401
	Measles	1992	37	WHE9401
	Polio 3	1992	37	WHE9401
	Tetanus 2	1991	48	DHS9209

Comparative ORS Access, ORS and/or RHF Use Rates

JULY 1994

ORS ACCESS AND ORS/RHF USE RATES

▨ ORS Access ☐ ORS/RHF Use

Percent (y-axis: 0, 20, 40, 60, 80, 100)

Categories: MALI, NIGERIA, NIGER, CAMEROON
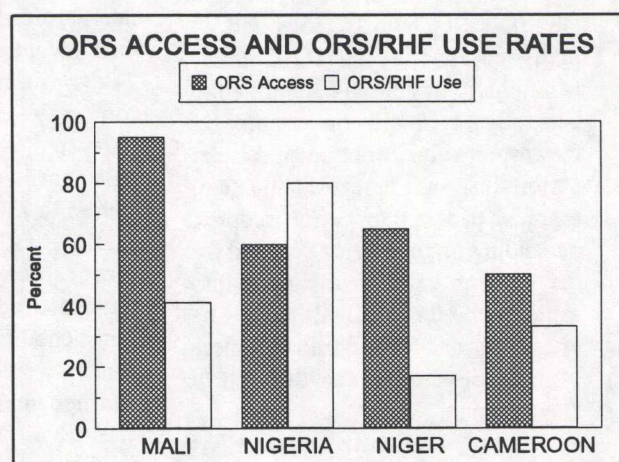
COUNTRY	INDICATOR	YEAR	VALUE	SOURCE
MALI	ORS Access Rate	1989	95	WHD9100
	ORS/RHF Use Rate	1989	41	WHD9100
NIGERIA	ORS Access Rate	1991	60	WHD9201
	ORS/RHF Use Rate	1992	80	WHD9300
NIGER	ORS Access Rate	1992	65	WHD9300
	ORS/RHF Use Rate	1992	17	DHS9206
CAMEROON	ORS Access Rate	1993	50	WHD9401
	ORS/RHF Use Rate	1991	33	DHS9112

II: DATA NOTES

JULY 1994

Notes On Mortality Estimation

Throughout this profile, references are made to infant and under 5 mortality rates for individual countries or groups of countries. In past years, the primary source of data on infant mortality was the World Population Prospects, a set of estimates updated every two years by the Estimates and Projections Section of the Population Division of the Department of International Economic and Social Affairs, United Nations. The primary source of data on under 5 mortality was a special report published in 1988 by the same group. Where another source, such as a recent Demographic and Health Survey or a national census, was available for a given country, the reported values from that source were cited in place of the United Nations estimates if the technical staff of USAID in the Country Mission and/or the appropriate regional bureaus confirmed the validity of the alternative source.

Known as indirect estimates, those of the United Nations are generated from accepted demographic models which combine the results of all available surveys and censuses in a given country to produce a single time series of estimates and projections. When new empirical data becomes available for a given country, the entire time series of estimates and projections is updated. Thus, using conventional demographic approaches, a survey done in 1990 may generate a new estimate of a mortality rate for 1970 or 1980.

During 1993, a new set of estimates for mortality was generated for 82 countries for publication in the World Development Report 1993 and a forthcoming UNICEF publication entitled The Progress of Nations. Based on a curve-fitting model, the methodology applied to generate these new estimates purports to depict more accurately the trend derived from all available data sources for a country. Like the estimates generated using conventional demographic models, the entire time series might change upon the addition of a new empirical source. These estimates were made available to USAID through the courtesy of the World Development Report of the World Bank and UNICEF.

The selection of the mortality rates was done through a consultative process involving representatives of the Office of Health in USAID's Research and Development Bureau, USAID's Regional Bureaus and, in many cases, the USAID Country Missions. The source determined to best reflect the reality in a country for the current values of infant and under 5 mortality was identified and one of a number of a computation procedures, depending on the source selected for the current value, was applied to estimate the longitudinal rates. The consideration of the additional source of data developed for the World Development Report and UNICEF during the consultative process has prompted some changes in the reporting of mortality rates from those reported in recent years.

Definitions

Demographic Indicators

Total Population: The mid-year estimate of the total number of individuals in a country.

Average Annual Rate of Growth: An estimate of the rate at which a population is increasing (or decreasing) in a given year.

Infant Mortality Rate: The estimated number of deaths in infants (children under age one) in a given year per 1,000 live births in that same year. This rate may be calculated by direct methods (counting births and deaths) or by indirect methods (applying well-established demographic models).

Under 5 Mortality Rate: The estimated number of children born in a given year who will die before reaching age five per thousand live births in that same year. This rate may also be calculated by direct or indirect methods.

Maternal Mortality Ratio: The estimated number of maternal deaths per 100,000 live births where a maternal death is one which occurs when a woman is pregnant or within 42 days of termination of pregnancy from any cause related to or aggravated by the pregnancy or its management. Although sometimes referred to as a rate, this measure is actually a ratio because the unit of measurement of the numerator (maternal deaths) is different than that of the denominator (live births). The measure would be a rate if the units were the same. Extremely difficult to measure, maternal mortality can be derived from vital registration systems (usually underestimated), community studies and surveys (requires very large sample sizes) or hospital registration (usually overestimated).

Crude Birth Rate: An estimate of the number of live births per 1,000 population in a given year.

Crude Death Rate: An estimate of the number of deaths per 1,000 population in a given year.

Life Expectancy At Birth: An estimate of the average number of years a newborn can expect to live. Life expectancy is computed from age-specific death rates for a given year. It should be noted that low life expectancies in developing countries are, in large part, due to high infant mortality.

Number of Births: An estimate of the number of births occurring in a given year.

Annual Infant Deaths: An estimate of the number of deaths occurring to children under age one in a given year.

Total Fertility Rate: An estimate of the average number of children a woman would bear during her lifetime given current age-specific fertility rates.

Child Survival Indicators

Vaccination Coverage In Children: An estimate of the proportion of living children between the ages of 12 and 23 months who have been vaccinated before their first birthday -- three times in the cases of polio and DPT and once for both measles and BCG. Vaccination coverage rates are calculated in two ways. Administrative estimates are based on reports of the number of inoculations of an antigen given during a year to children who have not yet reached their first birthday divided by an estimate of the pool of children under one year of age eligible for vaccination. Survey estimates are based on samples of children between the ages of 12 and 23 months.

Vaccination Coverage In Mothers: An estimate of the proportion of women in a given time period who have received two doses of tetanus toxoid during their pregnancies. This indicator is being changed in many countries to account for the cumulative effect of tetanus toxoid boosters. A woman and her baby are protected against tetanus when a mother has

had only one or, perhaps, no boosters during a given pregnancy so long as the woman had received the appropriate number of boosters in the years preceding the pregnancy in question. (The appropriate number of boosters required during any given pregnancy varies with number received previously and the time elapsed.) The revised indicator is referred to as TT2+. Rates are computed using administrative methods or surveys.

DPT Drop-out Rate: An estimate of the proportion of living children between the ages of 12 and 23 months who received at least one DPT vaccination but who did not receive the entire series of three vaccinations before their first birthdays.

Oral Rehydration Salts (ORS) Access Rate: An estimate of the proportion of the population under age five with reasonable access to a trained provider of oral rehydration salts who receives adequate supplies. This is a particularly difficult indicator to measure and, therefore, it may fluctuate dramatically from year to year as improved methods of estimation are devised.

ORS and/or Recommended Home Fluid (RHF) Use Rate: An estimate of the proportion of all cases of diarrhea in children under age five treated with ORS and/or a recommended home fluid. ORT use may be determined using administrative means or surveys. In general, administrative estimates are based on estimates of the number of episodes of diarrhea in the target population for a given year and the quantity of ORS available. Thus, changes in the estimates of the frequency of diarrhea episodes can alter the ORT use rate as well as "real" changes in the pattern of use. Surveys are more precise in that they focus on the actual behavior of mothers in treating diarrhea in the two-week period prior to the survey.

Contraceptive Prevalence Rate: An estimate of the proportion of women, aged 15 through 44 (or, in some countries, 15 through 49), in union or married, currently using a modern method of contraception. Where sources fail to distinguish modern and traditional methods, the combined rate is shown.

Adequate Nutritional Status: An individual child of a certain age is said to be adequately nourished if his/her weight is greater than the weight corresponding to "two Z-scores" (two standard deviations) below the median weight achieved by children of that age. The median weight and the distribution of weights around that median in a healthy population are taken from a standard established by the National Center for Health Statistics, endorsed by the World Health Organization (WHO). The indicator for the population as a whole is the proportion of children 12 through 23 months of age who are adequately nourished.

Appropriate Infant Feeding: A composite estimate of the proportion of infants (children under age one) being breastfed and receiving other foods at an appropriate age according to the following criteria: breastfed through infancy with no bottle-feeding, exclusively breastfed through four months (120 days) of age, and receiving other foods if over six months of age (181 days). Water is not acceptable in the first four months (120 days). ORS is considered acceptable at any age. Surveys are the only source of data to form this indicator. Surveys yield an estimate of how many infants are being fed correctly at the moment of the survey. They do not give an indication of the proportion of individual children fed appropriately throughout their first year of life. A number of sub-indicators may be calculated from the data used to form the composite, of which two are presented in this report.

Exclusive Breastfeeding: An estimate of the proportion of infants less than four months (120 days) of age who receive no foods or liquids other than breast milk.

Complementary Feeding: An estimate of the proportion of infants six to nine months of age (181 days to 299 days) still breastfeeding but also receiving complementary weaning foods.

Continued Breastfeeding: An estimate of the proportion of children breastfed for at least one year. In this report, all values presented for this indicator are the proportion of children 12 to 15 months of age at the time of the survey still receiving breast milk.

Other Health Indicators

HIV-1 Seroprevalence, Urban: An estimate of the proportion of all persons (pregnant women, blood donors, and other persons with no known risk factors) living in urban areas infected with HIV-1, the most virulent and globally prevalent strain of the human immunodeficiency virus.

HIV-1 Seroprevalence, Rural: An estimate of the proportion of all persons living in rural areas infected with HIV-1.

Access to Improved Water, Urban: An estimate of the proportion of all persons living in urban areas (defined roughly as population centers of 2,000 or more persons) who live within 200 meters of a stand pipe or fountain source of water.

Access to Improved Water, Rural: An estimate of the proportion of all persons not living in urban areas with a source of water close enough to home that family members do not spend a disproportionate amount of time fetching water.

Access to Sanitation, Urban: An estimate of the proportion of all persons living in urban areas with

sanitation service provided through sewer systems or individual in-house or in-compound excreta disposal facilities (latrines).

Access to Sanitation, Rural: An estimate of the proportion of all persons not living in urban areas with sanitation coverage provided through individual in-house or in-compound excreta disposal facilities (latrines).

Deliveries By Trained Attendants: An estimate of the proportion of deliveries attended by at least one physician, nurse, midwife, or trained traditional birth attendant.

AID9012   Water and Sanitation for Health Project, U.S. Agency for International Development. Water and Sanitation Sector Profiles of Twenty African Countries, June 1989.

BUC9301   U.S. Bureau of the Census, Center for International Research. HIV/AIDS Surveillance Database. June, 1993.

BUC9401   U.S. Bureau of the Census (BUCEN). International Data Base. Version dated March, 1994.

CAB8903   1986 UNICEF Evaluation as cited in USAID/Bamako mission cable #00560, January 1989.

CALXX01   Calculated from the values for total population, crude birth rate and infant mortality from designated sources for those variables.

CALXX02   Total Population as reported by USAID in a Mission Response Form or other communication updated for the current year by applying the World Population Prospects growth rate to the estimate reported earlier.

DHS8907   Centre d'Etudes et de Recherches sur la Population pour le Developpement Institut du Sahel, and Institute for Resource Development/Westinghouse. Enquete Demographique et de Sante au Mali 1987. Columbia, MD: IRD, 1989.

DHS9112   National Department of the Second Population Census and Demographic and Health Surveys, IRD/MACRO International, Inc. Cameroon Demographic and Health Survey (EDSC) 1991: Preliminary Report. Columbia, Maryland; November, 1991.

DHS9206   Direction de la Satistique et des Comptes Nationaux, Direction General du Plan, Ministere des Finances et du Institute for Resource Development/Marco International, Inc. Enquete Demographique et de Sante Niger 1992. Rapport Preliminaire. Columbia, MD: IRD, 1992.

DHS9209   Direction Nationale du Deuxieme Recensement General de la Population et de l'Habitat and Macro International Inc. Enquete Demographique et de Sante Cameroun 1991. Columbia, MD: Macro International Inc., Decembre 1992

DHS9306   Direction de la Satistique et des Comptes Nationaux, Direction General du Plan, Ministere des Finances et du Plan and Macro International Inc. Niger: Enquete Demographique et de Sante, 1992. Columbia, MD: Macro International Inc., September 1993.

JMP9301   WHO/UNICEF Joint Monitoring Programme. Water Supply and Sanitation Sector Monitoring Report 1993. Sector Status as of December 1991. WHO and UNICEF. August, 1993.
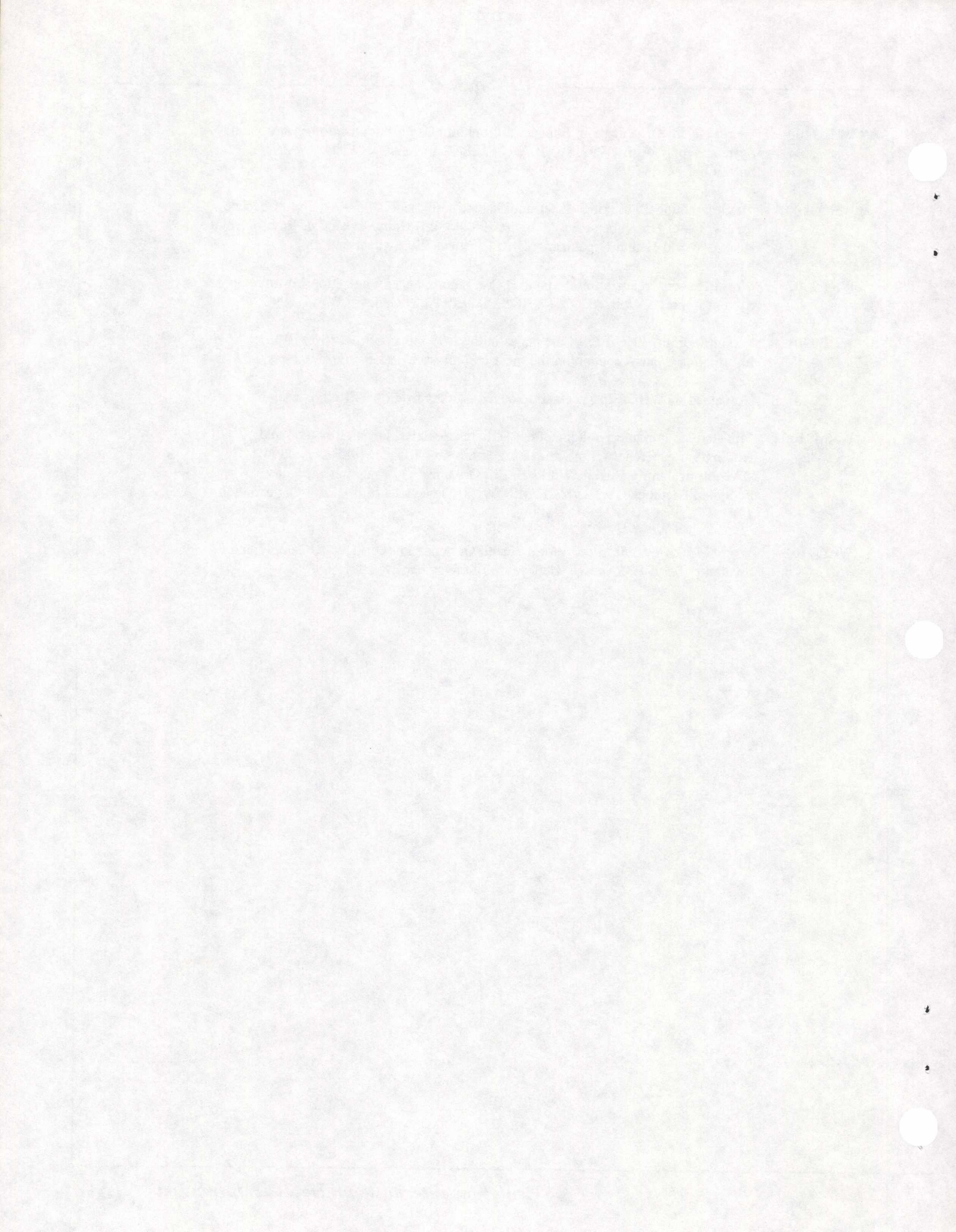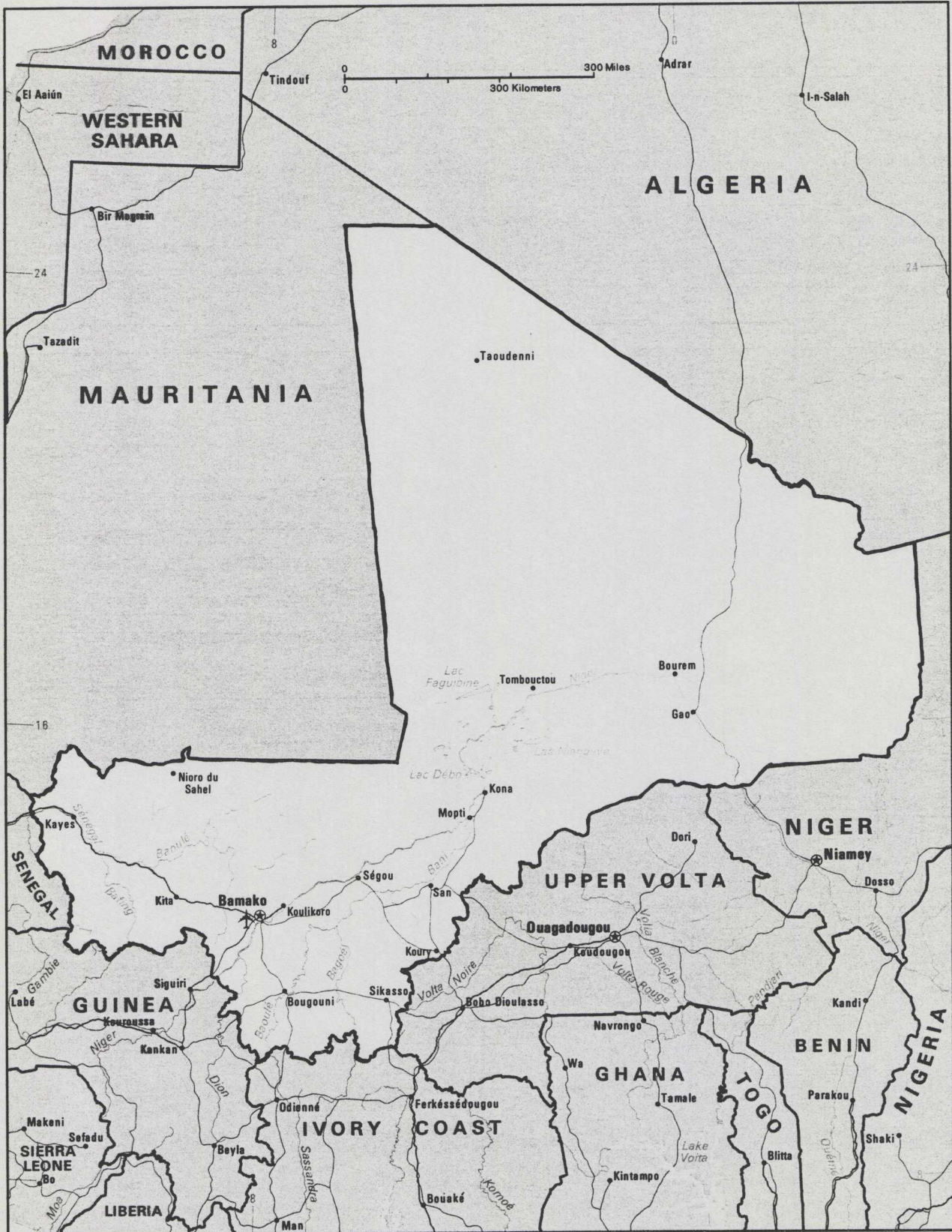
MRF9004   Direction National de la Planification et de la Formation Sanitaire et Sociale, Ministere de la Sante Publique et des Affaires Sociales. Rapport D'Evaluation de la Couverture Vaccinale au Mali, Fevrier 1990 as cited in the FY 1990 Mission Response Form.

MRF9104   Family Planning Logistics Management Project, January 1991 as cited in the FY 1991 Mission Response Form.

UNP9200   Department of International Economic and Social Affairs, United Nations. World Population Prospects 1992. (ST/ESA/SER.A/120) New York: UN, 1992.

WBK9302   Mortality rate time series generated from Ken Hill equations provided in a personal communication, March, 1993. The equations were developed for the World Development Report, 1993 and a UNICEF publication, The Progress of Nations.

WHA8824   Enquette Demographique et de Sante au Mali, 1987.
Enquette Demographique et de Sante au Mali, 1987.

WHD8700   World Health Organization. Programme for Control of Diarrhoeal Diseases: Interim Programme Report 1986. (WHO/CDD/87.26) Geneva: WHO, 1987.

WHD9100   World Health Organization. Programme for Control of Diarrhoeal Diseases: Interim Programme Report 1990. (WHO/CDD/91.36) Geneva: WHO, 1991.

WHD9201   Programme For Control Of Diarrhoeal Diseases. Eighth Programme Report 1990-1991. WHO/CDD/92.38. Geneva: World Health Organization, 1992.

WHD9300   World Health Organization, Programme for Control of Diarrhoeal Diseases; provisional data for Annex 1 of the Ninth Programme Report. Received by personal communication, February 16, 1993.

WHD9401   Advanced Copy of Annex 1 of the WHO/CDR Annual Report, Received by facsimile, March 29, 1994.

WHE8700   World Health Organization. Expanded Programme on Immunization Information System Report, January 1987. Geneva: WHO, 1987.

WHE8800   World Health Organization. Expanded Programme on Immunization Information System Report, January 1988. Geneva: WHO, 1988.

WHE8801   World Health Organization. Expanded Programme on Immunization Information System Report, July 1988. Geneva: WHO, 1988.

WHE8900   World Health Organization. Expanded Programme on Immunization Information System Report, July 1989. (WHO/EPI/GEN/89.2) Geneva: WHO, 1989.

WHE9001   World Health Organization. Expanded Programme on Immunization Information System Report, July 1990. (WHO/EPI/CEIS/90.2) Geneva: WHO, 1990.

WHE9200   World Health Organization. Expanded Programme on Immunization Information
           System Report, April 1992. (WHO/EPI/CEIS/92.1) Geneva: WHO, 1992.
           September 24, 1993.

WHO9200   The International Drinking Water and Sanitation Decade, 1981-90: End of decade
           review, (as of December 1990), August 1992. CWS Unit, Division of Enviromental
           Health, World Health Organization, 1211 Geneva 27, Switzerland

WHE9202   World Health Organization. Expanded Programme on Immunization Information
           System Report, October 1992. (WHO/EPI/CEIS/92.2) Geneva: WHO, 1992.

WHE9301   Facsimile from WHO/EPI of the pages in the 9/93 report of the WHO EPI
           Information System containing the most current vaccination coverage rates.

WHE9401   Download of WHO/EPI vaccination coverage files from INTERNET, March 24, 1994.

WHM9100   Ministere de la Sante Publique et des Affaires Sociales, Division de la Sante
           Familiale. Recherche/Actions sur la Maternite sans Risque, 1987 as cited in
           Division of Family Health, World Health Organization. Maternal Mortality:
           A Global Factbook. (WHO/MCH/MSM/91.3) Geneva: World Health Organization,
           1991.

WHO9101   World Health Organization. World Health Organization Disk: Water Supply and
   Sanitation Service Coverage. Geneva: WHO, October 29, 1991.

Mali

MOROCCO

El Aaiún

WESTERN
SAHARA

Tindouf

8

Adrar

I-n-Salah

300 Miles
300 Kilometers

ALGERIA

24

Bir Mogrein

24

Tazadit

MAURITANIA

•Taoudenni

Bourem

Nioro du
Sahel

Lac
Faguibine

Tombouctou

Niger

Gao

16

Lac Débo

Lac Niangaye

Kona

Mopti

Kayes

Kita

Bamako

Koulikoro

Ségou

San

Dori

NIGER

Niamey

Dosso

Senegal

Bafing

Bani

UPPER VOLTA

SENEGAL

Koury

Ouagadougou

Koudougou

Volta Blanche

Siguiri

Bougouni

Sikasso

Volta Noire

Bobo Dioulasso

Volta Rouge

Pendjari

Kandi

Labé

Gambie

GUINEA

Kouroussa

Niger

Kankan

Baoulé

Navrongo

Wa

GHANA

Tamale

BENIN

Parakou

NIGERIA

TOGO

Odienné

Ferkéssédougou

SIERRA
LEONE

Makeni

Sefadu

Bo

Beyla

IVORY COAST

Sassandra

Lake
Volta

Blitta

Shaki

Oueme

LIBERIA

Moa

8

Man

Bouaké

Komoé

Kintampo

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
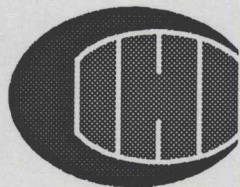
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