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HEALTH NEEDS ASSESSMENT FOR THE CITY OF SÉGOU, MALI

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Figure 1. Map of Mali Showing Ségou City and Region



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ABBREVIATIONS

ACT	Artemisinin-based Combination Therapy- <i>Combinaison Therapeutique d'Arthemisine</i>
AIDS	Acquired Immuno-Deficiency Syndrome- <i>Syndrome de l'Immuno-Déficience Acquis (SIDA)</i>
ANC	Antenatal Care/Consultation
ARI	Acute Respiratory Infection
ARV	Antiretroviral
ASACO	<i>Association de Santé Communautaire</i> – Community Health Association
CCSLs	<i>Comité Sectoriel de Lutte contre le SIDA</i> – Sector Committee for the Fight Against AIDS
CEPRIS	<i>Cellule d'Exécution pour les Programmes de Renforcement des Infrastructures Sanitaires</i> – Department for Implementing Programs to Strengthen Health Infrastructure
CFA	<i>Communauté Financière Africaine</i> -African Financial Community Used to refer to the West African Franc
CPS	<i>Cellule de Planification et de Statistique</i> – Planning and Statistics Department
CROCEP	<i>Conseil Régional d'Orientation de Coordination et d'évaluation des programmes sociosanitaires</i> – Regional Steering and Coordination Council for Health Programs
CSCOM	<i>Centre de Santé Communautaire</i> – Community Health Center
CSREF	<i>Centre de Santé de Référence</i> – Referral Health Center
DAF	<i>Direction Administrative et Financière</i> – Administrative and Financial Directorate
DCI	<i>Denomination Commune Internationale</i> – International Common Denomination
DHS	Demographic and Health Surveys
DNS	<i>Direction Nationale de la Santé</i> – National Health Directorate
DOTS	Direct-Observed Therapy, Short-Course (for tuberculosis)
DPCT	<i>Diphthérie Tétanos Coqueluche Poliomyélite</i> – Diphtheria, Tetanus, Pertussis, and Polio Vaccine (PPT)
DRC	<i>Distributeur Régional du Cercle</i> – Regional Distributor Group
DRS	<i>Direction Régionale de la Santé</i> – Regional Health Directorate
EDSM	<i>Enquête Démographique et de Santé au Mali</i> – Mali Demographic and Health Survey (DHS)
GDF	Global Drug Facility
HCLS	<i>Haut Conseil de Lutte contre le SIDA</i> – High Council for the Fight Against AIDS
HIV	Human Immunodeficiency Virus- <i>Virus de l'Immunodéficience Humaine</i>
IEC	Information, Education, Communication
IMAARV	<i>Initiative Malienne d'Accès aux Antirétroviraux</i> - the Mali Initiative of Access to Antiretrovirals
IMCI	Integrated Management of Childhood Illness

IMF	International Monetary Fund
INRSP	<i>Institut National de Recherche de Santé Publique</i> – National Institute of Public Health Research
IPT	Intermittent Preventive Treatment (for malaria)
ITN	Insecticide Treated Mosquito Net
MCI	Millennium Cities Initiative – <i>l'Initiative des Villes Millenaires (IVM)</i>
MDG	Millennium Development Goal- <i>Objectif du Millénaire pour le Développement (OMD)</i>
MDRTB	Multi-Drug Resistant Tuberculosis
MMR	Maternal Mortality Ratio
MoH	Ministry of Health
NGO	Non-Governmental Organization
OI	Opportunistic Infections
PDDSS	<i>Plan Décennal de Développement Sanitaire et Social</i> – 10-Year Health and Social Development Plan
PDSC	<i>Plan du Développement Socio-Culturel</i> – Socio-Cultural Development Plan
PLWHA	Person Living With HIV/AIDS
PMA	<i>Paquet Minimum d'Activité</i> – Minimum Package of Services
PMTCT	Prevention of Mother To Child Transmission
PNLP	<i>Programme National de Lutte Contre le Paludisme</i> National Program for the Fight Against Malaria
PNLT	<i>Programme National de Lutte contre la Tuberculose</i> - National Program to Combat Tuberculosis
PPM	<i>Pharmacie Populaire du Mali</i> – The Mali People's Pharmacy
PPTE	<i>Pays Pauvres et Très Endettés</i> – Heavily Indebted Poor Countries initiative (HIPC)
PRODESS	<i>Programme de Développement Sanitaire et Social</i> – Health and Social Development Program
PRSP	Poverty Reduction Strategy Paper
RDT	Rapid Diagnostic Testing
SIDA	<i>Syndrome d'Immuno-Déficience Acquis</i> – Acquired Immunodeficiency Syndrome (AIDS)
SLIS	<i>Système Local d'Information Sanitaire</i> – Local Health Information System
STD	Sexually Transmitted Disease
TB	Tuberculosis
UN	United Nations
UNDP	United Nations Development Programme
USAC	<i>Unité de Soins, d'Accompagnement et de Conseil</i> - HIV care units
VCT	Voluntary Counseling and Testing
VIH	<i>Virus de l'Immunodéficience Humaine</i> – Human Immunodeficiency Virus (HIV)
WHO	World Health Organization

EXECUTIVE SUMMARY

In 2007, the Earth Institute at Columbia University selected Ségou, the capital city of Ségou region in Mali, to become one of what were then seven Millennium Cities. This designation has galvanized local and international parties to devise sustainable strategies aimed at reducing poverty and supporting economic development. The city of Ségou is actively working towards achieving the health-related Millennium Development Goals (MDGs) by 2015: reducing child mortality (MDG 4); improving maternal health (MDG 5); and combating HIV/AIDS, malaria and other diseases (MDG 6).

This needs assessment finds that Ségou has made progress in achieving these Goals. Noteworthy achievements made by Urban Ségou include: providing free antenatal care to all pregnant women; the successful implementation of an immunization campaign for children; and low HIV prevalence rates, due in part to effective voluntary counseling and testing (VCT) at all health facility levels in Ségou.

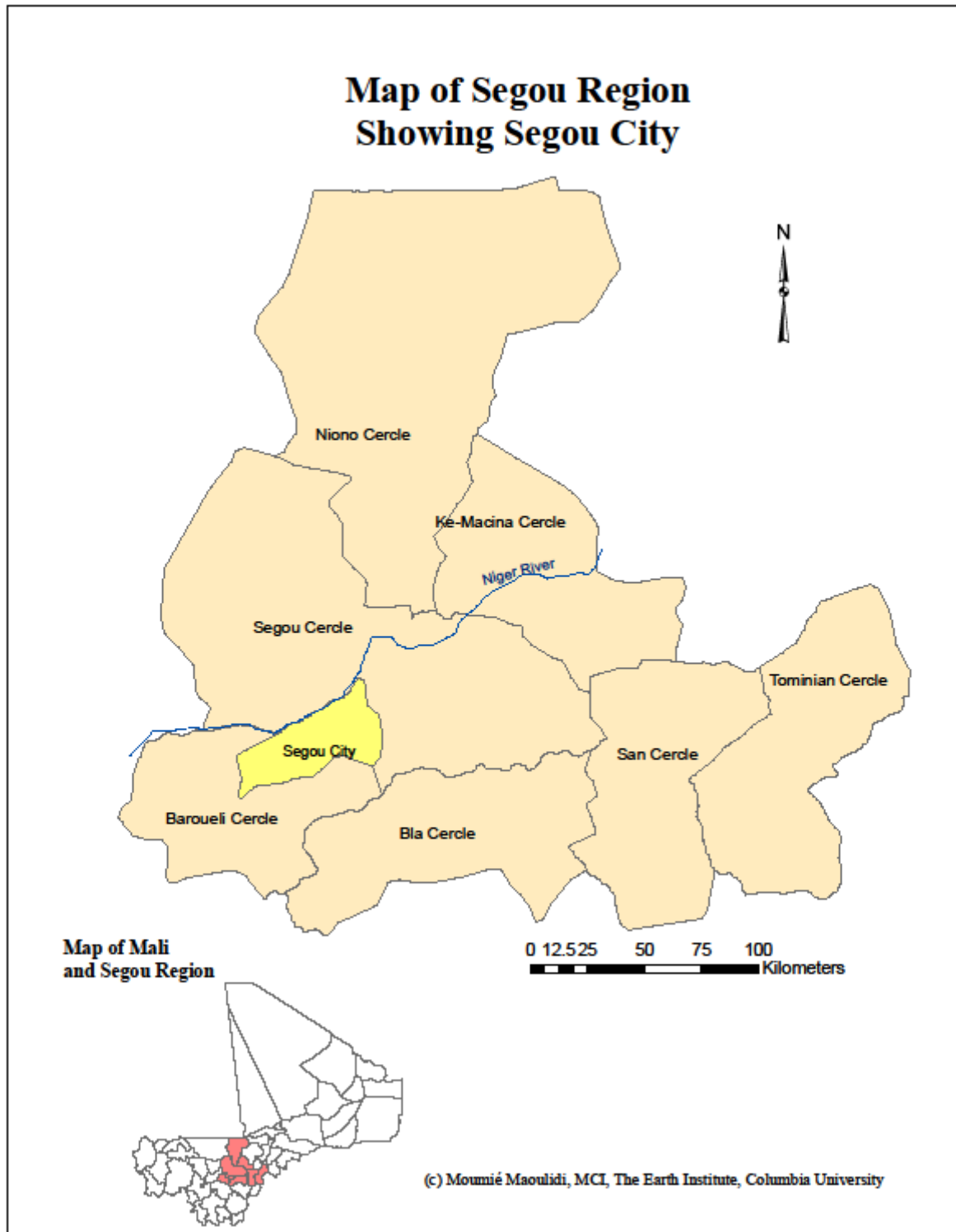
Despite these accomplishments, Urban Ségou residents continue to face significant health challenges. Child morbidity and mortality levels in the region are disconcerting: children continue to die of such preventable diseases as malaria, diarrhea, acute respiratory infection (ARI) and malnutrition, and the infant mortality rate in 2006 was 131 infant deaths per 1,000 births. Health facilities in Urban Ségou must invest in improving access to obstetric care for complicated or high-risk pregnancies and in public information campaigns to encourage the use of contraception. There is a need for a safe, well-functioning blood bank in Ségou, as in other regions, because Bamako is the only place in Mali with such a facility. The shortage of doctors in Ségou suggests that physicians should be offered incentives to work in this regional capital, given that so many of them prefer to work and live in Bamako.

Moreover, the geographic location of Ségou, in close proximity to the Niger River, puts the population at a heightened risk of contracting malaria, especially during the rainy season. The TB incidence in the Ségou region is estimated at 55 per 100,000 people, which is relatively high, and a key additional challenge is multi-drug resistant tuberculosis (MDRTB). The high mobility of the population, coupled with low condom usage, could also lead to higher HIV prevalence rates.

MCI's findings, including results derived from the United Nations Development Programme's (UNDP) costing model, suggest that an average annual per capita investment of \$25 will be needed over the next five years for Ségou to attain the MDGs in health by 2015.

The report is divided into three sections. Section I provides a general description of Mali and Ségou and outlines the health assessment objectives, methodology and limitations. Section II provides a description of the health services and facilities in Ségou, identifies general problems facing healthcare provision for priority populations and analyzes specific issues that need to be addressed in order to increase health sector efficiency and reduce disease incidence. Section III presents the results from the UNDP's costing model and outlines costs necessary to attain the three health-related MDGs.

Figure 2. Map of Ségou Region Showing Ségou City



I. INTRODUCTION

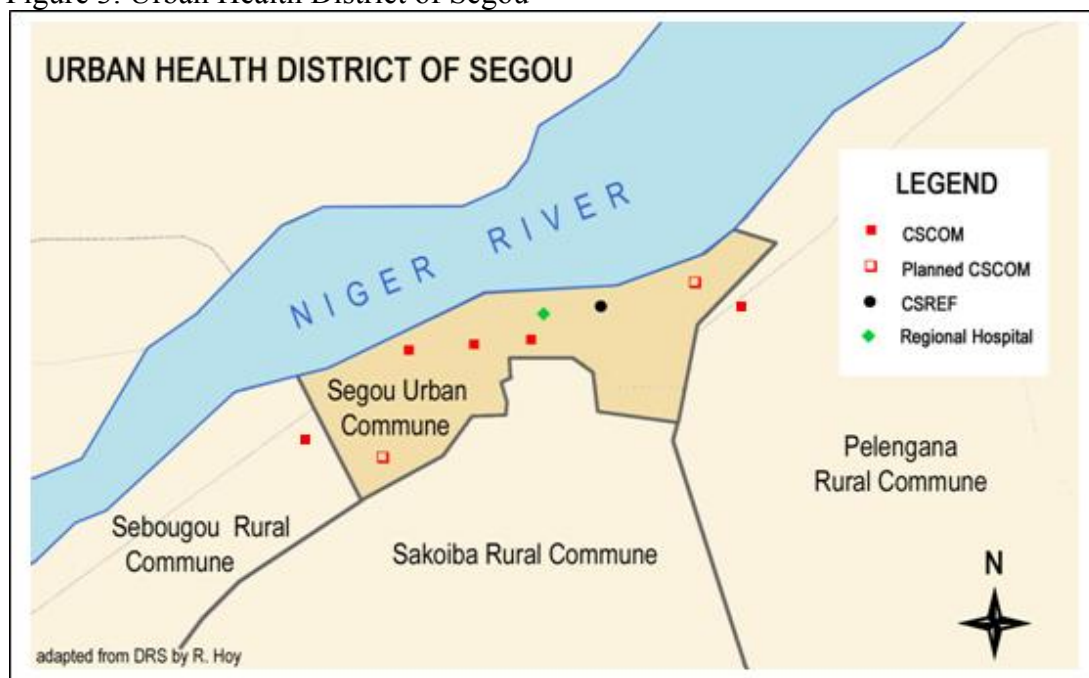
Mali

Mali is a landlocked country in West Africa that gained independence from French colonial rule in 1960. Mali's Human Poverty Index (HPI-1)¹ is 54.5 percent, placing it as 133rd out of 135 countries (UNDP, 2009). The average life expectancy at birth is 48 years, 32.5 percent of the population will not survive passed the age of 40 and 33 percent of children under five years are underweight for their age. Furthermore, the Government of Mali's expenditure on health per capita is \$34, or only 12.2 percent of total government expenditures (UNDP, 2009). Despite its firm commitment to eradicate extreme poverty, the Government of Mali continues to face significant challenges in its efforts to improve economic and social development for its 13 million citizens.

Ségou

Ségou is located about 235 kilometers northeast of Bamako and in 2009 had an estimated population of 143,232 (RGPH, 2009). Situated along the banks of the Niger River, the city is among Mali's economic centers and serves as an important distribution hub to other cities, such as Bamako and Mopti. Administratively, Urban Ségou is comprised of the city of Ségou and parts of two neighboring rural communes, Sébougou and Pélengana. Ségou is also home to a regional Millennium Villages Project office, representing and coordinating Earth Institute efforts in Tiby.

Figure 3. Urban Health District of Ségou



¹ The Human Poverty Index (HPI-1) is calculated using the proportions of: 1) people not expected to survive until the age of 40; 2) adult illiteracy rates; 3) the unweighted average of people not using an improved water source; and 4) underweight children under five.

1.1. Objectives

This report examines the health sector in Urban Ségou.² It highlights the main challenges, identifies interventions to achieve the health-related MDGs by 2015 and outlines associated costs.

1.2. Methodology

The field research was initially conducted between July and August 2008; additional research was conducted between April and July 2010. Data was gathered from annual municipal-level activity reports, development plans, demographic and health surveys (DHS) and other sources. Interviews with local health experts and hospital staff were also conducted, to validate the data collected. Moreover, observational visits to primary, secondary and tertiary facilities were carried out to improve MCI's understanding of the health situation in Ségou.

1.3. Limitations

There were several limitations in conducting this needs assessment. For instance, due to understaffing, many doctors who hold administrative and leadership positions also make regular rounds. They were therefore not always available during the data collection period. Despite this constraint, national, regional and local offices were forthcoming and generously facilitated data collection. Moreover surveys such as the DHS provide national and regional level data but not for Urban Ségou. In addition, due to some time lapses in the reporting, some numbers were not comparable across communes.

1.4. Demographics

Urban Ségou's population is rapidly increasing. Table 1 shows that in 2009, about 61.3 percent of the region's population lived in Urban Ségou. The projected 2010 population is 146,932.

Table 1. Ségou City and Ségou Region Population Projections (2010-2015)

	2009	2010	2011	2012	2013	2014	2015
Urban Ségou *	143,232	146,932	150,783	154,798	158,988	163,364	167,941
Ségou Region	2,336,255	2,409,813	2,485,687	2,563,950	2,644,678	2,727,947	2,813,838

Source: (DRPSIAP, based on RGPH, 2009)

Ségou has a very young population, with 64 percent of its total population under the age of 25 in 2009 (DRPSIAP, 2010). Over 5,000 births are expected annually in Ségou; its crude birth rate remains at 41.6 births for every 1,000 Ségouiens (DHS-IV, 2006). On average, a woman in Ségou can expect to give birth to 5.8 children over the course of her reproductive age.

² Mali is divided into the following administrative units: regions, districts, and communes. Communes can be further divided into quarters (or wards). Urban Ségou consists of the urban commune of Ségou, Sébougou quarter, Pelengana quarter and a quarter known as Pelengana wère.

II. DATA ANALYSIS

2. Health Facilities and Services in Ségou

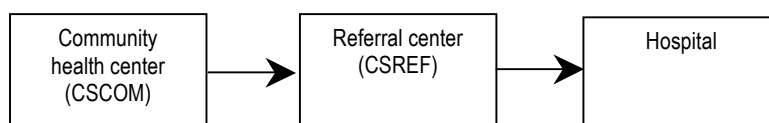
In 1987 African health ministers gathered in Bamako to establish what has become known as the Bamako Initiative, which urged African health ministries to provide greater access to health care services and essential medicines in their respective countries. The Initiative also called for the decentralization of the health sectors in each country and for improved access to essential drugs, largely through community participation in revolving drug funds.³ This formal agreement was adopted officially into Mali's national health care policy, and the Ministry of Health (MoH) subsequently outlined strategies in health care planning, budgeting and systems management (Ministry of Health, 1989). In 1994, an inter-ministerial decree decentralized management of the health sector. Each regional health district was given autonomy in the planning and implementation of individual activities at the district (*cercle*), commune and primary health care center (CSCOM) levels (Ministries of Health, Territorial Administration and Finance, 1994).

2.1. Health Facilities

The city of Ségou currently has three primary level community health centers (DarSalam, Médine and Ségou Croix), one referral center (Famory Doumbia) and one tertiary hospital, *Hôpital Nianankoro Fomba*. The urban commune is responsible for managing the CSCOMs and CSREFs under the Regional Health Directorate (DRS, or *Direction Régionale de la Santé*). Tertiary hospitals are managed by the MoH's Particular Services Department.⁴

2.2. Health Services

The following referral structure should be followed in Ségou:



However, many care-seekers go directly to secondary care facilities, or even to the hospital, despite higher consultation and transport costs, because they have greater trust in the care that they will receive there. Healthcare personnel at the hospital stated that they are overwhelmed with cases that should properly be treated at the primary or secondary level.⁵

In addition, some care-seekers will start by visiting a traditional doctor, whose qualifications may not be verified and whose practices may or may not be beneficial to the patient's condition.

³ A revolving drug fund is a drug sales program in which revenues from drug fees are used to replenish drug supplies.

⁴ Please see Annex B for a detailed organizational chart of Mali's Ministry of Health.

⁵ Please see table in Annex C for a list of the levels at which all MDG-related priority conditions are treated in Ségou.

Only if the patient's condition worsens after this visit will they then consult public or private sector clinics, prolonging the time before medical treatment.

Primary level

Community health centers (CSCOMs, or *Centres de Santé Communautaire*) are the first point of contact for any care-seeker, and offer the minimum package of basic maternal and child health care and services (PMA, or *paquet minimum d'activités*). Challenges faced by CSCOMs in delivering these services include insufficient equipment and unqualified staff. Staffing is not controlled by CSCOM facility, but is determined rather by catchment size and the central government.

Secondary level

Referral health centers (CSREFs, or *Centre de Santé de Référence*) are the second level of access to care. Throughout Mali, CSREFs have the capacity to care for all conditions. However, since the urban commune of Ségou's CSREF is so close to the regional hospital, more activities are referred directly to the hospital.

The CSREF offers services by department, including: hospitalization room for gynecology, post-operative care, a maternity ward, hygiene brigade,⁶ pre- and post-natal consultations, pediatrics, family planning, vaccinations, laboratory, ophthalmology, stomatology and pharmacy. Laboratory standards include the capacity to perform serology, biochemistry and to take urine and stool samples. More technical tests, such as CD4 counts,⁷ are performed at the regional hospital. The ophthalmology unit treats cataracts and glaucoma.

The CSREF also offers maternal and infant protection, and voluntary counseling and testing services, all of which are also offered at the CSCOM level. Every five years, CSREFs draft socio-cultural development plans (PDSCs, or *plans de développement socio- culturels*), which outline the municipality's development needs and which provide a plan and budget for managing these issues.

Tertiary level

Hospitals are equipped to accommodate the most severe illnesses and conditions; only the most severe cases may be referred to the central hospitals in Bamako. The *Hôpital Nianankoro Fomba* operates independently from the CSCOMs and CSREFs and is autonomous from the urban commune in terms of finances and planning.

2.3. Human Resources

As in many developing countries, Malian doctors and nurses prefer working in larger cities, Bamako in particular. Even if the cost of living is lower in regional capitals such as Ségou, displacement costs tend to be high. Currently there are inadequate incentives for healthcare

⁶ A hygiene brigade is an ecological sanitation section of the health department.

⁷ The CD4 count measures the number of CD4 cells, white blood cells that fight off infection, drawn from a sample of blood.

workers to travel to such areas. Table 2 outlines the current human resource distribution in the Ségouien health sector.

Table 2. Public Health Sector Human Resources in Ségou in 2007-2008

	CSCOMs			CSREF F.B.	Hospital N. F.	DRS	TOTAL
	Dar Salam	Médine	Ségou Croix				
Doctor	1	1	1	10 ⁸	24 ⁹	8	45
Health Engineer	-	-	-	-	1	1	2
Medical Assistant	-	-	-	2	15	3	20
Midwives-	1	-	-	13	10	2	26
State-certified nurse	1	1	1	6	12	1	22
Other senior health technician	-	-	-	4	4	2	10
First level nurse	-	4	4	63	30	-	101
<i>Matrône</i>	2	1	1	16	-	-	20
Pharmacist / laboratory	-	-	-	3	2	-	5
Caregiver	-	-	-	22	28	-	50
Administrators	1	1	1	17	14	7	41
Drivers	-	-	-	3	5	6	14
Other support staff ¹⁰	2	1	1	12	54	4	74
Total	8	9	9	171	199	34	430

Source: DNS Diarra (2008); DRS Ségou Annuaire (2007); field visits to CSCOMs (2008).

The counts above do not include all private clinics, as they are not all accountable to the DRS. It should be noted that the DRS also has medical personnel managing the regional headquarters. The distribution between facility levels in each commune of highly qualified medical staff is not equitable: there are many more doctors, sage-femmes and nurses concentrated at the CSREF and hospital. While visiting the CSCOM Dar Salam, as an example, there were over 40 medical interns (*stagiaires*), with the potential to contribute to the health system, if their training is run effectively.

World Health Organization norms for staffing for the African region are: one doctor for every 10,000 inhabitants, and one midwife and one certified nurse for every 5,000 inhabitants. Ségou almost meets these requirements within its public sector and might surpass it, if private sector doctors and nurses are considered, as well as the healthcare staff of the tertiary hospitals.

Medical Professional Training

The *Faculté de Médecine* is located in Bamako. Each year approximately 400 medical students graduate and become doctors. Annual training fees are subsidized with a 5,000 CFA student contribution (about \$10); a monthly stipend of 26,500 CFA (\$54) is also provided to the student. Pharmacists, laboratory technicians, medical assistants and other healthcare professionals are

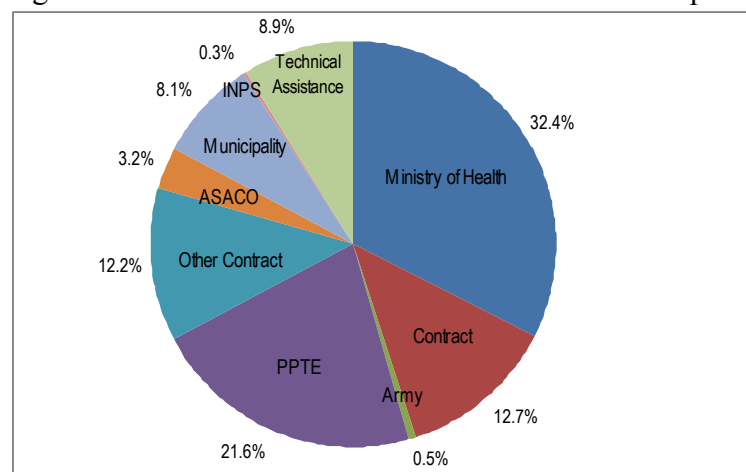
⁸ Of which one is a public health specialist.

⁹ Of which there are 11 specialists: three obstetricians/gynecologists, two general surgeons, one cardiologist, one medical imager, one ophthalmologist, one otorhinolaryngologist, one pediatrician, one public health specialist and one traumatologist.

¹⁰ Includes cashiers, laundry cleaners, gardeners, maintenance personnel, guards and a hygiene brigade.

also trained there. Lower level training takes place in various institutions across Ségou. For example, there are more than 10 schools where one can train to become a nurse's aide, or *aide-soignant*.

Figure 4. Sources of Salaries at CSREF F.D. and Hospital N.F. in Ségou



Source: DNS (2008).

3. Child Health

3.1. Child Morbidity and Mortality

Since 1990, vaccination campaigns and other children's health promotion efforts have been successful, more than doubling the proportion of children immunized for measles.¹¹ In fact, Ségou did not record any cases of measles in 2006 (CROCEP, 2007). However, child morbidity and mortality remain pressing issues in Ségou region. Municipal level child mortality data were not available, but recent surveys such as the DHS indicate that the rates in the Ségou region are high. In 2006, the infant mortality rate¹² was 131 per 1,000 births, and the under-five mortality rate was 151 per 1,000 (DHS-IV, 2006).

Standards of care for Mali's infant and child health programs follow the Integrated Management of Childhood Illness (IMCI), a WHO protocol adopted in 1998. Even though all of Ségou's facilities do follow IMCI, not all Ségouien families are able to access health care for their sick children. The DHS-IV in 2006 indicated that only 41 percent of all children with an acute respiratory infection (ARI) received care in either the public or private sector, only 47 percent received care for a fever, and only 30 percent received care for a fever believed to be caused by malaria.

¹¹ The measurable increase from 2000 to 2006 is also attributable to the fact that city-wide data was finally made available; Ségou's average coverage rate is estimated to be higher than Mali's as a whole, which is shown for the previous decade, in 1990-2000.

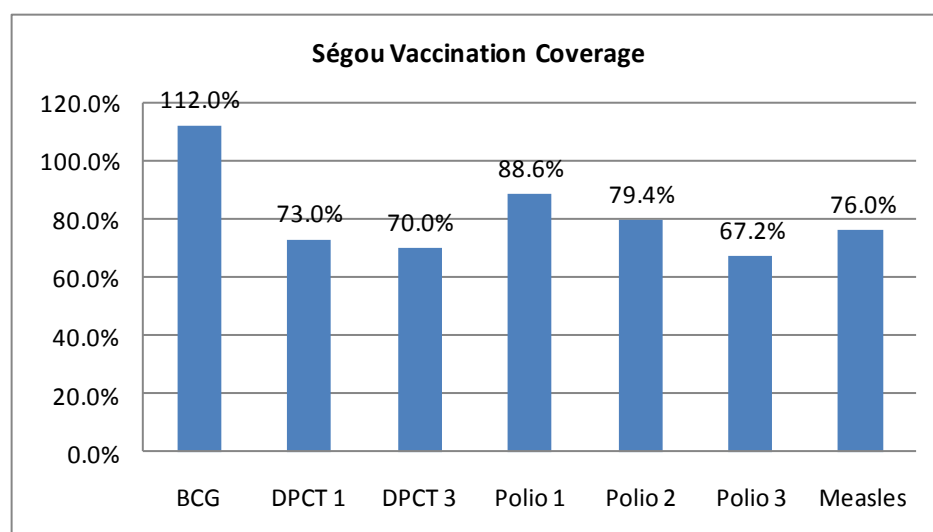
¹² Rate of deaths per 1,000 births of babies under 12 months.

The diseases that most influence child morbidity rates are malaria, diarrhea, ARIs and malnutrition. About 19 percent of all children in Ségou suffer from diarrhea at any given time (DHS-IV, 2006); 20 percent of these cases are dysentery, and about 40 percent of cases result in dehydration (MDG National, 2008). National figures estimate that, on average, a child will have 3.5 cases of diarrhea annually. Over 16 percent of Ségouien children will have a fever at any given time, though three-quarters of these are likely not attributable to malaria (DHS-IV, 2006). National policy seeks to improve outcomes by providing Artemisinin-based Combination Therapy (ACT, or *Combinaison Thérapeutique d'Arthemisine*) and quinine perfusion kits free of charge to children under five. In the Ségou region 5.4 percent of children under five exhibit symptoms of ARI; 41 percent of these sought treatment (DHS-IV, 2006).

Uncomplicated and severe malnutrition are defined according to WHO/IMCI standards, based on age and height-weight ratios. UNICEF provides CSREFs with supplementary foods for these children, such as fortified milk and a peanut paste called Plumpy'nut[®], which have proven effective for short-term problems. Droughts and famines in Mali's recent history, as well as increased food and fuel prices, have increased children's vulnerability to malnutrition. However, because growth monitoring is a routine procedure for all children, it is likely that malnutrition incidence is more elevated than other conditions, due simply to the more extensive monitoring.

Each child experiences approximately two cases of anemia annually. However, this is difficult to measure, as anemia may occur more frequently after a case of malaria, and its denouement is not measured with monitoring as frequent as is the recovery from fever or dehydration, for examples. In the Ségou region, close to 90 percent of children are anemic, with 11 percent suffering from severe anemia, 60 percent from moderate anemia and about 19 percent from uncomplicated anemia (DHS-IV, 2006). About 13 percent of all Ségouien children are estimated to be deficient in vitamin A, and 22 percent are in need of iodine (DHS-IV, 2006).

Figure 5. Ségou Vaccination Coverage



Source: DRS Annuaire (2007); DHS-IV (2006).

As with measles coverage, most Ségouien children have been adequately vaccinated. Figure 5 shows that more than four in five children have had most of their essential vaccinations, although high dropout rates before completing vaccinations indicate that families with young children are not in sufficiently frequent contact with primary health care facilities during this time in these children's lives. Vaccinations are furnished at no charge by the DRS and are distributed via the cold storage chain to the CSREFs and CSCOMs.

4. Maternal Health

The quality of maternal health is a good proxy for the quality and reach of care in any health system. In 2005, the MoH published a policy on reproductive health called, "Reproductive Health Services: Norms and Policies," or *Politiques et Normes des Services de Santé de la Reproduction*. This document outlines the procedures for providing reproductive health care within the PMA (Minimum Package of Services, or *Paquet minimum d'activité*), including prevention and treatment of STDs and HIV/AIDS, family planning, pre- and post-natal care, post-abortion complications, adolescent sexual health and communication for behavior change. Despite political efforts to improve women's health, cultural norms continue to marginalize women and women's health. Most notably, fewer than one in five women of reproductive age use contraception (DHS-IV, 2006).

Indicators for maternal mortality were only available at a national level when this research was conducted. Sources such as DHS indicate that, between 2001 and 2006, the maternal mortality ratio (MMR) in Mali was 464 per 100,000 births (DHS-IV, 2006), a figure that compares favorably to the 710 maternal deaths per 100,000 live births in sub-Saharan Africa in 2005.

4.1. Antenatal and Postpartum Care

Mali's national reproductive health policy provides free antenatal care to all pregnant women, and while 82 percent make at least one visit, fewer than half of these women complete the suggested three visits over the course of their pregnancies (DHS-IV, 2006). In addition to the distribution of Insecticide-Treated Mosquito Nets (ITNs), treatment kits for malaria, including ACT and quinine perfusions, the national policy also permits free distribution at all antenatal visits of *sulfadoxine pyriméthamine*, an intermittent preventive treatment (IPT) for malaria. However, only 77 percent of pregnant women in Ségou report having received IPT, and fewer than seven percent received the correct amount of two or more doses (DRS 2006, DHS-IV 2006).

Roughly 90 percent of women report having received voluntary counseling and testing (VCT) for HIV during their visits, which indicates that the scale-up of Prevention of Mother to Child Transmission (PMTCT)¹³ services within Ségou is still incomplete. HIV sero-prevalence among pregnant women is relatively low, estimated between one and two percent, indicating a concentrated epidemic (DRS 2006, CROCEP 2007).

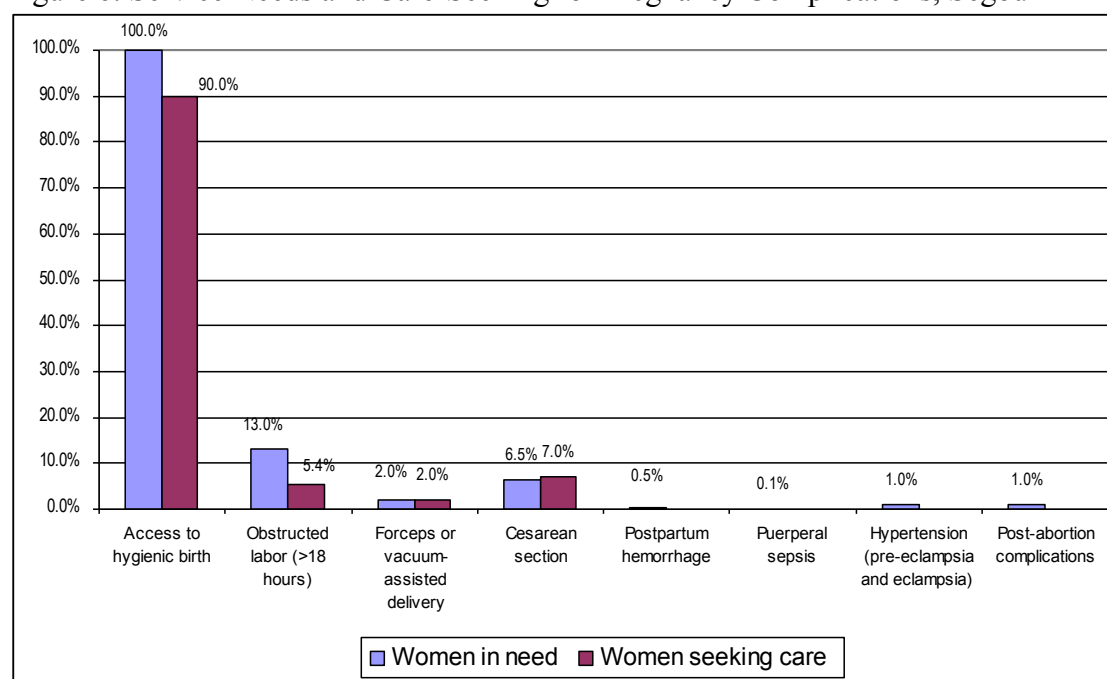
4.2. Emergency Obstetric Care

¹³ Also referred to as "vertical transmission."

The state provides free Cesarean sections. To further reduce maternal mortality ratios, the city of Ségou must also improve access to obstetric care, notably for complicated or high-risk pregnancies.

There remains a gap between the need and the available services, concerning access to secondary care for complicated pregnancies. Figure 6 illustrates the need. At present, the Malian health sector does not record births where labor lasts 18 hours or longer; thus these figures were estimated on the basis of the national health model. Forceps and vacuum-assisted labor, Cesarean, postpartum hemorrhage and hypertension rates for those seeking care were services recorded and collected from the hospital maternity register, the only facility in the catchment area offering these services. The service need estimate was derived from DHS-IV, WHO and DNS estimates. It should be noted that slightly more women are receiving Cesarean sections than are actually in need, a trend observed worldwide as access to (sometimes unnecessary) labor technology increases. Data on the number of women who actually received care for postpartum hemorrhage, puerperal sepsis, hypertension and post-abortion complications in Ségou region are unavailable.

Figure 6. Service Needs and Care-Seeking for Pregnancy Complications, Ségou



Sources: DHS-IV (2006); MDG Centre (2008); Hôpital de Nianankoro Fomba (2007); DNS (2006).

To demonstrate that access to safe blood can further reduce maternal mortality rates, MCI and local authorities, with input from the MDG Centre for West and Central Africa and support from international partners, are planning to set up a regional blood bank in Ségou. With Bamako

currently the only region in Mali with a functioning blood bank, this facility can serve as a model for regional blood-banking in Mali and for other countries in the region.¹⁴

4.3. Fistula

Fistula occurs most commonly during childbirth when the tissues of the vaginal walls deteriorate, forming a hole through which urine and feces pass. Women with fistula experience difficulties in performing daily activities due to incontinence and discomfort. The incidence of fistula in Ségou's urban commune is estimated at 31 cases annually (DRPSIAP, 2008). Fistula treatment is performed at the tertiary level and does not fall within the realm of municipal health planning. Since 2006, roughly 24 cases have been treated at the Hospital N.F. (Hôpital de Nianankoro Fomba, 2007). However, these numbers include cases referred to the hospital from outside of Ségou's district. It is thus difficult to determine how many backlogged cases exist in Ségou and throughout Mali.¹⁵

4.4. Family Planning

While the national reproductive health policy encourages limiting the number of births and widening birth spacing, the impact of this policy has not yet been measured. Ségou has a high crude birth rate, at 41.6 births per 1,000 people annually. Contraception utilization rates have not shown significant increases over time. In 1990, a total of 11.2 percent of Ségouien women of reproductive age used contraception (3.7 percent modern, 7.5 percent traditional methods). In 2001, 12.7 percent practiced family planning (10.6 percent modern, 2.1 percent traditional) (DHS-II, DHS-III). The total number barely increased, but women shifted from traditional to modern methods. However, in 2006, the contraceptive rate diminished to 9.4 percent (7.4 percent modern, 2.0 percent traditional) (DHS-IV).

It is also important to consider the role of contraception as a preventive measure for STDs. National estimates predict that a minority of persons of reproductive age in Ségou are likely to test positive for STDs, as these 2006 breakdowns demonstrate: 1.2 percent tested positive for chlamydia, 6.3 percent for gonorrhea, 1.6 percent for syphilis, 11.3 percent for trichomonas and 2.5 percent for PID (WHO, 2006; DNS SLIS, 2006). These rates may be overestimated among women, if limited to self-reported data,¹⁶ even as they may be underestimated in men, who may be asymptomatic. Self-reported data are also subject to interview bias, as this is a taboo topic.

¹⁴ Even regional hospitals in Mali do not have blood banks, consequently accident or hemorrhaging patients must come to the hospital carrying blood, possibly under unsanitary conditions and without controlled temperatures, from donors who've not necessarily been screened or approved. The Virginia-based NGO Physicians for Peace and the American Red Cross are MCI's lead partners in this initiative.

¹⁵ MCI has intervened in this area, twice bringing surgical teams organized by Physicians for Peace to carry out dozens of fistula repair surgeries for women of the Ségou region. Local Ségouien medical authorities and the MDG Centre for West and Central Africa health team were instrumental in pre-screening and coordinating both interventions.

¹⁶ Where symptoms such as "abnormal discharge" may actually be manifestations of a yeast infection.

5. HIV/AIDS, Malaria, and Other Diseases

Malaria hits young populations hard and inhibits a productive society. Tuberculosis control and effective treatment have worldwide safety implications. HIV/AIDS has the potential to significantly impact any society, particularly in urban settings. Mali's national health policies also address other diseases, such as schistosomiasis,¹⁷ leprosy and difficult to identify conditions, such as mental illness.

5.1. Malaria

The Niger River puts the Ségouien population at risk for malaria year-round, especially during the rainy season (May through October). Malaria is the primary cause of both morbidity and mortality in children under five and of absenteeism at workplaces (PNLP, 2006).

The National Program for the Fight Against Malaria (PNLP, or *Programme National de Lutte contre le Paludisme*) has drafted a five-year strategic plan (2007-2011) outlining the following objectives:

- Address the needs of those already sick with malaria;
- Prevent malaria during pregnancy;
- Conduct active vector control;
- Fight against malaria epidemics;
- Engage in active communication and social mobilization;
- Conduct operational research;
- Monitor and evaluate program activities.

Prevention

As mentioned above, children under five and pregnant women receive free malaria prevention and care: Intermittent Preventive Treatment (IPT), insecticide-treated malaria nets (ITNs), ACT and quinine perfusions, as needed. However, throughout Ségou, only 54 percent of all households have at least one mosquito net (DHS-IV, 2006). It is not certain if these nets have been treated with insecticide, or how and by whom they are being used. The PNLN strategic plan has promised that all mosquito nets may be re-impregnated with insecticide—the latest treatments last up to five years¹⁸—free of charge at primary health centers. This effort has not yet been effectively coordinated. While the exact number of ITNs in stock at the time of this study could not be determined, over 700 ITNs were distributed at CSCOM Dar Salam per quarter, but the center often did not have enough nets in stock to keep up with requests. This indicates that some women attending Antenatal Care/Consultation (ANC) and children under five attending regular pediatric visits are not receiving insecticide-treated nets.

¹⁷ Schistosomiasis is a parasitic disease with a low mortality rate that can damage internal organs and impair growth and cognitive development in children.

¹⁸ These long-lasting insecticide-treated bed nets, produced and donated by Sumitomo Chemical Corporation, have enabled universal coverage to all sleeping sites in more than 100 rural villages across sub-Saharan Africa, as part of the Millennium Villages Project. The dramatic consequent reduction in malaria incidence in the Millennium Villages has reinforced the national demonstrations carried out in Ethiopia and Rwanda, which have persuaded the WHO to expand its recommendation to advocate for universal coverage, rather than for providing nets only to pregnant women and children.

Treatment

Although malaria has been endemic for decades, no conclusive data on prevalence and incidence are available. It is estimated that approximately one percent of all malaria cases in the region become so severe that they need referrals, and only one in 10 of these referred cases requires a blood transfusion (DNS/ DRS 2006). Table 3 displays the malaria-related morbidity in 2006 per 1,000, according to age, as detailed in Ségou's annual report from the Regional Health Directorate (DRS, or *Direction Régionale de la Santé*). A comparison between Ségou district and Ségou region reveals the greatest disparities between children under five years.

Table 3. Malaria-related Morbidity

	< 1 year	1 – 4 years	5 –14 years	15+ years	Average
Ségou District	199	124	79	88	94
Ségou Region	251	158	75	77	95

Source: DRS (2007).

5.2.Tuberculosis (TB)

Tuberculosis is a persistent health problem in Mali, with an estimated incidence between 110 and 288 cases per 100,000 people (DNS-SLIS 2006, Global Fund, 2008).¹⁹ The National Program to Combat Tuberculosis (PNLT, or *Programme Nationale de Lutte contre la Tuberculose*) faces challenges in improving detection rates, while adherence to treatment regimes has been successful. This success may be attributed in part to the PNLT strategic plan, which mandates DOTS+ (Direct-Observed Therapy, Short-course for tuberculosis) treatment for all TB patients which has been scaled up across Mali. Furthermore, the MoH has partnered with such organizations and donors as the WHO, the Global Drug Facility (GDF) and the Global Fund, to cover detection and treatment costs for years to come.

The Ségou region's TB incidence is estimated at 55 per 100,000 people, much lower than Mali's national levels of 391 per 100,000 people in 2007 (DNS SLIS, 2006). Ségou district's detection rate is 24 percent, while the regional and national detection rate averages are 17 percent and 29 percent, respectively (DRS 2007, PNLT 2007).²⁰ Currently, DOTS+ therapy is available at all facility levels, with the CSREF called Famory Doumbia (F.D.) Hospital spearheading satellite care to remote areas, with the patient only obliged to pay for transport to the facility (PNLT 2007; INRSP 2008).²¹ When TB patients express difficulty in reaching health centers to receive treatment, health workers travel to the patients' homes to deliver the drugs. Local trainings of trainers have been conducted to improve treatment outcomes for TB patients, by educating a family member or neighbor to encourage regular hospital visits and regime adherence. TB testing also takes place at the CSREF and hospital.

¹⁹ The PNLT considers the WHO figure to be overestimated; the *DNS 2006 Annuaire* reports TB incidence at 55 per 100,000 people. The PNLT will conduct two national prevalence surveys before 2015.

²⁰ The detection rate is calculated by dividing the number of confirmed TB cases by the number of estimated cases.

²¹ Including interviews with Dr. Berthe Mohamed, PNLT, and Dr. Isak Mamby Touré, INRSP.

While most TB patients are on first-line treatment (funded by GDF), any patients with recurrent TB or failed treatment are considered candidates for second-line treatment supported by the Global Fund. In addition, multi-drug resistant tuberculosis (MDRTB) is a threat to the Malian population's health: at the time of this report's publication, there were 33 TB patients with confirmed MDRTB in Mali. In addition, about one in five TB patients faces other health complications, such as HIV, pregnancy, hepatitis B+ or diabetes (INRSP, 2008). However, the DOTS+ advanced strategy has proven relatively effective in encouraging TB+ persons to start treatment (75 percent), and 85 percent of these have completed their treatment (DRS 2008, INRSP 2008).

5.3. HIV/AIDS

Mali's HIV/AIDS prevalence rate is low compared to other sub-Saharan countries, and the Government has created a favorable political environment to prevent the disease from spreading further. On April 7, 2004, the Republic of Mali announced that it was committed to providing antiretrovirals (ARVs) to all persons living with HIV/AIDS (PLWHA), without discrimination and at no cost to the recipients.

For a longer term vision, the Republic of Mali is working towards their "*Prospective National 2025*," basing programmatic actions on volunteerism and gender equity. The MoH first established a national program to fight against AIDS in 1987, which has since been divided into two institutions: the High Council for the Fight Against AIDS (HCLS, or *Haut Conseil de Lutte contre le SIDA*), working directly under the Government to establish policies, and the Sector Committee for the Fight Against AIDS (CCSLs, or *Comité Sectoriel de Lutte contre le SIDA*), to implement actions. In 2008, the CCSLS drafted official protocols for voluntary counseling and testing (VCT) and delivering ARVs to persons living with HIV/AIDS. Because both population-wide HIV surveillance and PLWHA care are relatively new to Mali's health system, limited data are available thus far regarding national or local trends.²²

Prevention

All Malians have access to VCT, and once scale-up is complete this will be possible at the primary level. Currently in Ségou, VCT is offered at all health facility levels.²³ After an HIV test, all persons must be retested three months later, to confirm a positive or negative sero-status. Ségou's HIV prevalence rate is slightly lower than Mali's at 1.25 percent (DHS-IV, 2006), but given the higher mobility of the Ségouien population coupled with low condom use, as well as the frequency of levirate and sororate marriages,²⁴ HIV prevention is a valid health priority.

Treatment

²² For example, the earliest information available for Ségou regarding patient care and follow-up is from 2006.

²³ However, HIV tests that are part of PMTCT do exist at most CSCOMs throughout Ségou, with laboratory specimens sent to higher levels for analysis.

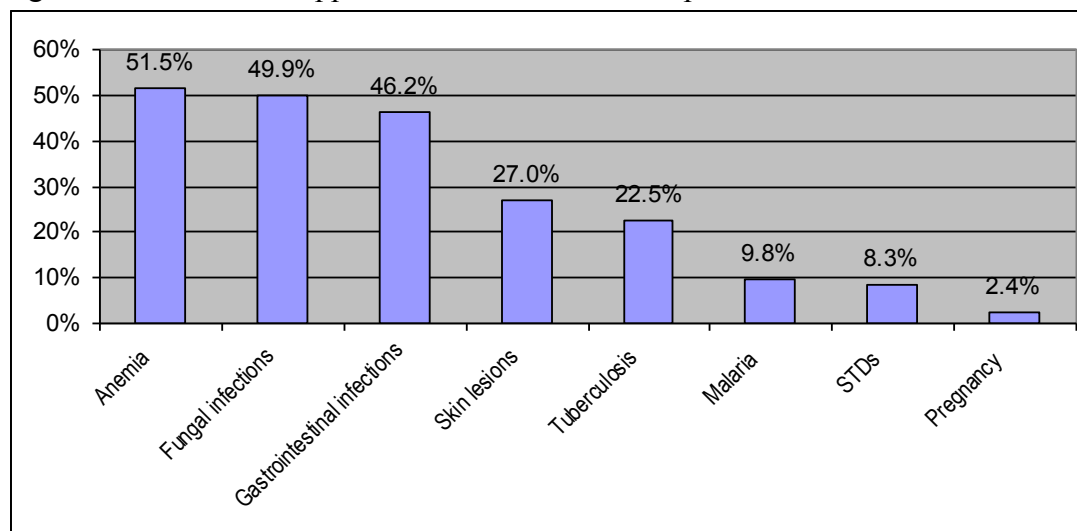
²⁴ Marriages of widowed partners to family members of the deceased spouse.

There were roughly 784 PLWHA in the urban commune of Ségou in 2006, 807 in 2007. About 130 of those infected were in need of ARVs in the urban commune of Ségou in 2006 (CCSLs 2007). Solthis' annual report on HIV/AIDS notes that there is notable loss of professional follow-up for nearly one quarter of all persons on ARVs (Solthis, 2007). Currently, 99.4 percent of all persons on ARVs are on first-line treatment, with the remainder on second-line treatment. The number of HIV+ children under 15 in Ségou, including those on ARVs, is unknown; however, the CCSLS projects that up to 20 percent of children will need second-line treatment in the future. Treatment is most frequently accessed in HIV care units (USAC, or *Unité de Soins d'Accompagnement et de Conseil*) at the regional hospital.

In order to establish an effective ARV regimen, national policy recommends that all PLWHA need the following tests two to three times annually: CD4 count, viral load, blood count, creatinine, ALAT, cholesterol, tuberculosis and glycemia (CCSLs interview, 2008). However, insufficient laboratory equipment and lack of technical capacity to perform some of these tests require health facilities to send their results to better equipped facilities.

Eighty percent of all PLWHA would prefer to receive psychosocial support services in the comfort of their own homes. This practice would both reduce the stigma of coming to the USAC and would improve adherence to drug regimens, perhaps reducing the number of PLWHA requiring second-line treatment. However, only 28 percent of these persons receive home care. The current capacity to provide local care for both HIV and opportunistic infections (OI) is limited, and those healthcare workers able to provide local care cannot meet the needs and desires of the many PLWHA (ARCAD SIDA, 2007).

Figure 7. Incidence of Opportunistic Infections and Special Needs for PLWHA in Mali



Source: ARCAD-SIDA (2007). National data available is not necessarily representative of Ségou City.

In Ségou, the public health sector is reinforced by NGOs able to provide AIDS treatment and care. Since 2001, Solthis's Mali Initiative of Access to Antiretrovirals (IMAAARV, or *Initiative Malienne d'Accès aux Antirétroviraux*), has focused on service delivery across the Ségou district

and region. They currently have eight care sites and eight PMTCT sites in Ségou *cercle*, with one pediatric care site located at the USAC of Hospital N.F. They also provide capacity-building and training for ARV administration, OI management, PMTCT, laboratory testing, nutrition and nursing care (Solthis, 2007).

5.4. Waterborne and Communicable Diseases

The Malian MoH has initiated several programs to address the control and prevention of waterborne and other communicable diseases. The national program combating schistosomiasis aims to reduce disease prevalence through the inclusion of treatment; improved primary level access; and regular mass treatments for at least 75 percent of all primary schoolchildren by 2015. A national program for the elimination of lymphatic filarial, trachoma and onchocerciasis created its integrated plan in 2006, which includes strategies for community mobilization through Information, Education and Communication IEC sessions; vector control, through provision of insecticide-treated mosquito nets; and improving the availability of the filarial drugs, *albendazole* and *ivermectin*.

5.5. Mental Health

Mental health is an issue which most Malians, even healthcare professionals, find difficult to define. The CSREF F.D. in Ségou has a room reserved for mental health care, but its staff have not been trained in this area.

6. Cost and Financing of Public Health Care

In order to meet the Millennium Development Goals, the Ségouien public health sector will require effective and efficient resource allocation. The proportion of national spending on health has decreased since 2006 and is projected to remain around seven percent of the total national budget. Table 4 provides a breakdown of the national health sector budget from 2006-2011.

Table 4. Mali National Health Sector Budgets

	2006	2007	2008	2009	2010	2011
CFA (billions)	72,684	65,307	70,146	72,299	79,797	87,417
USD²⁵ (billions)	141	134	167	172	190	208
Percent of total national budget	7.8	6.7	6.9	6.7	6.9	7.0

Source: IMF PRSP (2006).

Table 5 below outlines costs within the Ségou region (all eight health districts) and the Ségou regional hospital:

²⁵ Exchange rates according to the June 1st rate, IMF. Years 2008 and later are calculated at the 2008 rate.

Table 5. Ségou Region and Hospital Budgets 2007 (CFA in thousands)

	Expected Budget	Amount received	Expenses made	Expenses justified	Balance	Operations	Investment
Ségou Region	2,958,374	2,518,759	2,509,913	2,509,913	8,846	2,310,993	198,920
Hospital N.K.	668,853	642,278	642,185	642,185	93	571,562	70,623
TOTAL	3,627,227	3,161,037	3,152,098	3,152,098	8,939	2,882,555	269,543

Source: Ministry of Health (DAF 2008).

More detailed district-level financial data was not available at the time of this study. Further micro-level studies should be conducted to analyze budget allocation. However, DAF reports suggest that the state will continue to fund almost half of the total national health budget, though nearly one-third of all funds will come from international partners.²⁶ The contribution of municipalities and communities remains negligible.

More than one quarter of all costs within the national health budget are for medical supplies. An additional quarter is spent on operations, and 14 percent go to human resources and salaries. Individual municipal budget breakdowns are available in the Regional Steering and Coordination Council for Health Programs reports (CROCEPs, or *Conseil Régional d’Orientation de Coordination et d’évaluation des programmes sociosanitaires*). Within these annual CROCEPs and quinquennial socio-cultural development plans (PDSCs, or *Plan du Développement Socio-Culturel*), municipal governments and CSREFs must ask for funds each year to support their civil staff and infrastructure. Strategies for health program implementation and budgeting are derived from the commune’s PDSC, which is drafted every five years to correspond to the Mali Poverty Reduction Strategy Paper (PRSP). Some CSREFs have not yet submitted their PDSC plan for 2009-2013, which was due in 2007.

If a municipality determines the need for another community health center (CSCOM), a community health association (ASACO, or *Association de Santé Communautaire*) must be formed and mobilized. The ASACO will then work with the commune-level referral health center (CSREF) to write a proposal to the MoH for the building infrastructure. The State has a limited number of CSCOMs it can construct annually, however, and sometimes years pass before needs are met.

III. RESULTS FROM THE UNDP COSTING MODEL

The simulation model developed by the UNDP uses policy assumptions regarding age and gender-specific population growth rates, disease incidence and prevalence, human resource and health facility capacity and local demands for health care, as key parameters in estimating resource needs. The basis for the model is the notion that universal health care can be achieved

²⁶ Please see Annex D for a list of donors.

by providing communities with affordable, accessible and appropriate care; expanding facility effectiveness; and reducing morbidity and mortality, particularly among women and children.

The underlying assumptions are:

- The municipal, district and national governments are committed to attaining MDGs 4, 5, and 6;
- There is political and financial stability, and the foreign investment and participation of multilateral organizations will continue, and;
- The care-seeking behavior of families and communities at public sector health facilities are not likely to change to a significant degree during this time period.

The UNDP model quantifies sector needs but does not address *how* healthcare providers and administrators should meet these needs. Determining how to address those priorities needed to achieve the MDGs is a responsibility of local authorities, with the collaboration and support of the national government. This study and the costing model suggest possible frameworks for analyzing priorities and their costs.²⁷

Summary

MCI projects that Ségou can reach the health-related Millennium Development Goals by 2015, given an average annual per capita investment of \$25 between 2010 and 2015. Table 6 outlines the annual per capita costs associated with reaching these MDG targets.

Table 6. Costing Model Summary for the Urban Commune of Ségou

Per capita Costs (2010-2015), in US dollars							
	2010	2011	2012	2013	2014	2015	Average
MDG 4 - Child Health	4	5	6	6	7	8	6
MDG 5 - Maternal & Reproductive Health	1	1	1	1	1	1	1
MDG 6 - HIV/AIDS, Malaria and Other Diseases	3	3	3	3	5	3	3
Malaria Prevention	0.7	0.7	0.8	0.8	2.2	0.9	1.0
Malaria Treatment	0.2	0.2	0.2	0.2	0.3	0.3	0.3
Tuberculosis	0.6	0.6	0.6	0.6	0.6	0.6	0.6
HIV/AIDS	1.2	1.4	1.4	1.4	1.4	1.4	1.4
Facilities, HR, Health Systems	10	10	10	19	27	13	15
Cost per capita	18	18	20	30	40	25	25

The Ten-Year Plan for Mali 2006-2015 (*Plan décennal du Mali 2006-2015*) suggests that it will cost 64,850 CFA (or \$132) annually per Malian, 21 percent of which, or \$32, would be devoted to health sector needs \$32 (Republic of Mali, 2007). MCI projects that a slightly lower investment, \$25, is necessary, which may be due to discrepancies in data used for calculations, as well as the calculation methods themselves.

²⁷ Cost projections from 2010 through 2015 assume the 2008 exchange rate (IMF 2008). Inflation is not considered in these projections.

Health infrastructure is the most costly investment, with the majority of costs going to operations and maintenance. Human resource expenses make up a higher proportion of costs each year, as salaries increase with the seniority of staff. Child health and malaria remain relatively inexpensive, whereas maternal health demands more resources. The price of needs related to maternal and reproductive care will not decrease from year to year (for example, safe motherhood initiatives, deliveries and contraception expenses). However, proactive and cost-effective efforts to reduce high-risk births and STDs are likely to reduce future expenses for treatment and care of these conditions.

IV. CONCLUSION AND RECOMMENDATIONS

MCI predicts that Urban Ségou may build on the progress of recent years to reach the health-related MDG targets by 2015. Community engagement and carefully-planned interventions, made possible with an average annual per capita investment of \$25, will make this possible.

Much of the data collected at the district and municipal level are not tailored to MDG indicators, making their use challenging. There is also disagreement about disease prevalence data across regional, national and municipal levels. Improving data collection will help create local targets for meeting the MDGs and improve efforts to measure public health trends.

Building up the equipment, facilities and staff training for staff will improve the capacity of the health care system to meet identified needs. Such investment in health infrastructure will increase the capacity and effectiveness of all public health programs.

City health officials have successfully increased immunization coverage for children, particularly for measles vaccinations. Public health workers may build on lessons learned in these immunization campaigns to further engage the community in combating common childhood infections and malnutrition. To expand care, health workers must be trained to use routine vaccination appointments as opportunities for checking the overall health of children, providing supplementary treatment, testing and information, when necessary.

Indicators for maternal health, however, are still lagging. Most women have access to skilled assistance at delivery and birth in hospitals, but low contraceptive prevalence and high-risk births continue to pose challenges. The training of community health workers and midwives to provide preventative care will be a cost-effective way to improve maternal health outcomes.

Additionally, while health officials have been successful in increasing detection and treatment rates for many diseases, including TB, attention must also be given to malaria and HIV/AIDS prevention and treatment. Scaling up the provision of Insecticide Treated Nets (ITNs), Intermittent Preventive Treatment (IPT) and quinine perfusion kits, particularly to children under five and pregnant women, is necessary. Low condom usage necessitates the expansion of HIV prevention efforts, while a reliable supply of low-cost drugs is required to improve treatment efforts. Voluntary counseling and testing must also become readily available and more prevalent, in order to identify those in need of antiretroviral treatment.

Finally, local ownership, political support and commitment to monitor and evaluate the progress of interventions are all essential to ensuring that Ségou meets the health-related Millennium Development Goals by 2015.

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APPENDIX

Appendix 1: Demographic Overview of Ségou's population

Demographic Overview

	Mali	Urban Ségou
Population (2009)	12,300,000	143,232
GDP per capita	\$1033	NA
Percentage of population living below the poverty line²⁸	56% (IMF 2007)	NA
Life Expectancy	47	NA
Life Expectancy at Birth	53	NA
Adult Literacy Rate (>15)	24%	NA
Fertility Rate	6.7	5.8 (DHS-IV 2006)

²⁸ The poverty line is defined as 72,011 CFA, at 1987 prices per person per year. IMF Poverty Reduction Strategy Paper 2008-2011, p. 40.

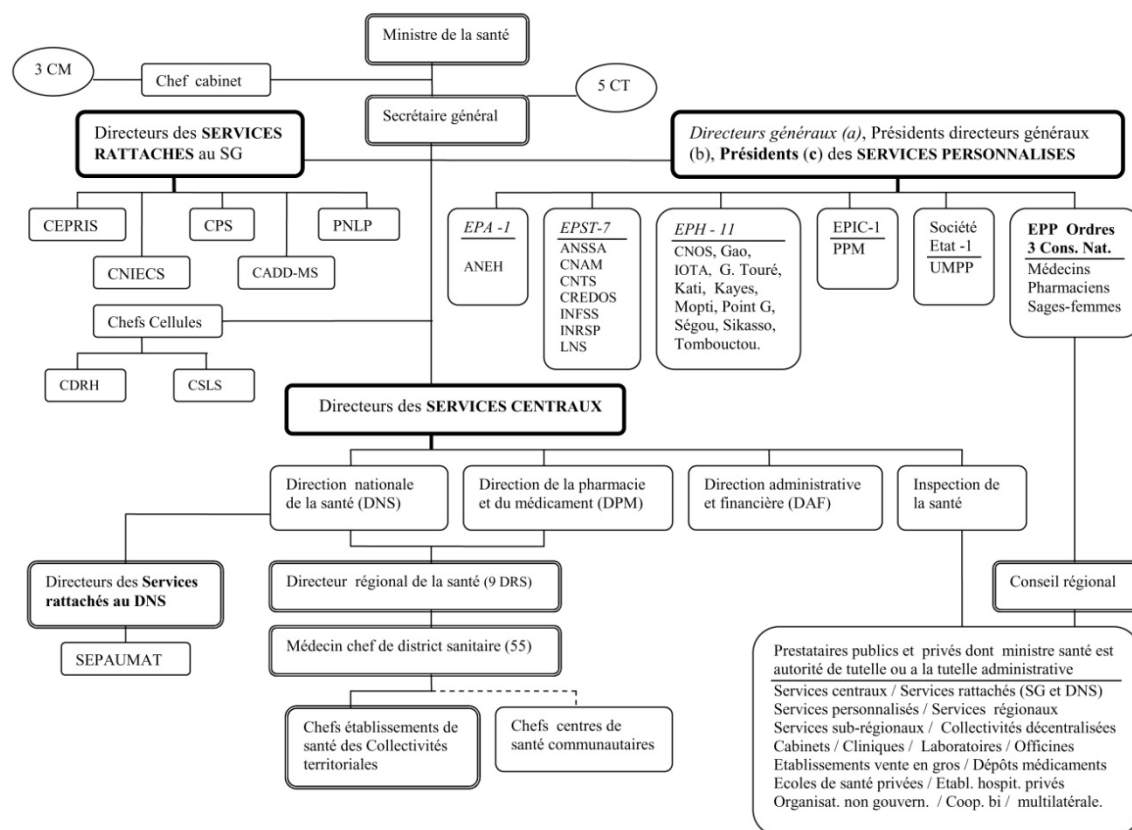
Appendix 2: Organizational Chart of Mali's Ministry of Health

Inspection de la santé, Bamako

Organigramme du Ministère de la santé (Réf. : Lois 94-009, 02-048, 02-049)

Dernière mise à jour le 07.11.2007

07.11.2007



L'organigramme donne une image exacte de la division du travail, indique quels postes existent dans l'Organisation, comment ils sont regroupés en unités et comment l'autorité formelle circule entre eux (Henry Mintzberg).

Les abréviations par catégorie et par ordre alphabétique

- CM : Chargés de missions
- CT : Conseillers techniques
- 1. EPA : Etablissements publics à caractère administratif
 - ANEH : Agence nationale d'évaluation des hôpitaux
- 2. EPSTC : Etablissements publics à caractère scientifique, technologique ou culturel
 - ANSSA : Agence nationale de la sécurité sanitaire des aliments
 - CNAM : Centre national d'appui à la lutte contre la maladie
 - CNTS : Centre national de transfusion sanguine
 - CREDOS : Centre de recherche et documentation pour la survie de l'enfant.
 - INFSS : Institut national de formation en sciences de la santé
 - INRSP : Institut national de recherche en santé publique
 - LNS : Laboratoire national de la santé
- 3. EPH : Etablissements publics hospitaliers
 - CNOS : Centre national d'odontostomatologie
 - IOTA : Institut d'ophtalmologie tropicale d'Afrique
- 4. EPIC : Etablissements publics à caractère industriel et commercial
 - PPM : Pharmacie populaire du Mali
- 5. Société d'Etat
 - UMPP : Usine malienne de production de produits pharmaceutiques
- 6. EPP : Etablissements publics à caractère professionnel
 - Ordres : Les Ordres professionnels de la santé (médecins, pharmaciens, sages-femmes ; leurs présidents sont élus)
- 7. Services rattachés
 - CADD-MS : Cellule d'appui à la décentralisation / déconcentration du ministère de la santé
 - CEPRIS : Cellule d'exécution du programme de renforcement des infrastructures sanitaires.
 - CNIECS : Centre national d'information et de communication pour la santé.
 - CPS : Cellule de planification statistique.
 - PNLP : Programme national de lutte contre le paludisme
 - SEPAUMAT : Service entretien parc auto et matériel.
- 8. Cellules d'appui
 - Cdrh : Cellule de développement des ressources humaines.
 - Csls : Cellule du comité sectoriel de lutte contre le sida.

L'organigramme donne une image exacte de la division du travail, indique quels postes existent dans l'Organisation, comment ils sont regroupés en unités et comment l'autorité formelle circule entre eux (Henry Mintzberg).

Appendix 3: Standards of Healthcare Services by MDG Priority in Ségou City

	Primary Services (CSCOM)	Secondary Services (CSREF)	Tertiary Services (Hospital)
Child Health (Pediatrics)	Local bacterial infections, uncomplicated dehydration, uncomplicated malnutrition / underweight, uncomplicated anemia, coughs/colds, pneumonia, uncomplicated (non-measles) fever, uncomplicated measles, all immunizations	Severe bacterial infections, severe dehydration, dysentery, severe malnutrition, severe anemia, severe pneumonia, sepsis, meningitis, severe febrile disease, urinary tract infections, eye infections, mouth ulcers, mastoiditis, chronic or acute ear infections, ophtalmia neonatorum	Very severe pneumonia, effusion and pleura effusion and empyema, severe asthma, viral croup, diphtheria, pertussis, heart failure, typhoid fever, septic arthritis, dengue hemorrhagic fever
Maternal and Reproductive Health	Short-term family planning, prenatal care, including IPT for malaria, skilled labor assistance, postnatal care, PMTCT	Long-term family planning, urinary tract infection, mastitis, STDs	Obstructed labor, forceps or vacuum-assisted delivery, Cesarean sections, postpartum hemorrhage, maternal puerperal sepsis, hypertension (pre-eclampsia and eclampsia), post-abortion complications ²⁹ , fistula, complicated referral cases
Malaria	ITMs, preventive prophylaxis, IPT for pregnant women, uncomplicated malaria	Rapid diagnostic testing (RDT), Severe or complicated malaria	Severe or complicated malaria requiring a blood transfusion
Tuberculosis	DOTS+ therapy	TB laboratory tests	
HIV/AIDS	Voluntary counseling and testing (VCT), PMTCT, antiretroviral (ARV) prescription and monitoring, STD and OI care, psychosocial support, adherence education, minimal laboratory activities (hemoglobin and hematocrit levels, HIV and TB screening)	Exams (viral charge, creatine, bacteriology, parasitology, hematology)	Special consultations and exams, CD4 counts, support for labwork, determining pharmacological dosage, tests for first-line drug resistance

²⁹ Abortion is illegal throughout Mali. However, abortions are routinely carried out in private clinics, and many pregnancies are self-terminated by overdosing on contraception medication. Women will arrive at the health facility denying knowledge of a pregnancy and of having taken such medications. An obstetrician-gynecologist reported that nearly one in four Malian women will terminate a pregnancy in this manner over the course of their reproductive years. Furthermore, when a woman dies due to post-abortion complications, the autopsy is immediately classified as a hemorrhage, so as to protect the family. The official data recorded regarding abortion remains very limited, due to legal constraints and the informality and/or the private circumstances under which the procedure ordinarily takes place.

Appendix 4: Mali National Health Sector Budget in 2007

EXECUTION DU PO 2007: SITUATION RECAPITULATIVE PAR ACTEUR (Compil National) en milleirs de Francs CFA							
Acteurs	Montant Prévu	Montant reçu	Montant exécuté	Montant Justifié	Solde	Taux de mobil	Taux de justif
	1	2	3	4	5=(2-3)	6=(2/1)X100	7=(4/2)X100
Etat	43 432 537	49 429 505	49 014 944	48 780 354	414 561	114	99
Recouvrements	13 523 729	12 246 114	11 965 246	11 953 428	280 868	91	98
Communautés	592 863	210 836	210 218	209 903	618	36	100
Collectivités	1 326 621	311 509	311 270	311 270	239	23	100
TOTAL PARTENAIRES	38 167 666	35 526 329	33 722 824	33 317 023	1 803 505	115	95,81
AFRF	203 466	27 133	27 133	24 504	0	13	90
ATN/USAID	187 082	146 382	145 862	145 862	520	78	100
BAD	4 372 625	3 052 372	3 038 555	3 034 625	13 817	70	99
AFD/CTB	1 514 448	889 946	889 946	879 141	0	59	99
BID	826 310	322 879	322 879	322 879	0	39	100
Canada	439 000	1 259 429	1 062 613	1 022 256	196 816	287	81
CDC/Atlanta		200 000	200 000	0	0	#DIV/0!	0
Centre Carter	177 246	41 667	41 667	41 667	0	24	100
CS 20	15 275	1 627	1 627	1 627	0	11	100
FM	1 909 721	1 417 807	1 360 280	1 269 198	57 527	74	90
Fonds MAP	973 228	545 742	545 742	545 742	0	56	100
PLAN	90 998	43 860	43 860	43 860	0	48	100
GAVI	872 500	3 864 943	3 864 943	3 864 943	0	443	100
GLOBAL 2000	35 007	23 289	23 289	23 289	0	67	100
HKI	116 992	63 850	63 850	63 850	0	55	100
ITI	58 513	102 002	102 002	86 307	0	174	85
Lux	61 677	27 000	27 000	27 000	0	44	100
MDM	7 000	1 041	1 041	1 041	0	15	100
ABS	9 887 717	9 587 695	8 654 454	8 654 454	933 241	97	90
OMS	876 690	787 780	777 222	761 717	10 558	90	97
PAM	382 313	4 493	4 493	4 493	0	1	100
PDZLII	13 512	16 519	16 519	16 519	0	122	100
PKC	371 101	105 341	101 359	101 359	3 982	28	96
Projet PASEI2	204 000	64 000	64 000	64 000	0	31	100
PSM	12 558	9 237	9 237	9 237	0	74	100
SADEVE	9 606	7 013	7 013	7 013	0	73	100
SAVE	69 994	76 374	76 374	76 374	0	109	100
SCI	250 100	213 498	213 498	213 498	0	85	100
SOLTHIS	13 200	0	0	0	0	0	#DIV/0!
SSI	43 880	64 192	64 192	63 192	0	146	98
Suisse	368 852	28 033	28 033	28 033	0	8	100
UNFPA	591 830	155 810	155 810	147 622	0	26	95
UNICEF	2 019 674	2 787 549	2 754 451	2 742 291	33 098	138	98
USAID	515 000	662 841	648 268	643 818	14 573	129	97
World Vision	39 377	330	330	330	0	1	100
Autres	10 637 174	8 924 655	8 385 282	8 385 282	539 373	84	94
TOTAL GENERAL	97 043 416	97 724 293	95 224 502	94 571 978	2 499 791	101	97

Source: Ministry of Health: DAF, 2008.

Appendix 5: Specific Health Facility Needs in Ségou

CSCOM Dar Salam - built in 1998				
	Unit Cost (CFA)	Number Needed	Subtotal (CFA)	Subtotal (USD)
<i>Observation rooms (4) newly constructed by the ASACO, but do not have beds</i>				
Beds	37,750	20	755,000	\$1,789
Mattresses	37,750	20	755,000	\$1,789
<i>Surgical theater</i>				
Surgical table	650,000	1	650,000	\$1,540
Surgical kit	85,000	1	85,000	\$201
Boîte Tambourg (“mettre blouse”)	40,000	3	120,000	\$284
<i>Ob/Gyn</i>				
Birthing tables	350,000	3	1,050,000	\$2,488
Oxygen system	NA	1		
<i>Other</i>				
Blood pressure monitor	NA	1		
Entrance ground leveling*	NA	1		
Echograph machine	NA	1		
Ambulance / evacuation vehicle	120,000	1	120,000	\$284
Sage-femme	State	1		
Doctor	State	1		
TOTAL			<3,535,000	<\$8,377
* When it rains, the CSCOM is inaccessible via car, as the main entrance way is heavily flooded.				
Source: Site visit with Médecin Chef, August 11, 2008.				

CSCOM Médine – built in 2001

The solar hot water heating system for safe delivery and motherhood does not work. Buildings require rehabilitation; no laboratory building nor maternity ward. Needs a surgical theater, echography machine and oxygen system.

Source: Site visit with Médecin Chef, August 11, 2008.

CSCOM Ségou Croix – built around 2006

This CSCOM is in need of laboratory equipment (currently they contract out a private lab technician who brings his/her own equipment) and a hangar/waiting room where they can administer vaccines. The solar hot water heating system is in need of repair or replacement. The facility lacks a functional equipment sterilization system. The observation rooms do not have beds or mattresses (see prices in CSCOM Dar Salam).

Source: Site visit with Médecin Chef, August 11, 2008.