بسم الله الرحمن الرحيم

Republic of Sudan
Federal Ministry of health

5-year Health Sector Strategy: Investing in Health and Achieving the MDGs

2007-2011

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Acronyms and abbreviations

AIDS	Acquired Immunodeficiency Syndrome
ACT	Artemisine combination therapy
ANC	Ante Natal Care
CBOs	Community based organization
BHUs	Basic Healthy Units
CBIs	Community based initiative
CBS	Central Bureau of Statistics
CHWs	community health workers
CFR	Case Fatality Rate
CMH	Commission on Macroeconomics and Health
CMR	Child Morality Rate
CPA	Comprehensive Peace Agreement
CVD	Cardio-vascular disease
DHS	Demographic and Health Survey
D-JAM	Darfur Joint Assessment Mission
DS	Dressing stations
EmOC	Emergency Obstetrics Care
GAVI Alliance	Global Alliance for Vaccines and Immunization
GGE	The general government budget
GFTAM	Global fund to fight TB, HIV/AIDS and Malaria
GoNU	Government of National Unity
GoSS	Government of South Sudan
HMN	Health Metrics Network
HRH	Human Resources for Health
IMCI	Integrated management of childhood illnesses
IMR	Infant Mortality Rate
ITNs	Impregnated bed-nets
JAM	The Joint Assessment Mission
LHA	Locality Health Administration
LLINs	Long lasting impregnated bed-nets
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MICS	Multiple Indicators Cluster Survey
MMR	Maternal Mortality Ratio
MOH	Ministry of Health
NCD	Non communicable diseases
NGOs	Non-Governmental Organizations
NMR	Neonatal Mortality Rate
PHC	Primary Health Care
(PHCU)	Primary Health Care Unit
SHHS	Sudan Household Survey
SMOH	Sate Ministry of Health
SMS	Safe motherhood Survey
PMTCT	Prevention of mother to child transmission
TBAs	Traditional Birth Attendants
TFR	Total Fertility Rate
VCT	Voluntary counseling and testing

1 Introduction

1.1 Why a 5 years strategy:

The health sector has prepared this 5 year strategy in response to the Government of National Unity (GoNU) initiative for developing a 5 year strategic plan for all sectors in Sudan. The purpose of this policy document is to provide a framework for the health system reform and sustainable development. It stipulates as well the most important health priorities to be addressed during the coming five years (2007-2011).

The accumulated knowledge and better understanding of the health system during the past few decades necessitate structural changes in the health system. These structural changes are needed to allow for best practices to be applied and to respond to the dynamic political, cultural, socioeconomic, epidemiological and technological changes. This would require a comprehensive and thorough situational analysis and systematic approach for health system development. Further, health sector development should be underpinned by setting key strategic and policy directions based on the principles of accountability, transparency, participation and equity. Based on this strategic framework each department and programme will have to develop or update its detailed five year strategy.

This strategy is focusing on investing on health of the people and fostering progress towards achieving the international commitment towards the Millennium Development Goals (MDGs). The strategy advocates for increasing government spending on health to a level that will enable the health sector to deliver quality acceptable and accessible preventive, promotive, curative and rehabilitative health services emphasizing the needs of the poor, the most vulnerable, and disadvantaged groups.

The strategy is also advocating for removing barriers to access health services through pro poor policies, fostering equity and considering health as a basic human right.

1.2 The strategy development Process:

The FMOH emphasized the importance of both the content of the document as well as the process. The initial draft of this document was prepared by the General Directorate of Health Planning and Development in consultation with MOH programme directors. This was preceded by the micro planning process (2005-2006) during which five year plans were developed for most of the localities. Using the information in the micro planning, the surveys and studies of the health system and policy issues, the routine health information and all available data from other sources the situation analysis was prepared. The Sudan Household Health Survey 2006 contributed by adding and updating many of the important indicators.

A national team was formed to coordinate the process (see annex 1). The document benefited very much from the Assessment Mission Report of the Health System Division (EMRO-WHO) and the MDGs country report. It was developed in accordance with guidelines of the National Council for Strategic Planning. A UNICEF consultant was recruited to give technical assistance and advice on how to proceed with the process. The consultant reviewed the document and conducted individual and group meetings with MOH relevant staff and his input was incorporated. A number of groups by themes were formed to finalize the goals and interventions. These groups included Federal Ministry of Health (FMOH) department's directors and programme managers and UN technical staff from WHO, UNICEF and UNDP. The document is made available to ministers of health and general directors of State Ministries of Health (SMOH).

Further wide consultation is intended to be carried out for more involvement of stakeholders. The strategy will be presented to the MOH Advisory Council. A meeting is planned with the ministers of health and general directors of State Ministries of Health (SMOH) to discuss the document

and add their inputs. Other meetings for the same purpose are planned for stakeholders in UN agencies, NGOs, workers in the health sector, related sectors and the community. For wide public input the document will be made available for public, health professionals and organizations through different methods. The strategy will then be submitted to the National Council for Strategic Planning for further discussions and approval.

The strategy will be presented in a special conference to which all stakeholders will be invited. Necessary implementation arrangements and needed capacities will be put on place including the state and local levels, which will be overseen by sectoral oversight committees that involves all stakeholders both at the state and national levels. Effective and efficient monitoring and evaluation systems and mechanisms will be established to ensure that the implementation is on take and results are achieved. An annual, mid term and end term reviews based on the set forth performance indicators will be carried out to assess the progress toward achieving the goals and targets.

1.3 Policy context

The policy context is shaped by the provision of the Interim Constitution of the Sudan (2005), the legal frameworks and jurisdictions and governmental laws and decrees in the country.

The strategy is inspired by the regional and international initiatives and movements for which the Sudan is committed such as Abuja Declaration, the Millennium Development Declaration, the Alma Ata Declaration and Health for All and PHC approach and its recent development. The strategy is also guided by the national movement towards equity, poverty eradication, investing in health, achieving the MDGs, maintaining and securing human rights and dignity, preserving the rights of children and women and fighting disease and ignorance. This is in follow with the global strategies such as Health Promotion, Rollback Malaria (RBM), Stop-TB and Control of HIV/AIDS.

The strategy is guided by a variety of existing health policies such as the National Health Policy, the 25-Year Strategy, Reproductive Health policy, Child Health Policy, HIV/AIDS Policy, Essential PHC Package Policy, the 10-Year Human Resources Strategy and other specific human resources documents such as the Sudan Declaration and Human Resources Management Policy.

1.4 General Guiding Principles for the Health strategy

The following are the guiding principles as stipulated in the National health policy:

- The National health system has to be founded on solid policies, based on best avaialable evidence.
- Strategic plans with clear priorities, objectives, aims, performance-based targets (indicators) and outcomes are to be set out.
- Primary health care will be considered as the approach for providing sustainable quality health care for all.
- Health will be centeral to the overall development policy
- Sustainable and equitable health care, especially for the poor, must be provided with special consideration to financial, technical and administrative sustainability.
- Priority will be given to capacity building of the federal, state and locality levels in policy formulation, priority-setting, management and planning, as well as development of health information and research capacities. The role of community health workers within a functioning Local Area Health System to increase access to services at the community level and increase demand for service should be emphasized. The remuneration of this level of health workers will be given consideration.
- Health will be used to enhance lasting peace and reconsilataion.

- Support will be given in ways that facilitate return to normal situation and lasting development.
- Emphasis will be given to reforming health care financing to become pro-poor and to increase allocations for health.
- The health system is to be built on principles such as adopting the comprehensive concept of health, attention to health promotion, continuous quality improvement and client satisfaction, accountability, equity, accessibility, affordability, appropriateness, efficiency, effectiveness, transparency, intersectoral collaboration, partnership, community participation, innovation, work values and ethics, gender equity and teamwork. These key strategic approaches will be enhanced in this next 5 years.
- Strategies to scale up existing high impact, low cost interventions and introduce new interventions embodied in the Accelerated Child Survival Initiative as well as other health related MDGs should be pursued by the government and partners

2 Situation Analysis

2.1 Demography and Geography:

With an area of one million square miles Sudan is the largest country in Africa. The Northern part of the country is an extension of Sahara desert, the central part is a dry Savannah area and the southern part is a tropical forest climate.

The country has a total population of about 35.4 million [2005 estimates]. Out of this, 44% are below 15 years of age (55% in the south and 43.4% in the north) and 16.4% are below five years of age (24% in the south and 14.8% in the north). Life expectancy at birth is estimated around 55 years. Annual population growth is 2.6% and the total fertility rate is 5.9.[1]

Rural population constitutes about 68% of the total population; however there is an ongoing process of urbanization[2]. The population of metropolitan Khartoum is growing rapidly, exceeding 6 million, including internally displaced people (IDPs) from the southern war affected zone as well as western and eastern war/drought-affected areas. However, the majority of the displaced people have migrated seeking better job / educational opportunities[3].

2.2 Socio- Cultural context

Sudan is a multiethnic multicultural country with hundreds of ethnic and tribal divisions and languages. The northern states cover most of Sudan and include most of the urban centers. The majority of the 29.5 million Sudanese who live in this region are Arabic-speaking Muslims, though a large proportion of the population also speaks traditional non-Arabic mother tongue.

The southern part has a population of around 6 millions with a predominantly rural, subsistence economy. This region has been severely affected by war since Sudan independence in 1956, resulting in lack of infrastructure development, major destruction and displacement. In this part of the country, people adhere mainly to indigenous traditional beliefs, although Muslims and Christians constitute a significant proportion. The Southern Sudan also has a number of tribal groups and many more languages.

2.3 Economic context

In contrast to the challenges faced by many post-conflict countries, the macro-economic indicators are good, except for Sudan's large external debt. The GDP per capita had shown significant increase during the last five years (due mainly to increased oil revenues and the flow of foreign investments) from US$ 395 in 2001 to US$ 640 in 2005 and above US$ 700 in 2006.[4] The direct share of oil in GDP was only 6.8% in 2000 and increased to 16% in 2005, while agriculture contribution to the GDP has decreased from 46.3 % in 2000 to 39% in 2005. Further more, agriculture remains the main source of income for two out of three people in the north living in rural areas, and for more than 85% of those in the South.[5]

The general government expenditure (GGE) has increased from 352,160 million SD (US$ 1,371 million) in 2000 to 1,385,134 million SD (5,631 million US$) in 2005 and estimated to reach 2,130,000 million SD (9,467 million US$) in 2006. Fifty percent of the government budget in 2005 was from oil revenue.

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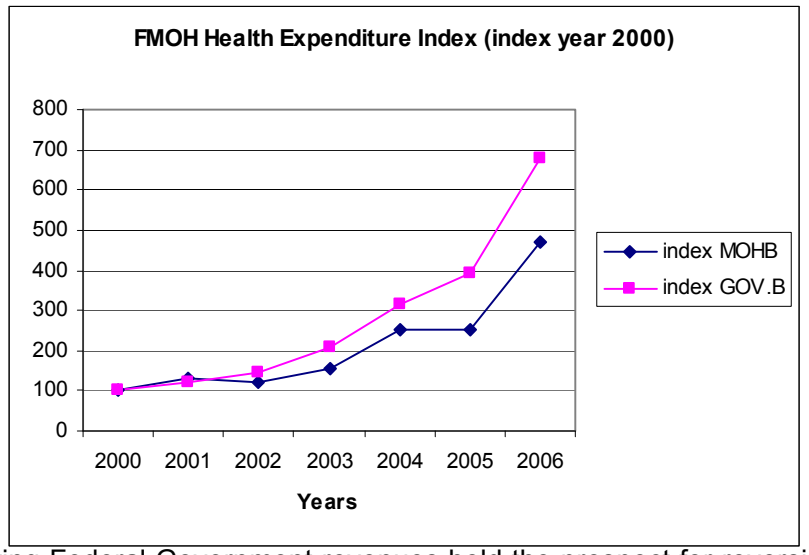
[1] CBS, UNFPA Population Data Sheet 2005, SMS 1999

[2] Sudan, National population census (1993)

[3] Taha, 1996, migration to Khartoum State

[4] IMF, December 2005. Per capita estimates are for the entire country

[5] Performance of the Sudan economy 200-2005, Ministry of Finance and National economy, April 2006, page 2



Rapidly growing Federal Government revenues hold the prospect for reversing the deterioration of the health care system. Federal Government transfers to the Northern States for example in 2005 were about US$ 28 per capita, or ten times the amount in 2000, and the 2006 budget allocates transfers equivalent to US$ 41 per capita. At the same time, the Government has adopted a medium-term expenditure framework (MTEF) which envisions raising domestic public expenditures on the health sector to 1.5% of GDP by 2008. A crucial policy challenge is to ensure that a significant proportion of increased transfers to states, and indeed of growing government health spending, is effectively channeled towards essential health services and to reducing the financial burden on households and social inequalities in access, utilization and health outcomes.

The Joint Assessment Mission (JAM, 2005) estimated that additional resources of approximately US$ 200 million would be required annually in the following two years. This is to be increased to US$ 350 million in the subsequent 4 years in order to achieve significant progress towards the MDGs over all of Northern Sudan and the three areas. The estimation for the Southern Sudan is US$ 125 millions in the first two years to be increased to US$ 170 millions in the following 4 years.

Table 1: contribution of the different sectors to the GDP (%)[6]

Year sector	2000	2001	2002	2003	2004	2005
Agriculture	46.3	45.6	46	44	40	39
Manufacturing	21.5	22.8	23.2	24.1	28	28
Oil	6.8	7.9	8.2	8.9	15	16
Others	14.7	14.9	15	15.2	13	12
Service	32.2	31.6	30.9	30.3	32	32
Public sector	5.8	6	5.9	5.7	11	13
private sector	26.4	25.6	25	24.6	21	19

[6] Ibid, page 107

Table 2: Government expenditure on different line items as % of GDP[7]

	2000	2001	2002	2003	2004	2005
Salaries (chapter 1)	3.5	3.8	4.2	4	5.2	4.9
Current cost (Chapter 2)	5.2	5.4	4.6	7	8.3	6.2
Capital investment (Chapter 3)	1	0.7	0.8	1	1.6	6.7
Development (Chapter 4)	1.7	2.2	3.6	4	5.8	4.9
Overall government expenditure	11.4	12.1	13.2	16	20.9	22.7

Table 3: contribution of different source of revenues to the GDP and Budget (%)

	2000	**2001**	**2002**	**2003**	**2004**	**2005**
A. Tax revenues	**5.2**	**5.46**	**5.48**	**5.78**	**7.97**	**8.2**
1. customs	2.3	2.12	2.06	2.5	3.01	3.6
2. vat	0.5	1.09	1.06	1.22	1.39	1.4
3. others	1.2	1.07	1.31	0.91	2.16	1.6
4. direct tax	1.2	1.18	1.05	1.15	1.41	1.6
B. Non tax revenues	**5.6**	**5.13**	**6.62**	**9.94**	**11.53**	**11.7**
1. Oil	4.6	4.33	5.11	8.76	9.53	9.9
2. Others	1	0.8	1.51	1.18	2	1.8
Overall gover. revenues (A+B)	10.8	10.59	12.1	15.72	19.5	19.9

Table 4: contribution of different source to the government resource envelop (%)

	2000 % of revenues	**2001** % of revenues	**2002** % of revenues	**2003** % of revenues	**2004** % of revenues	**2005** % of revenues
Tax	**48.15**	**51.56**	**45.29**	**36.77**	**40.87**	**41.21**
1. Customs	21.30	20.02	17.02	15.90	15.44	18.09
2. VAT	4.63	10.29	8.76	7.76	7.13	7.04
3. Others indirect tax	11.11	10.10	10.83	5.79	11.08	8.04
4. Direct tax	11.11	11.14	8.68	7.32	7.23	8.04
Non tax	**51.85**	**48.44**	**54.71**	**63.23**	**59.13**	**58.79**
1. Oil	42.59	40.89	42.23	55.73	48.87	49.75
2. Other	9.26	7.55	12.48	7.51	10.26	9.05
Overall government revenues	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

2.4 Political context

Sudan has a long history with decentralization dating back to 1951. Decentralization was introduced as a system of governance compatible with the needs of the multi-ethnic and multi-cultural society of Sudan. Since 1991 the political and administrative structure of the country has been based on a presidential republic and a federal system. The system has passed through many stages of development until the Local Government Act 2003 was enacted, giving more authorities and responsibilities to the localities, particularly in the areas of health, education and development. Currently, there is a three-tier government system i.e. federal, state and local government. According to the the Comprehensive Peace Agreement (CPA) the Government of National Unity (GoNU) was formulated at the national level. An autonomus government for the South of Sudan (GoSS) is introduced as an intermediate level to oversee and coordinate the Sothern states affairs. This arrangement will continue for six years (from 2005), after which

[7] Ibid, page 56-58

people of South Sudan will have the freedom to choose between North-South unity or an independent state through a referendum.

The Darfur crisis, which has flared up in 2003, is still a challenge to the government and its partners. The signing of the Darfur Peace Agreement and the conduction of the D-JAM have brought hopes of resolution to the conflict and initiating a recovery process. However, the situation is still fragile. The effect of the crisis on achieving the MDGs cannot be overlooked. It is known that conflicts have great effects on the indicators of mortality and malnutrition as well as poverty and the livelihoods of resident populations.

2.5 Epidemiologic context

Sudan not infrequently; experiences natural disasters including floods, heavy rains and drought. The epidemiological profile of the country is typical of Sub-Saharan African countries; malnutrition and communicable diseases dominate the health scene with high vulnerability to outbreaks. There is also emerging and re-emerging diseases, many of which are compounded by factors beyond the health system. The main causes of morbidity and mortality are infectious and parasitic diseases such as malaria, TB, Schistosomiasis, diarrhea diseases, ARIs and protein-energy malnutrition. Two weeks prevalence of diarrhea and ARIs is 28.8% and 12.4% respectively in under-five children[8].

Recent data and surveys have shown that non communicable diseases are emerging as a public health problem due to the change in socio-economic and lifestyle conditions. Hospital data shows increase in the number of cases. Recent data has come from the Sudan Household Health Survey 2006, the following table shows the prevalence of some of the non communicable diseases:

Table 5: Prevalence of non communicable diseases (north Sudan 2006)

Disease	Percent
Hypertension	1.5
Diabetes	1
Heart Disease	.2
Cancer	.0
Epilepsy	.1
Asthma	.6
Cataract	.4
Mental disease	.2

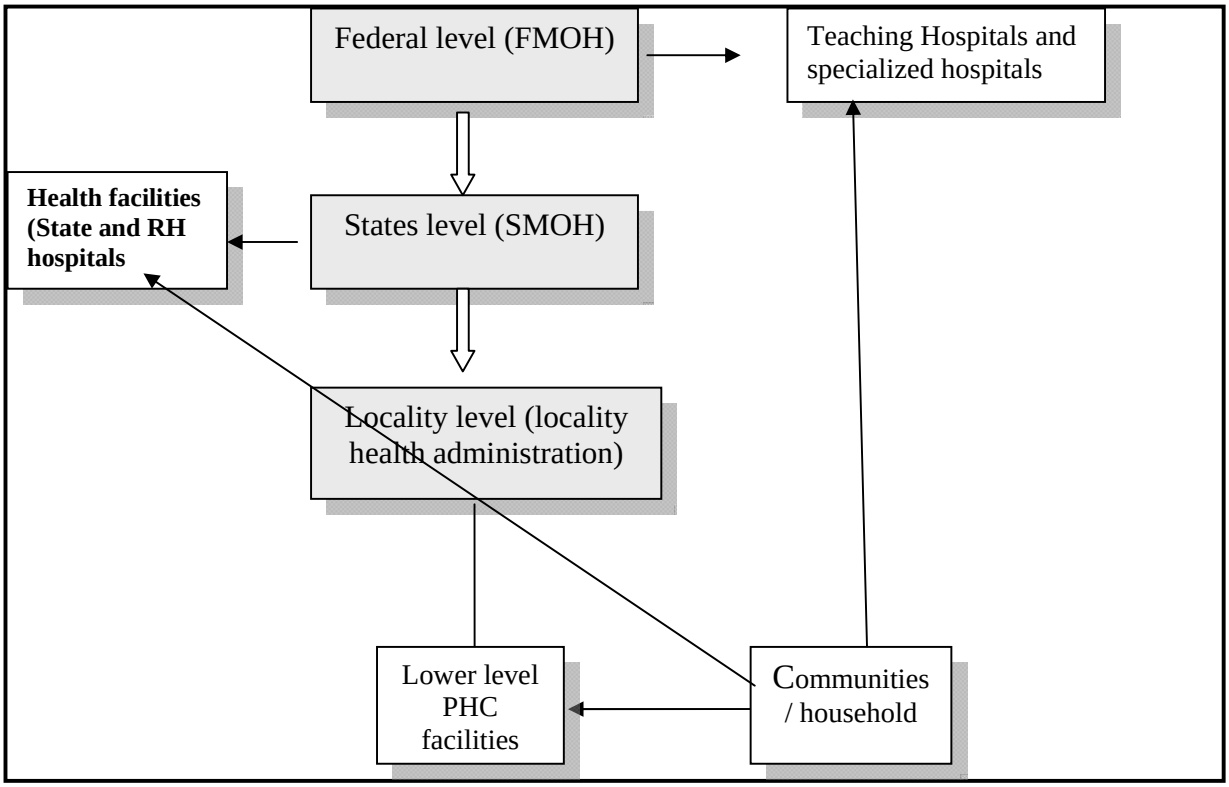
Source: SHHS, 2006

2.6 Health system:

2.6.1 Governance

The health system is a three-tier system. The federal level is concerned with policy making, planning, supervision, co-ordination, international relations and partnership. The state governments are empowered for planning, policy making and implementation at state level while the localities are concerned mostly with policy implementation and service delivery including health, education, and development. An intermediate level (Ministry of Health South Sudan) is introduced in the south following the CPA. Currently there are 25 states, (10 of which constitute the Southern Sudan). Each state is administered by a Wali (Governor) with a cabinet of 5-7 ministries and 5-12 localities. The Localities are administered by a Commissioner.

[8] SHHS, 2006



The decentralized system entails huge requirements on human and material resources. These are insufficient in most of the localities and states at the present time. There is an inherent problem with regard to resources distribution between the three levels of governance which rendered the local level feeble in service delivery. The frequent amendments and changes in the function and structure of the locality level is another factor affecting the development of a clear system of governance and organization. Central transfers are currently an important source of finance for the states and localities, however, its functionality and impact need to be austerely studied.

Many partners are involved in health care provision. In the absence of a comprehensive strategic framework there is marked inefficiency, fragmentation of the health system and poor coordination between partners in the health arena. Primary Health Care has been adopted as the key strategy for health care provision in Sudan in 1978 and re-emphasized in the National Comprehensive Strategy for Health in 1992-2002 and in the 25-Year Strategic Health Plan 2003-2027. The Interim Constitution of the Republic of the Sudan, article 46, states the commitment of the Government to provide universal and free of charge basic health services. The recent FMOH policy indicates that the minimum package for PHC services should include; Vaccination of children (EPI), Integrated Management of Child Illnesses (IMCI), Reproductive Health (RH), essential drugs, nutrition, health education and treatment of common illnesses.

The HMIS performance is weak, unreliable and fragmented. This was a result of poor administrations of the systems, under funding and inharmonious actions of different players in the health arena. Recognizing these facts, the FMOH has developed a plan to strengthen the Health Management Information System which will be financed through Health Metric Network (HMN). The strategy will further expand on this work and provide a framework for future development.

2.6.2 Service delivery and system resources:

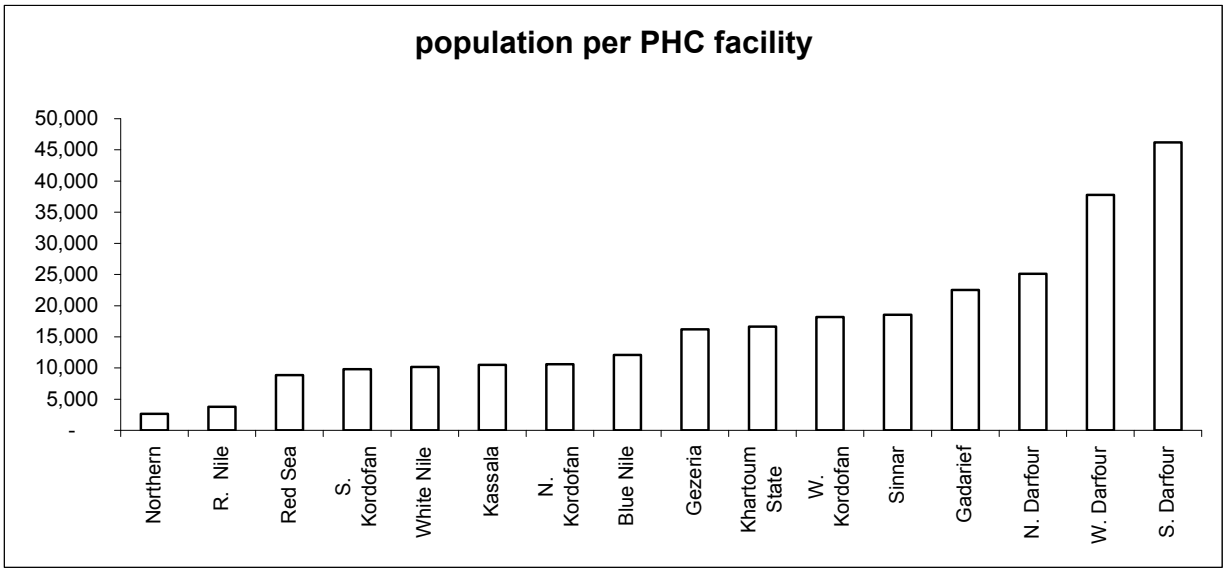
Primary health care facilities include primary health care units (PHCU), dressing stations (DS), dispensaries, health centres and rural hospitals. In principle, PHC units are staffed by community health workers (CHWs), while dressing stations are staffed by a nurse and/or a medical assistant, and dispensaries are headed by a medical assistant. According to FMOH Health Facility Description and Renaming Policy, the minimum acceptable facility level for health services provision is now the Basic Health Unit which is structured and staffed to deliver the essential package of PHC services. PHC units and dressing stations are below the minimum standard and should be upgraded to become Basic Health Units. The health centre is the first referral level for the lower-level facilities. According to the standards, it is supposed to be headed by a physician (medical officer/GP). Lower level PHC health facilities (BHU and Health Centres) are supposed to be managed through and financed by the localities.

Rural Hospitals are considered part of the PHC level and serve as secondary referral level health institutions. Each rural hospital is expected to have an average bed capacity of 40 to 100 beds and managed and financed by the State Ministry of Health (SMoH). Tertiary hospitals - include teaching, specialized, and general hospitals- are located in State capitals and operated by the SMOHs. In addition, the FMOH operates 21 tertiary-level hospitals and specialized centres. Overall coverage by basic health services is low. Further, there are significant urban-rural and regional disparities in the availability of health resources and services.

Existing Health Facilities 2005*

State	***hospitals***	***Urban HCs***	***Rural HCs***	***dispensaries***		***Dressing stations***		***PHCU***	
				Functioning	Non functioning	Functioning	Non functioning	Functioning	Non functioning
Khartoum State	43	114	30	177	22	0	0	41	0
Gezeria	52	48	141	0	0	0	0	739	0
Sinnar	13	12	13	34	36	58	73	0	0
Blue Nile	13	13	3	32	8	47	35	23	22
White Nile	34	24	28	79	0	61	0	57	11
Red Sea	19	19	14	31	6	14	5	115	56
Gadarief	16	19	19	20	0	85	0	64	0
Kassala	10	37	23	94	10	33	10	89	10
Northern	26	6	62	145	20	46	13	11	3
R. Nile	28	49	116	68	11	71	17	31	14
N. Kordofan	16	43	2	90	0	77	0	318	128
S. Kordofan	10	54	2	55	30	0	0	120	52
W. Kordofan	10	10	15	32	0	31	3	149	112
N. Darfour	11	10	17	30	23	0	0	46	175
S. Darfour	10	18	0	43	0	11	0	295	0
W. Darfour	4	6	0	37	0	11	5	126	57
Upper Nile	9	10	0	16	0	0	0	43	0
Bhr Elgable	4	19	0	14	0	3	0	55	0
Unity	4	13	0	9	0	17	0	0	0
Buhyrat	3	0	0	0	0	0	0	0	0
Gongly	4	10	0	0	0	0	0	0	0
E. Equateria	5	13	0	14	0	34	0	47	0
W. Equateria	7	5	0	4	0	0	0	8	0
N. Bahar Elgazal	1	4	0	2	0	0	0	4	0
W.Bahar Elgazal	2	2	0	34	0	2	0	23	0
Warab	3	0	0	0	0	0	0	0	0
Total	357	558	485	1060	166	601	161	2404	640

* the numbers for south Sudan is not updated.



A health facility survey conducted in 2003 for inventory and quick assessment of infrastructure showed that the public health infrastructure network is relatively small amounting to (5,465) functioning health facilities. Many of the health facilities are either not functioning or not satisfying the minimum requirement (see table). The current health facility population ratios of one rural hospital for every 100,000 population and one health centre for every 34,000 of the population in the North are below the acceptable levels. The situation is even worse in the South where the ratios are one health centre per 75,000 population and one hospital per 400,000 population. The overall coverage with recognized health facilities (RH, HC, Dispensaries) is one Primary Health Care Facilty/ l4,400 population..

Given Sudan's estimated population of 35.5 millions, the number of health facilities providing PHC services should be 7,000 health facilities (one facility per 5,000 population). There is therefore is a gap of more than 1500 new health facilities. Furthermore, there is a need to upgrade the existing lower health facilities (dressing stations and PHCU) to basic health units.

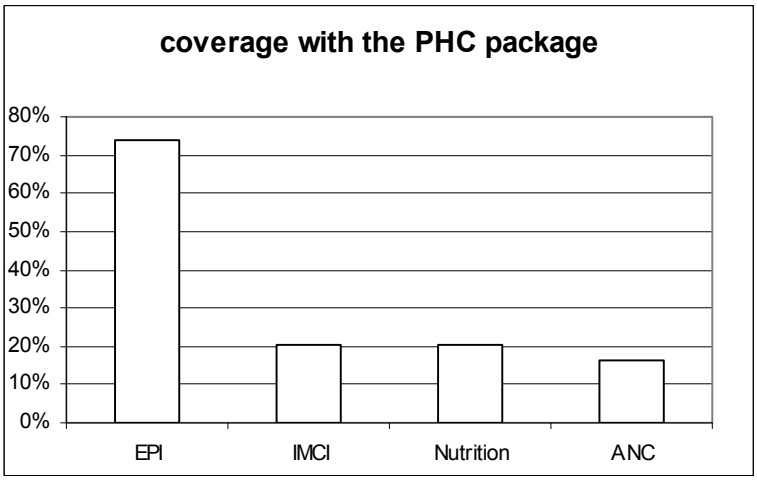
The health system is markedly skewed towards hospital and tertiary care services. There has been increased focus on establishing hospitals during the past 10 years (their number increased from 253 in 1995 to 351 in 2004). The hospital/population ratio is 1/100,000. The number of hospital beds also increased from 22,444 in 1995 to 24,785 in 2004 (72 beds /100,000 population

Table (6): Results of the Sudan Health System Survey 2004:

No	Description	Percentage
1	PHC facilities not functioning	36.0
2	RHCs not functioning	16.9
3	Urban health centres not functioning	06.1
4	Dispensaries not functioning	30.0
5	Dressing stations not functioning	57.4
6	PHC units not functioning	51.1
7	PHC facilities need rebuilding	12.6
8	PHC facilities without constant supply of electricity	54.2
9	Health facilities with availability of safe water supply	26.9
10	Health facilities with sewerage system	79.1
11	Health facilities not satisfying the minimum requirement of equipment	53.8
12	Health facilities not satisfying the minimum requirement of furniture	37.3
13	Availability of laboratory services within the functional health facilities (RH,RHC,UHC)	73.0
14	Health facilities with fixed and functional vaccination centres	41.0
15	Availability of blood banks in rural hospitals	8.3

16	Availability of X-Ray services in rural hospitals	70.7
17	Availability of operation rooms in RHCs	98.7

Only 22% of the existing primary health facilities are providing the minimum essential PHC package. EPI is provided in 74%, IMCI in 20%, Nutrition services in 20% and ANC in 16% of health facilities.



There is no well designed and functional referral system; the exceptions are the health insurance corporation and IMCI implementing health facilities

Environmental health services: Most of the common morbidities and mortalities in the country are environment associated or related. The ten leading causes of morbidity which accounts for over 60% of reported attendances to public health facilities are related to the environment.

Overall, 59.3% and 31.2% of the population has access to improved drinking water and improved sanitation facilities respectively. There is marked regional and urban rural variation in this regard[9].

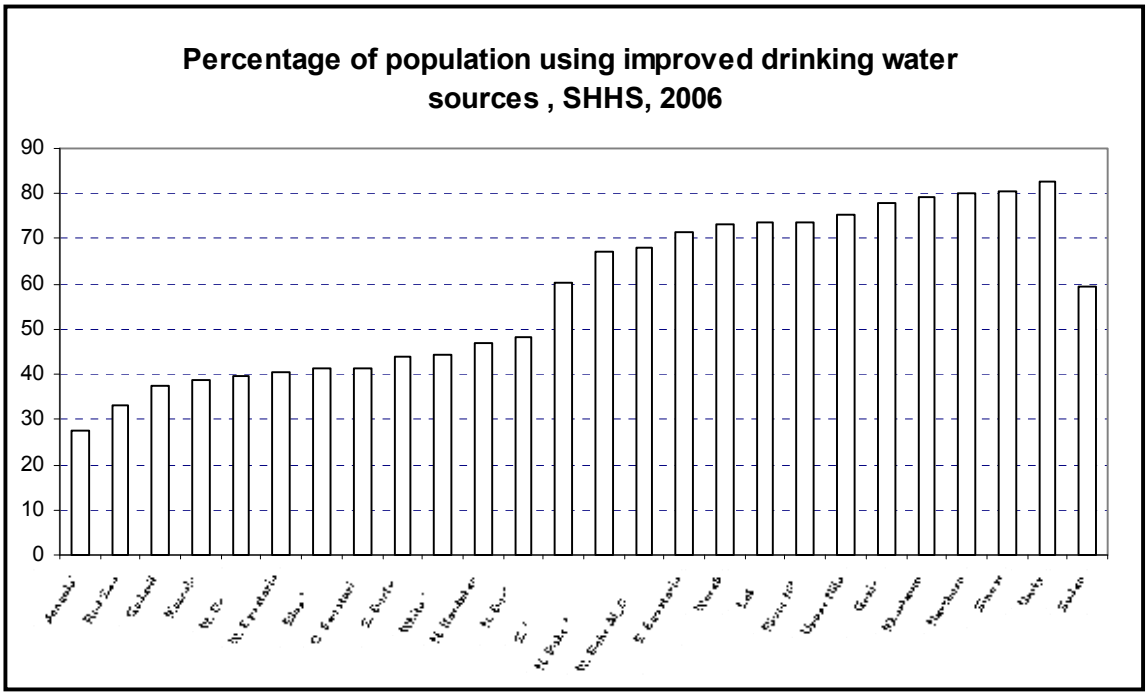
The environmental health services are very weak in all states. Solid waste collection and disposal, food sanitation and inspection, drainage of rain water and sewage systems are very weak. This is further aggravated by the marked displacement and population movement which resulted in formation of un-healthy slums at the periphery of big cities and towns. Health education programmes as well are very weak.

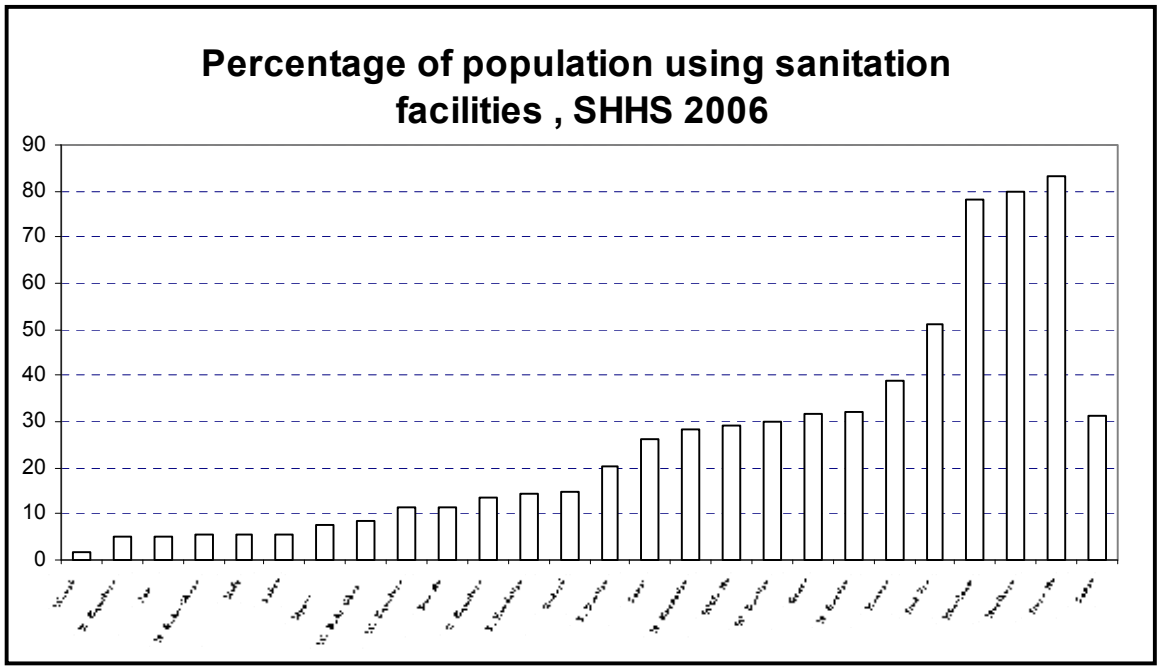
There is a huge gap in the personnel working in environmental health as shown in the table below;

Table 7: Gap in environmental health personnel

Category of health cadres	No. available	No. required	Gap
Public health officers	740	1,500	760
Sanitary oversees	948	4,500	3,652
Assistant sanitary oversees	1267	13,500	12,233

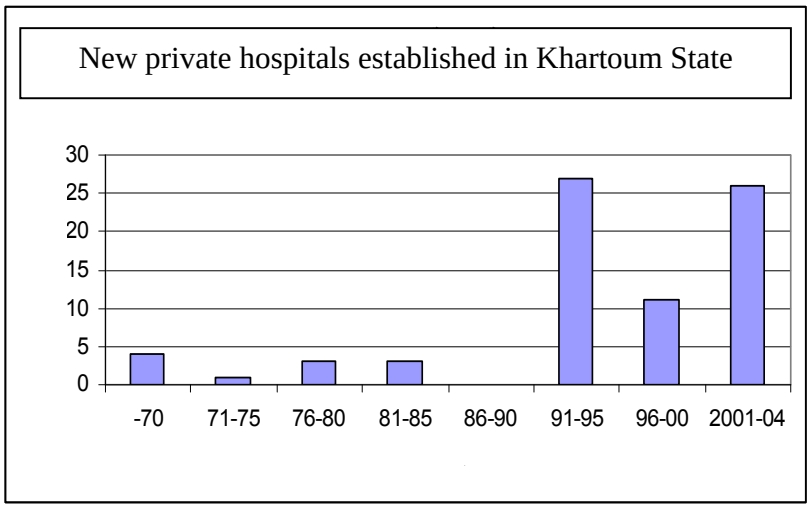
[9] Sudan Household Health Survey, 2006



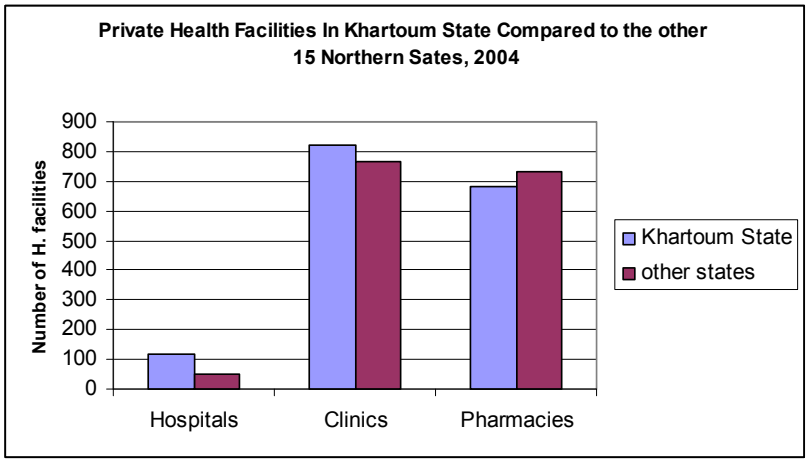


The Private Sector: The role of the private sector in providing health services is not well documented. However, the private sector has significantly expanded during the 1990s and the new century, particularly in the aftermath of implementation of the major macroeconomic and related sectoral reforms. The growth of the private sector is encouraged by the government policies. Private health services are mainly concentrated in urban settings and better-off states.

Its focus is on curative services, and have little role in the provision of public goods such as preventive interventions, immunization and health promotion. Private health facilities at present contribute 17% of bed capacity, 36% of x- ray units and 54% of ultrasound units in Khartoum state. The systems and regulations that govern the private sector are poorly enforced.



Source: Khartoum State Ministry of Health



Source: Federal Ministry of Health Annual Statistical Report 2004

Sudan Household Health Survey, 2006 showed that 19% of the health services users chose the private sector. The same result (18%) was reported by the Utilization of Health Services Survey, 2006.

Issues and challenges concerning the private sector include; quality assurance, competition policies, price moderation, regulation and public private partnership.

Public employees are allowed to practice in the private sector in their leisure time. This policy is abused by many of the workers where many of them work in the private sector during the official working hours.

2.6.3 Planning and management of human resources for health (HRH)

Investing on HRH is considered a key issue for achieving MDGs and improving access to health services. The FMOH has recognized the importance of HRH for materializing the health system goals and improving the system performance. This is reflected in a number of policy documents developed to improve planning, production and management of HRH in the country. Further,

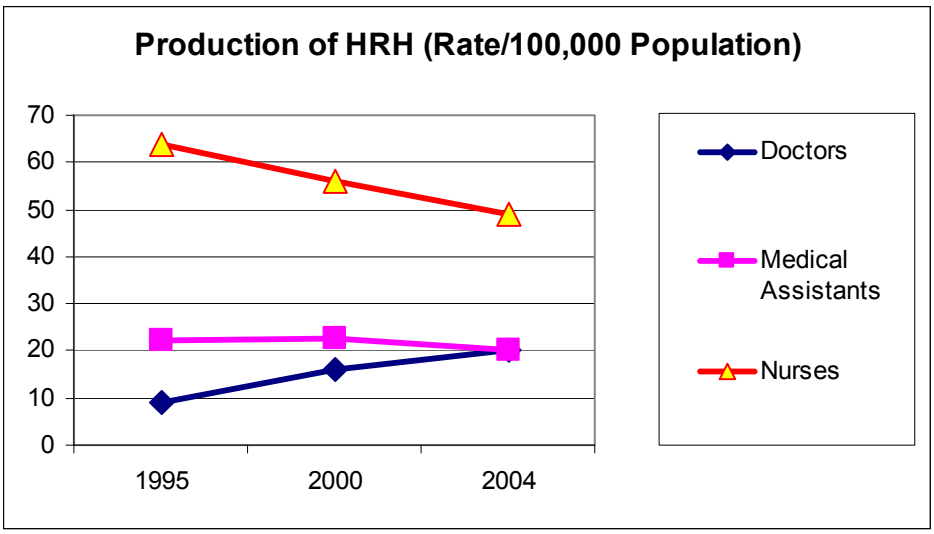
availing a health workforce that can achieve optimum performance in delivering the required health services has been and will remain a key policy issue for the FMOH and praiseworthy efforts are dedicated to this end.

The total health workforce is estimated to be around 62,483 health personnel classified into more than 20 categories. There are 8,379 physicians, 5,947 medical assistants, 17,923 nurses and 11,487 midwives (2005). Nurses to population ratio is 5.1 per 10,000, Physicians population ratio is 2.4 per 10,000. The attrition rate of physicians and pharmacists to the private sector and abroad is high. Only 8,379 physicians remain in the public sector out of the 17,000 registered in the Sudan Medical Council Registry since 1936

The gap in human resources is huge, especially for the nurses and medical assistant as projected in the 10-year human recourses strategic plan 2004-2013 (see table). Not only is the attrition rate of human resource high in Sudan as in many developing countries, the rate of production of human resources is low, especially for nurses and medical assistants (refer table 8 below)

Table 8: Available Health Workers and Required by Category of workers

Category	Current	Needed	Gaps
Specialized Doctors	1000	5000	4000
Nurses	18,000	80,000	62,000
Midwives	11,500	26,000	14,500
MAs	6,000	26,000	20,000



The share of PHC facilities in human resources is a small fraction of the total health workforce. There is immense inequitable distribution of health care providers between and within states, and between urban and rural areas. The main reason, inter alias, is the poor working environment in the rural and remote areas.

The Federal Institutions and Khartoum SMOH facilities attract the majority of the country's professional skilled health workforce. Even with the exclusion of house officers, still nearly two-thirds (61.4%) of the doctors were stationed in Khartoum in 2004. Other professions of health workforce are also concentrated in Khartoum State.

Many partners are involved in the training of health workers. These include the FMOH and other public institutions, the private sector and NGOs. The existing production level is far below the needs of the community for all professions. Presently, there is shortage of qualified health professionals in the country across the board, especially pharmacists, nurses and allied health personnel. Recently a marked expansion in higher medical education has occurred. Production of physicians seems to be much better than other professions and nowadays there are 30 medical schools; the annual production of doctors is estimated at 2,200. Regarding postgraduate studies, there are two training institutes for postgraduate medical specializations; the Postgraduate Board of Medical Studies, University of Khartoum (established in 1976) and the Sudan Medical Specializations Board established in 1995. The SMSB is currently the sole body responsible for postgraduate medical specializations in the country. The rate of annual intake is 97 and annual production is 48, which is far below the required numbers (500/year) estimated in the 10 year HRH strategic plan 2004-2013. The tables below summarize the intake and output of the SMSB since 1995 up-to 2005

Table **9: No. of students enrolled in SMSB in the period 1995-2006**

Patch No.	Starting date	No. enrolled	Patch No.	Starting date	No. enrolled
1st	Apr. 95	49	10th	Dec. 2001	80
2nd	1996	48	11th	Jun. 2002	99
3rd	1997	29	12th	Dec. 2002	24
4th	Mar. 98	49	13th	Jun. 2003	46
4th	Oct. 98	39	14th	Dec. 2003	59
6th	Sep 99	67	15th	Jun. 2004	78
7th	May 2000	65	16th	Dec. 2004	59
8th	Dec. 2000	40	17th	Jun. 2005	34
9th	Jun. 2001	92	18th	Dec. 2005	32
10th	Dec. 2001	80	19th	Jun. 2006	79
Total					**1068**

Table 10: **No. of students graduated from SMSB till 2005**

Patch	No of candidates	No. graduated	Success rate (%)
First	46	34	73.9
2nd	76	57	75
3rd	27	17	62.9
4th	42	31	73.8
5th	40	30	75
6th	33	21	63.6
7th	56	38	67.8
8th	46	32	69.5
9th	23	13	56.6
10th	62	27	43.5
11th	78	38	48.7

Total	**529**	**338**	**63.8**

There are 13 institutes for training of Medical Assistants (MA) and 38 midwifery schools with an annual production of 320 medical assistances and 1400 midwives respectively. There are 2 schools for health visitors and the annual production has recently increased to 80 health visitors (HV); a total of 625 health visitors have been trained till 2005 and many are in service. The trend shows a decline in enrolment due to the long training period and the unattractive financial incentives (health visitors are prohibited from conducting home deliveries, a source of income for village midwives). This issue is addressed in the recent human resource policy (Sudan Declaration). These institutes are currently upgraded to become branches of the Allied Health Academy.

Continuous professional development and on-the-job training is limited to national training activities supported mainly by UN agencies. Recently the FMOH established a centre for continuous professional development. Policies and plans for on-the-job training and career development for different cadres were developed but not yet fully implemented.

Recently a number of HR policies were developed and are in different stages of implementation. These include:

- Sudan Declaration for Nursing and allied Health workers Educational Reform (March 2001). This policy calls for "development and promotion of all nursing and allied health cadres by the year 2015". This will result in phasing out of all institutes known to produce technical nurses and allied health personnel and upgrading them to higher educational institutes.
- Career pathway policy for medical doctors and allied health personnel which addresses many issues related to quality, performance and deployment.

2.6.4 Financing of Health Services:

The financing of the health services has passed through successive reforms. From the colonial period till the beginning of the 1990, the health services were offered free of charge. User fees were introduced in the early nineties, as part of the econmoic sector reforms and adjustment. The impact of the introduction of user fees in public health facilities is not well documented, however anecdotal evidence suggests that the introduction of user fees has signifcantly affected access and utilization of health services with little or no significant improvement on the availablity and quality of care.

To amilorate the negative impact of the introduction of user fees on accessing health services, emergency cases at hospitals are exempted from user fees. Other exemptions include renal dialysis, immune suppressant drugs for renal implantation, chemotherapy, radiotherapy and treatment of hemophilia. The annual expenditure on free treatment amounts to 3.5 billions SD (US$13.6 million) in 2005 (increased to US$19.4million in 2006 budget) equivalent to 15-22% of total federal health budget.

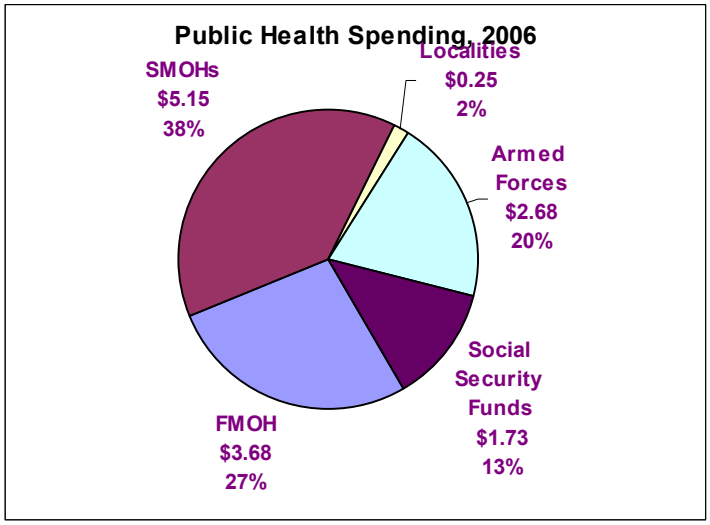
Furthermore, prepaid sheme was introcuced as part of the health finanaicng reform in the mid ninties in the form of the National Health Insurance Fund to moderate the negative effect of user fees. About 5.4 million people are covered (15.3 % of the total population in 2005). In 2002, 76% of the covered populations were government employees, 4.2% were poor families, 2.8% were families of martyrs, 2.4% were students and 5.9% were members of the informal sector. [10]

The general public expenditure on health has increased from US$ 295,738,819 in 2004 to US$ 474,729,913 in 2006. This level of per-capita spending is equivalent to US$ 9 and US$ 13 for both years respectively.

[10] National Health Insurance Fund annual report, 2002.

Spending at the federal level is through FMOH budget (3-4 US$ percapita and social security funds (health insurance, Zakat fund, etc) which is equivalent to 1-2 US$ percapita. National Insurance Fund, covering around 15 percent of the population – predominantly civil servants and their families – is reported to spend up to $ 34 million in 2005 (US$ 1 per-capita/year). The magnitude of private out-of-pocket expenditure is estimated to be as high as 19-21 USD per capita equivalent to 70% of the Total health expenditure (THE), but the exact figures are unknown.

Health spending at the state level varies from as low as 3.5 US$ per-capita annually in South Kordofan to as high as US$ 7.5 in Khartoum state with an overall average per-capita spending at the state levels of around US$ 5 per-capita for the northern States. Spending at locality level is not known but it is estimated to be in the range of US$ 1-2 per capita; signifying a very low level of public spending on PHC and key interventions[11].



In 2005, the external resource channeled through the the ministry of health amounts to 46.1 million US $ mainly from UN agencies. International NGOs contributed by 390 million $ in health and other huminaterian assistance in 2005. the exact amount spent on health care services is unknown.

2.7 MDGs

2.7.1 A- MDGs current status and trends

Although the overall health indicators in Northern Sudan are poor, they are better than those of Sub-Saharan African countries, but worse than those of Middle East and North African countries. In addition, the national averages mask significant urban-rural and regional disparities due to conflict, displacement, and chronic poverty. The health indicators reflect a poor health system performance due to the above mentioned system constraints. The recently completed Sudan Household Health Survey shows that the national average of infant Mortality Rate (IMR) is 52/1000, U5MR 73/1000. MMR figure for north Sudan is 638/100,000. Deliveries attended by trained personnel are 68.3%.

[11] FMOH, Health Economics Directorate

Table 11: Health-related MDG indicators[12]

	Sudan	Sub-Saharan Africa	Middle East & North Africa
MDG 1: Poverty and Hunger			
prevalence of child malnutrition (underweight) (% under 5)	29.6	30	17
prevalence of child malnutrition (stunting) (% under 5)	31.3	42	23
prevalence child malnutrition (wasting) (% under 5)	13.7	8	7
MDG 4: Child Mortality			
under-5 mortality rate (per 1,000)	122	162	54
infant mortality rate (per 1,000 live births)	77	91	43
measles immunization (% of children 12-23 months)	62.7	53	86
MDG 5: Maternal Mortality			
maternal mortality ratio (per 100,000 live births)	638	1,100	360
Births attended by skilled health staff (%)	68.3	44	63
MDG 6: HIV/AIDS, Malaria, and Other Diseases			
prevalence of HIV (% adults ages 15-49)	1.6	9.2	0.3
contraceptive prevalence rate (% of women ages 15-49)	7	15	46
number of children orphaned by HIV/AIDS	..	11M	65,000
Proportion sleeping under insecticide-treated bed nets (% children under-5)	49.8	2	..
Proportion of children with fever treated with anti-malaria medicines (% children under-5 with fever)	50	42	..
incidence of tuberculosis (per 100,000 per year)	180	339	66
Tuberculosis cases detected under DOTS (%)	44.3	..	..
MDG 7: Environment			
access to an improved water source (% of population)	59.3	55	90
access to improved sanitation (% of population)	31.2	55	83
General Indicators			
Population	35.5 M	674 M	300 M
total fertility rate (births per woman ages 15-49)	5.9	5.1	3.3
Life expectancy at birth (years)	57.9	46.2	68.2

The above table shows the national averages, further analysis shows that the national averages disguise significant inequalities and poor health situation at the state level.

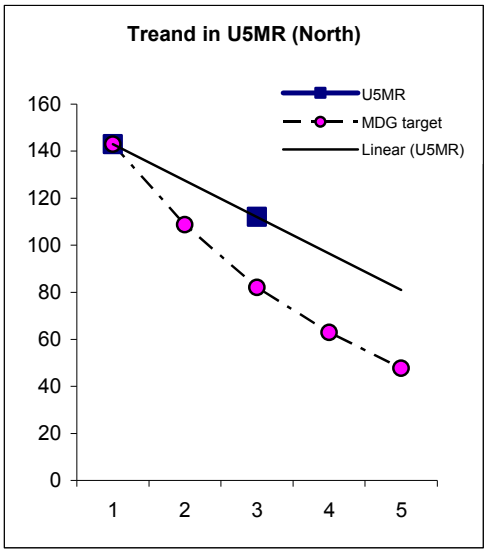
There has been little improvement in the MDG indicators over the 1990s. This requires scaling up of interventions and significant efforts to get on track for achieving the MDGs by 2015

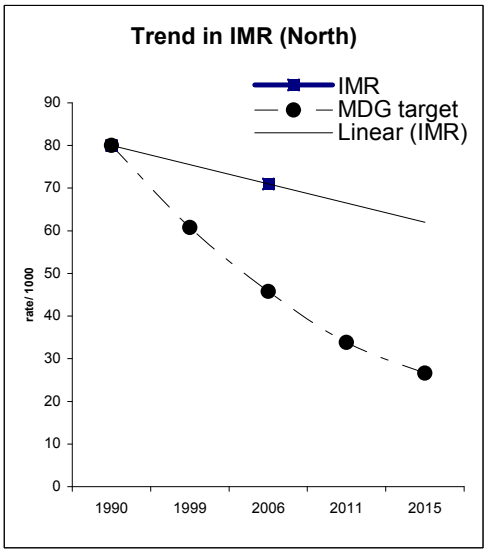
2.8 Goal 4: Reduce child mortality

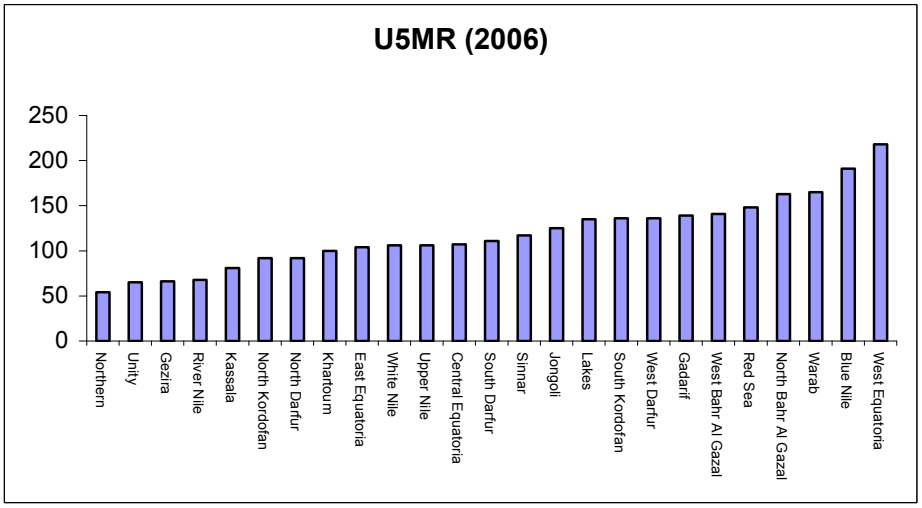
SHHS figures indicate high National child mortality rates. The IMR and U5MR are 77 and 122 per thousand live births. No national base line figure for child mortality in the country, however, in the North, the decline in child mortality rates has been rather modest between 1990 and 2006. The infant mortality rate per 1,000 live births reduced from 80[1] to 71[2]. Similarly, the under-5 mortality rate per 1,000 live births declined from 143[3] to 112[4] deaths with an average decline of 1.9% per year.

Marked disparities in infant and under-5 mortality rates are evident between states. The trend line shows that the probability of achieving the MDGs targets regarding child mortality is unlikely if current trend persists.

[12] 1999 SMS and 2000 MICS in northern Sudan, Sudan National Tuberculosis Control Program (2003), UNAIDS (2002), Sudan Central Bureau of Statistics (2001), Sudan National AIDS Control Program (2002), and World Bank (2002).


Treand in U5MR (North)
U5MR
MDG target
Linear (U5MR)
160
140
120
100
80
60
40
20
0
1
2
3
4
5


Trend in IMR (North)
IMR
MDG target
Linear (IMR)
90
80
70
60
50
40
30
20
10
0
1990
1999
2006
2011
2015


U5MR (2006)
250
200
150
100
50
0
Northern
Unity
Gezira
River Nile
Kassala
North Kordofan
North Darfur
Khartoum
East Equatoria
White Nile
Upper Nile
Central Equatoria
South Darfur
Sinnar
Jongoli
Lakes
South Kordofan
West Darfur
Gadarif
West Bahr Al Gazal
Red Sea
North Bahr Al Gazal
Warab
Blue Nile
West Equatoria

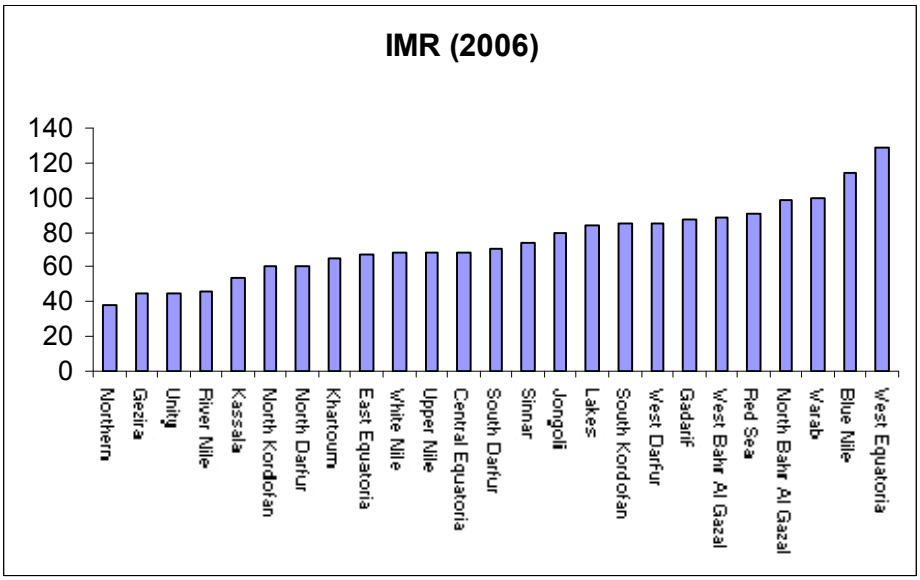

IMR (2006)
140
120
100
80
60
40
20
0
Northern
Gezira
Unity
River Nile
Kassala
North Kordofan
North Darfur
Khartoum
East Equatoria
White Nile
Upper Nile
Central Equatoria
South Darfur
Sinnar
Jongoli
Lakes
South Kordofan
West Darfur
Gadarif
West Bahr Al Gazal
Red Sea
North Bahr Al Gazal
Warab
Blue Nile
West Equatoria

Table 11: Child mortality by State/ Region,: (North Sudan)

State	regions	NMR 1990 DHS	IMR 1990 DHS	CMR 1990 DHS	U5MR 1990 DHS	NMR 2000	IMR 2000 SMS	U5MR 2000SMS	NMR 2006 SHHS	IMR 2006 SHHS	U5MR 2006 SHHS
Khartoum	Khartoum	38.2	77.3	33.3	108	27	69	103		65	100
Red Sea	Eastern	53.3	96.8	90.6		50	116	148		91	148
Kassala					178.6	38	101	148		54	81
Gadarif						31	67	117		87	139
Gezira		34.9	62.3	63.4		21	43	59		45	66
White Nile	Central					33	70	111		68	106
Sinar					121.7	24	51	8		74	117
Blue Nile						46	101	172		114	191
North Kordofan	Kordofan	41	74.8	64.4		28	60	94		60	92
South Kordofan					134.4	29	95	147		85	136
West Kordofan						34	72	95			
North Darfour	Darfour	55.1	90.8	77.3		27	61	101		60	92
South Darfour					161.1	33	64	96		71	111
West Darfour						42	71	104		85	136
River Nile	Northern	36.8	70.6	45		29	57	81		46	68
Northern State					112.5	26	56	78		38	54

Table 12: Child mortality by State,: (South Sudan)

State	NMR 2006 SHHS	IMR 2006 SHHS	U5MR 2006 SHHS
Unity	25	45	65
Central Equatoria	38	68	107
East Equatoria	26	67	104
Jongology	88	79	125
West BahAlghazal	22	88	141
Lakes	44	84	135
Warab	43	100	165
North NahrAlghazal	57	99	163
Upper Nile	112	68	106
West Equatoria	73	129	218

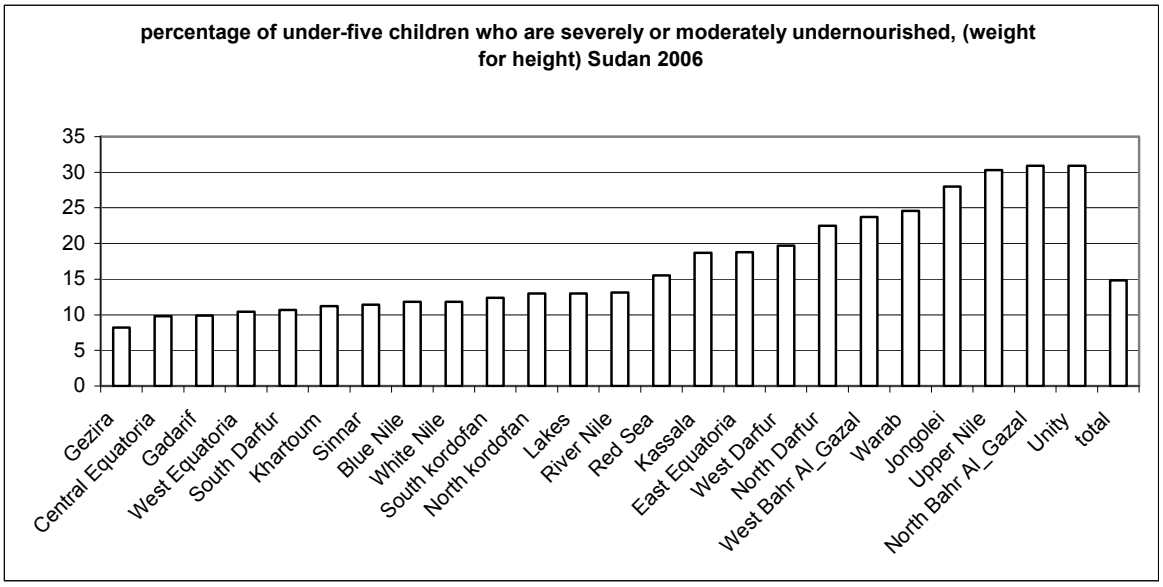
Analysis of the out patient case load in health facilities revealed that the majority of outpatient case load among under-five children is due to diseases including Malaria, Pneumonia with other ARI s, Diarrhea, Malnutrition and Measles[13].

Protein Energy Malnutrition (PEM) and Micronutrients deficiencies are the most common problems that affect children under five years of age and women. The nutritional indicators are still poor; the SHHS shows that underweight prevalence is 31 % and stunting is 32.5 % and those who are wasted are 14.8% (-2 SD). Significant inequalities are evident between states, for instance the stunting prevalence ranges 8.2% in Gezira state and 30.9% in Unity state. The same inequalities are found in the prevalence of underweight and wasting. The situation has improved compared to the figures of MICS, 2000 as shown in the table below:

Table 13: Under five child malnutrition

Indicator	SHHS, 2006		MICS, 2000	
	-2 SD	-3 SD	- 2SD	- 3 SD
Weight/ Age	31 %	9.4%	40.7%	14.7%
Height/ Age	32.5 %	15.2%	43.3%	23.7%
Weight/ height	14.8%	3.5%	15.7%	3.8%

[13] Federal Ministry Of Health, Annual Statistical report, 2004



Two weeks prevalence of diarrhoea is 28.8% in under-five children[14]. Oral Rehydration Therapy use among children with diarrhea is 58.5% and children who increased fluid intake during the episode of diarrhea are 26.1%.

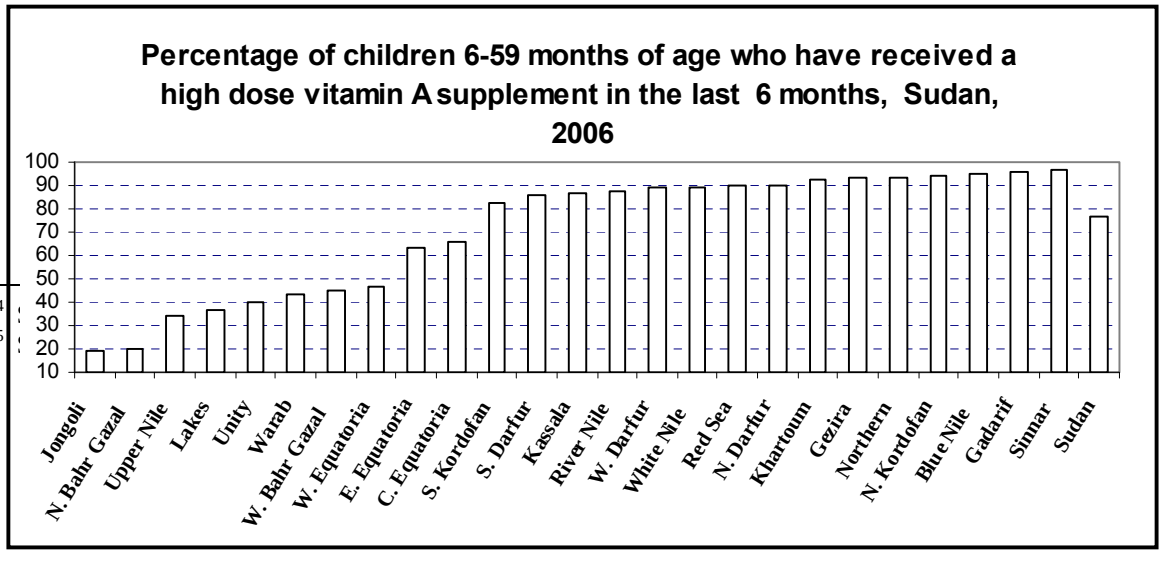
SHHS, 2006 showed that, the two weeks prevalence of ARIs is 12.4% in under-five children[15]. Of them 74.3% received treatment from an appropriate care-giver.

Breast feeding indicators showed some improvement in comparison to MICS 2000 results as shown in the table below..

Table 14: Breast feeding

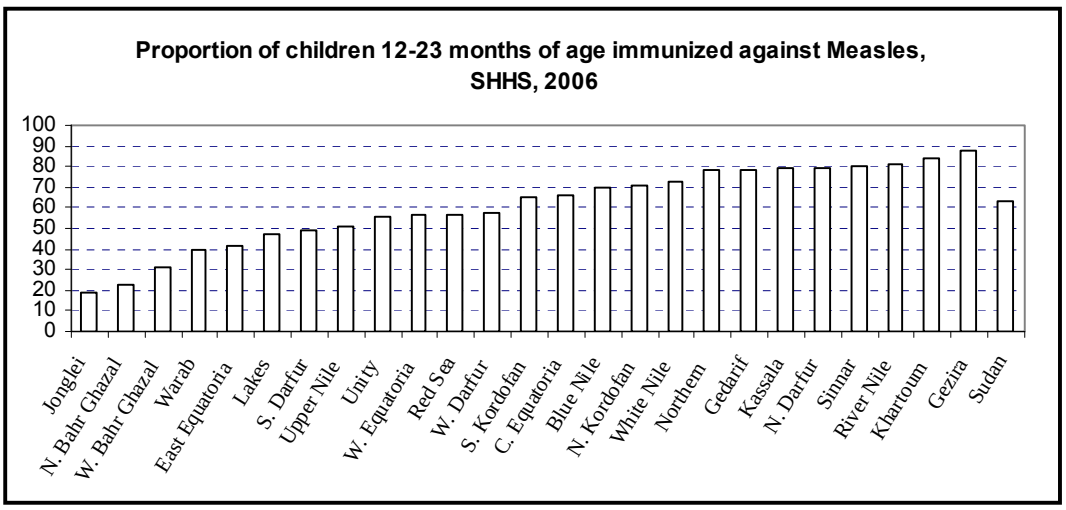
Indicator	MICS, 2000	SHHS, 2006
Exclusive breast feeding in children aged 0-3 months	21.4%	42%
Exclusive breast feeding in children aged 0-5 months	-	33.5%
Complementary feeding in children aged 6-9 months	46.6%	55.5%
Continued breast feeding in children aged 12-15 months	83.5%	83.4%
Continued breast feeding in children aged 20-23 months	40.4%	34.9%

Surveys conducted in states during the period of 1997 to 2001 showed that night blindness due to Vitamin A deficiency ranged from less than 1% to 4.8%. According to SHHS 67.1% of the children under-five received one dose of Vitamin A within the last 6 months.



Data on the national prevalence of Iron Deficiency Anaemia is not available
The iodine deficiency goitre rate was 22% in 1997. The consumption rate of iodized salt is 0.6 % and 0.5% in Northern and Southern states respectively (MICS 2000). Various strategies and interventions are used to control micronutrients malnutrition, including supplementation, food diversification and public health measures. Sudan has adopted food fortification strategy as a long term intervention.

The Expanded Program on Immunization (EPI) has recently achieved the national target of DPT3 coverage (83% in 2005). Polio, measles and MNT campaigns supplement the routine programme. Sudan Household Health Survey data showed that many of the northern states achieved significant success. However, all of the southern states are lagging behind (11.8% in Lakes state to 35.4% in Upper Nile state) making the national average of DPT3 coverage only 50.9%.
With funding from GAVI ALLIANCE, the EPI introduced Hepatitis B vaccine the 15 Northern states. It is estimated that 33% of the population receive immunization from fixed posts, 27% from mobile teams and 40% through outreach activities. In some remote and conflict prone areas, the population is entirely dependent on NGO services for immunization.
The Acute Flaccid Paralysis (AFP) surveillance system, established by the EPI in 2001, has maintained a satisfactory performance, with all indicators meeting international certification standards.



Main partners of the EPI are WHO, UNICEF and some NGOs. GAVI ALLIANCE five-year support started in 2002. The Government is mainly financing the salaries of the permanent EPI staff at all levels (federal, state, locality, health unit), and supporting the programme with transportation and other logistical issues.

IMCI was introduced in the year 1997 as an initiative to integrate the child health services. Since early implementation, the program has expanded to cover 1,148 health facilities in 43 localities in 16 states, 15 of them are Northern States. IMCI community component has been introduced at a limited scale in 25 communities.
The results of the IMCI health facility survey (March 2003), revealed that 73% of the surveyed children were seen in dispensaries run by medical assistants (MAs), this will entail a focus on building the capacity of MAs providing health care to under five children. The same survey has shown that the performance of IMCI trained health workers was much better than those who are not trained.
The proposed Accelerated Child Survival Initiative offers the opportunity for Sudan to achieve this goal on or before the target date of 2015.

2.9 Goal 5: Improve maternal health:

Progress towards achieving goal 5 is assessed through examining three indicators: the maternal mortality ratio (MMR) the contraceptive prevalence rate and the proportion of births assisted by skilled birth attendant.

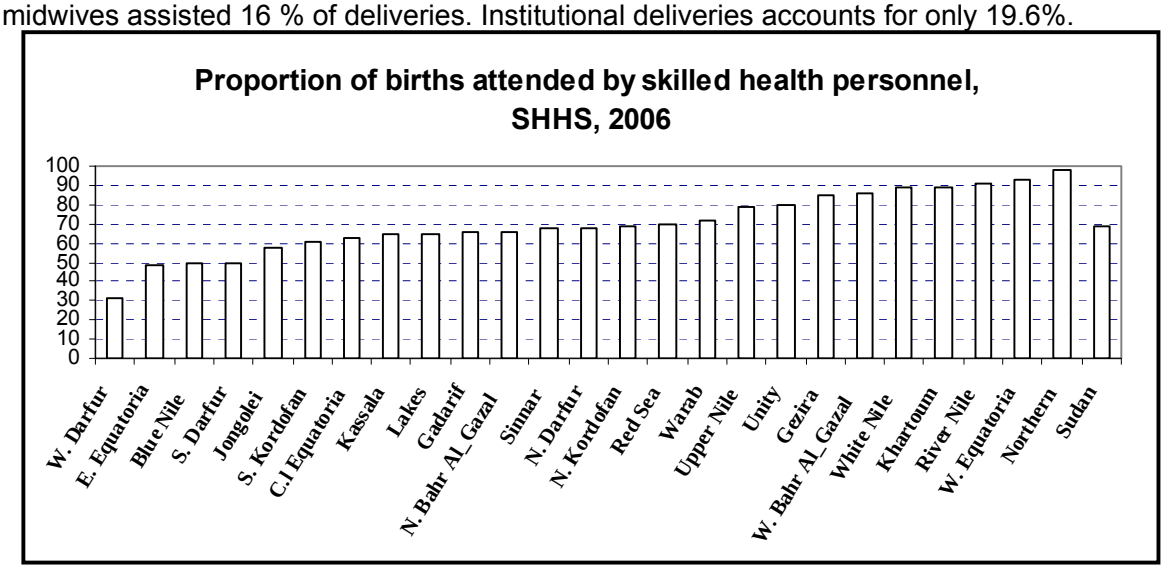
Between 1990 and 1999, the MMR reduced from 552 to 509 maternal deaths per 100,000 live births[16], a decline of 7.8% which is not that significant. There are also wide disparities and inequalities, both between regions and within regions. The preliminary findings of the SHHS from north Sudan showed considerable improvement in Khartoum, Kudrufan, central and northern states. But the conflict affected states showed considerable deterioration, particularly Darfur and eastern states. These ratios are better than those in many countries in sub-Saharan Africa, but they are the worst in the Eastern Mediterranean region. The results of maternal mortality for southern states is not yet available, however, current estimates are as high as 1700/100,000 live births. Due to the poor indicator in 2000, Sudan was selected by EMRO-WHO as one of the countries to in EMR to implement Making Pregnancy Safer initiative.

Table 15: Maternal Mortality

State	MMR 1999 SMS (regions)	MMR 2006 SHHS ((regions)	MMR 2006 SHHS
Khartoum	559	311	311
Red Sea	Eastern 556	Eastern 854	166
Kassala			1413
Gadarif			609
Gezira	Central 452	Central 400	355
White Nile			366
Sinar			320
Blue Nile			514
North Kordofan	Kordofan 582	Kordofan 352	212
South Kordofan			503
North Darfour	Darfour 524	Darfour 1255	346
South Darfour			1580
West Darfour			1056
River Nile	Northern 319	Northern 137	160
Northern State			93

[16] CBS, 1990

In 2005, 11,487 village midwives were working in the country (in addition to 3000 TBAs). The converge is one village midwife fro 3,180 of the population. Presently 38 Mid-Wifery institutions, (29 of which are adequately functional) are training mid-wives, with an estimated 1,400 trained every year by the 38 schools. Training manuals of midwives curriculum are not up to the standard needed for Skilled Birth Attendants (SBAs). The FMOH has recently revised the curriculum and training methodology. There are 166 permanent teachers (health visitors) in these schools. Most of them do not possess the required teaching skills and qualifications.
About 57 % percent of births occurring in the year prior to the SHHS were delivered by skilled personnel (57% in 2000). This percentage is highest in the Northern state at 98.2 percent and lowest in Jongoli State at 22 percent. Midwives assisted 29.8%, doctors assisted 11% and nurse midwives assisted 16 % of deliveries. Institutional deliveries accounts for only 19.6%.



Only 50% of the rural hospital doctors are trained in EmOC, in spite of the fact that the course has been conducted in all states during the last 3 years. This is due to the rapid turnover of doctors resulting from the unattractive working conditions. According to the national EmOC need assessment report in 2005 only 47% of hospitals are providing adequate comprehensive EmOC services.

In 1999, 7% of the currently-married women were using any form of family planning methods (a decline of two percentage points since 1989/90). However, unmet need for contraception is clearly evident, for example, 11% of women indicated that their births were unplanned and another 4% said that they were unwanted; the percentage of those who have ever used contraceptives was 21%[17]. A similar figure is shown in the SHHS, 2006 (7.7%). There was variability between States in the percentage of women currently using any method of contraception where the highest percentage is found in the Northern State (20%) followed by Khartoum State (18.6%) the least was in Jongoli (0.2%) followed by West Darfur (0.9%).

The total fertility rate (TFR) has fallen from 5.9 in 1999 to 5.1 in 2006. The total fertility rate is the highest rates in the Eastern Mediterranean region and comparable with many countries of Sub-Saharan Africa.
About 70 percent of women in northern Sudan and 90 percent in the three Southern towns receive antenatal care from skilled personnel (doctor, health visitor, midwife trained TBA) in 2000. The national level increased to 92.6% in 2006. Doctors delivered ANC to 33% of pregnant women, nurses to 11.8% , midwives to 17.9, TBAs to 2% and CHW to 0.6%.

[17]SMS, 1999

In the southern states most women and their infants were not protected against tetanus. Most women also did not receive antenatal care during their last pregnancy. There were wide variations in ANC services in different regions. Only 21.1% of women have received antenatal care during their last pregnancy. Most deliveries in southern Sudan are conducted by untrained TBAs, 77.7% of deliveries were conducted by untrained TBAs[18]. No information is available on postpartum care except that 8.9% of women were given Vitamin A capsule within 40 days of delivery. The midwifery services at village level are largely provided by untrained TBAs. The other providers are Maternal and Child Health Worker (MCHW) who receive 9-months training and there are about 213 of them involved in the provision of maternal services at primary healthcare units and primary healthcare centers.

2.10 Goal 6: HIV/AIDS, malaria and other diseases

2.10.1 HIV/AIDS control and prevention

Sudan is a signatory to the Declaration of Commitment made at the United Nations General Assembly Special Session on HIV/AIDS (UNGASS) in June 2001, The Millennium Development Goals, September 2000, the Abuja Declaration and Framework for Action on HIV/AIDS, tuberculosis and Other Related Infectious Diseases adopted at the African Summit and the International Conference on Population and Development. Each of these declarations recognizes the potential threat posed on Global and National Development by the AIDS pandemic, seeks Government's commitment and calls for a better and comprehensive response to combat the pandemic.

At country Level, the National Population Policy, this document, the 5Yr Health Sector Strategy and Investing in Health to achieve the MDGs, and the National Health policy give special emphasis and priority to HIV/AIDS control interventions.

Epidemiological studies conducted as part of the national Situation and Response Analysis, September 2002, showed that the country is classified to be in an early stage of a generalized epidemic. The prevalence rate was 1.6% among the general population[19]. There are, however, regional variations: the prevalence of HIV infection is higher in the Southern states, Eastern states, Khartoum and White Nile States. Heterosexual transmission accounts for 94% of the reported cases, while vertical transmission from mother to child accounts for 2.4%. At the end of 2005, the number of reported cases since the beginning of the epidemic was more than 12,000 HIV /AIDS cases.

Sentinel Sero-Surveillance for pregnant women attending antenatal Clinics (ANC), clients seeking treatment of tuberculosis (TB) and clients seeking treatment of Sexually Transmitted Infections (STIs) is carried in 26 selected sites. The data collected through the sentinel sites in 2004 – 2005 showed huge regional variability where a relatively higher prevalence reported from Khartoum, east and south parts of the country. Among the population segments tested data showed a prevalence range of 0.5- 1.5% among pregnant women and 1.5- 2% among STIs and TB patients.

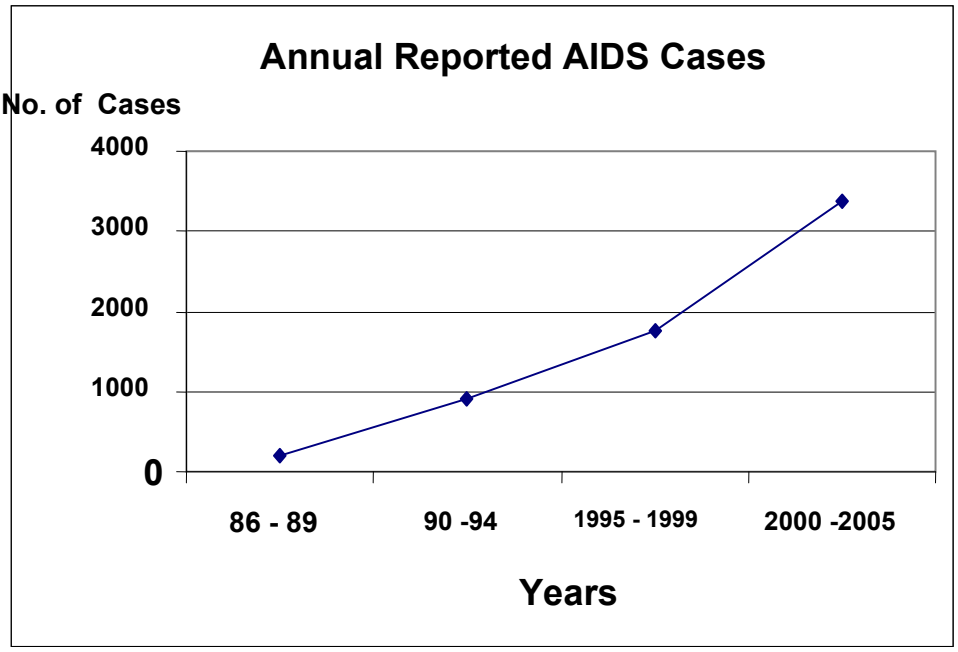
Sudan's situation is made even more difficult by the epidemic taking a grip in neighboring countries with the free movement across the porous borders.

[18] MIC S, 2000,

[19] Behavioural and Epidemiological Survey Report, 2002

The number of reported AIDS cases is showing an alarming increase from year to another as shown in the figure below[20]

Figure 1: Annual Reported AIDS Cases 1986 - 2005



In response to the situation, during the last 2 decades the main focus of the HIV/AIDS Control Programme was on blood safety, sexually transmitted infections and small scale awareness and advocacy program. The limited donor support was shaped around these priorities in addition to limited support to condoms distribution and people living with HIV/AIDS. Other elements of response such as care and treatment, voluntary counseling and testing, disease surveillance and support to multisectoral response have not been considered until recently. This obvious shortcoming in the national response could be attributed to the lack of resources and commitment in the early stage of the epidemic.

Starting from 2001 onwards, dramatic improvement has been observed in the National AIDS Response. This is largely a result of the strong advocacy and 'Breaking the Silence Campaign' that was led by the National AIDS Control Program and engaging different partners including the religious leaders, donors, UN agencies, NGOs, line Ministries and the private sector. The campaign has contributed to the end of the denial stage and different partners and the government recognized the need for stronger and evidence based AIDS response. The National Strategic AIDS Plan development started and included four stages: situation analysis, response analysis, plan development and resources mobilization. The steps were completed successfully apart from the resources mobilization with Sudan suffering huge resource constraints in covering the cost implications of the plan at that time.

Another key feature of the national response is the development of a national policy on HIV/AIDS that addresses different issues related to HIV/AIDS including the Rights of People Living with AIDS, stigma, discrimination, gender, roles of different sectors, research, legal issues, and needs of most at risk groups plus other issues.

[20] Hospitals Data, reported in the SNAP repots

At the partnership level, more stakeholders from government, NGOs, donors and private sector became involved in the HIV/AIDS field. The mechanisms for this partnership have been through formulation of different forums such as the National AIDS council which includes representation from different Ministries and key actors. Other mechanisms were also formulated; one example is the Country Theme Group on HIV/AIDS led by UNAIDS to ensure coordination between the UN, Government and the private sector. Moreover The Global fund process has resulted in stronger Public–Private Partnership to combat the three major killers in Sudan: TB, Malaria and HIV/AIDS. The Sudan AIDS Network, an umbrella forum for NGOs working in HIV/AIDS has also been activated to ensure effective partnership and coordination among NGOs resulting in the increase in numbers of NGOs working in the AIDS field.

At the service delivery area, more interventions targeting both the general public and most at risk population segments are now in place. For instance, the number of VCT centers has increased from only one in 2001 to more than 45 in 2006 and the number of treatment centers has increased from only one in 2001 to 14 in 2006. More Health providers have also received comprehensive training and the number of staff capable of treating AIDS patients has increased from only three 2001 to more than 500 according to the training reports of the National AIDS program. Prevention of mother to child transmission (PMTCT) services has also been initiated in three priority states of the country and more women are now receiving AIDS counseling and testing within the ANC settings.

With regard to prevention activities the level of awareness has improved; MICS (2000) showed that 40 percent of women aged 15-24 in northern Sudan and 67 percent in the towns of the south have heard of AIDS compared to 69.7% as shown in the Sudan Household Health Survey, 2006.
SHHS also showed that 44.1% of women aged 15-24 can correctly identify at least one method of preventing transmission of the virus compared to 25% and 31%, in north and south in 2000 (MICS, 2000). The comprehensive knowledge about HIV Prevention (Proportion of young women aged 15-24 years who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission) is about 11% compared to 2% in 2000 (MICS, 2000).
Other recent features are the initiatives taken by some key governmental sectors to incorporate HIV/AIDS in their plans and mandates through nomination of focal points and establishment of HIV/AIDS units within their structure. A good model of these initiatives is the partnership developed between Ministry of Health, UNICEF and Ministry of Education to include Life-Skills based curricula in primary and secondary schools targeting more than 2,400,000 school pupils and their families. Another good initiative is demonstrated by the Ministry of Defense and Ministry of Interior which have introduced HIV testing and treatment within their health facilities and initiated awareness raising and peer education among the uniformed services. The Ministry of Higher Education is also working through 12 Anti-AIDS Students Associations in large universities to improve AIDS prevention among university students and the surrounding community. Other line Ministries that have become part of the National Response include Ministry of Social Welfare with focus on Orphans and Vulnerable Children, Ministry of Labor and Administrative Reform with emphasis on HIV in the work place, Ministry of Youth and sports with focus on Young people and Ministry of Justice with focus on Rights of People Living With AIDS and support to a special law on HIV/AIDS

Supporting environment and policies:
The FMOH has taken the leadership in creating and supporting an enabling and favorable environment for a better response to HIV/AIDS. The Country leadership at the highest level showed greater commitment to fight the HIV/AIDS threat. The President has launched the National Strategic Plan and directed the relevant government departments to give high priority to

AIDS control and prevention efforts. The Federal Minister of Health who is the Chair of the National AIDS Council is closely working with other sectors to ensure the involvement of other line Ministries in the overall response.

The policy and planning environment for HIV/AIDS programming has substantially improved in the last years and the Ministry of Health has developed a number of short- and long-term HIV/AIDS plans of Action. These cover a wide range of strategies and interventions such as behavior change communication including life skills training for young people, service packages for most at risk groups such as refugees, uniformed personnel, prisoners and other risk groups, VCT services; blood Safety, Care and support for People Living With AIDS, surveillance ,and capacity building for staff working on HIV/AIDS. Huge efforts are done to build the capacity of the State AIDS Programs through training of staff and logistical support in terms of supplies and IT equipment.

To support the policy environment the program is also undergoing Monitoring and Evaluation (M&E) enhancement process through support from UNAIDS. An M&E Framework is now being developed, it includes more than 50 national indicators that are identified through continuous consultation and input of different partners from UN, Donors, government, academia, private sector and state AIDS programs.

The overall goal for the period 2004-2009 is to reduce/contain the prevalence to less than 2% of the general adult population, while avoiding the stigmatization of vulnerable populations. To achieve this goal, the government in partnership with other Country Coordination Mechanism (CCM) members has submitted an application to the Global Fund to Fight TB, AIDS and Malaria (GFATM) round 3, now on the implementation process, and round 5, which is approved but not yet signed, with a total fund of 20 millions and 112 millions respectively.

It is expected that the GFTAM would contribute to the achievement of different targets identified in the National Strategic Plan and enhance public private partnership for better program implementation and coordination.

Despite these improvements, some obstacles remain and might affect the program absorption capacity. These obstacles include capacity at National and State level, M&E, Procurement and supply systems and human resources issues. Moreover there are still funding gaps in some areas like the program for most at risk groups and support to the multisectroal response.

2.10.2 Malaria control – status and trends

Malaria is endemic throughout the Sudan. Endemicity varies from hypo-endemic in the North to hyper-endemic and holo-endemic in the South. Worth mentioning is that 80% of the population is living in epidemic-prone areas (unstable malaria transmission). The disease is caused in more than 90% of cases by Plasmodium Falciparum although other species also exist.

Annually, malaria is estimated to have around 7.5 million attacks of sickness and to kill around 35,000 people. At public-sector health facilities, malaria accounts for about one-fifth of outpatient attendances and in public-sector pediatric hospitals the case fatality rate ranges from 5% to 15%.

The caseload has been reduced somewhat in recent years. Between 1993 and 2004 the annual parasite incidence per 1,000 people fell from around 400/10,000 to 60/10,000, and have been declining since then. The figure below shows the trend of reported Malaria cases per 1000 of the population for the period 1999-2004

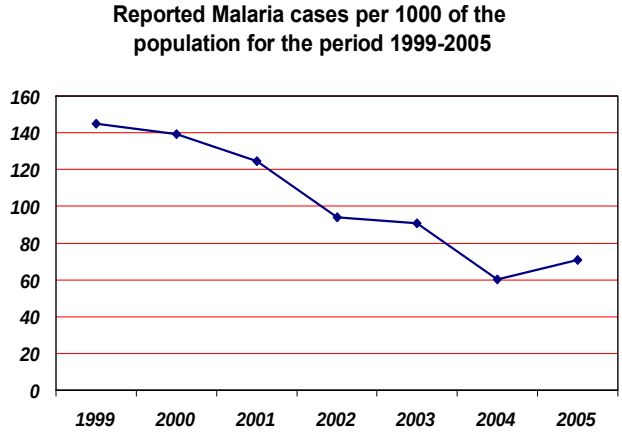


Table (): Reported admissions, deaths due to Malaria (2000-2004)

Year	Admitted Malaria cases	Deaths	CFR
2000	119,256	2,379	1.99%,
2001	196,575	2,502	1.27%,
2002	204,249	2,757	1.35%,
2003	152,686	2,479	1.60%
2004	130,585	1,814	1.26%.

Malaria treatment protocol has been changed from Chloroquine to Artemisinin-based combination therapy (ACTs) based on research evidence. The new drug is readily available in public health facilities and market. The new drug is provided to the patients free of cost in ten states under Global Funds arrangements.

New treatment protocols have been developed in English and Arabic in the shape of booklets and posters and provided to health facilities. About 30% health facility staff has been trained on the new treatment protocols

The programme has undergone successful structural reforms both at central and local levels. 19 states managed to attract and retain at least one trained coordinator (Diploma holder). Out of 96 targeted state cadres, 58 have been trained in Malarialogy Diploma course. Advance training in programme planning was given to 8 coordinators. Six entomologists have also been trained. Refresher training and short courses are regularly conducted. Now, around 40% of the states have adequate capacity to implement the interventions without significant support from the central level and another 40% are on the process of development. At least one vehicle has been provided to all northern states of Sudan for Malaria Control Program.

Use of ITNs is one of the key components of Roll Back Malaria Strategy. The Government has waved off 60% of the duty and allowed duty free import of these nets. Coverage of nets has significantly increased during the last few years as 712,000 five year long lasting nets have been distributed free of cost. The results of a survey conducted in 10 states -2 of them are in the south - showed that households with at least one mosquito net reached 57%. The Sudan Household Health Survey 2006 showed that 49.8 percent of children under the age of five slept under any mosquito net the night prior to the survey.

Biological vector control has also been initiated in four states by using Gambosia fish.
In the area of Monitoring and evaluation, there is a functioning system for weekly reports in 16 states with an effective feedback mechanism.

Malaria Control Program has been active in conducting research and developing evidence-based policies and strategies. 9 research papers have been published in renowned international journals.

2.10.3 TB control – status and trends

Sudan occupies the third place in the EM region in relation to the incidence of TB, exceeded only by Pakistan and Afghanistan. It accounts for 8% of the region's total TB burden[21]. The National TB programme has been implemented in 22 out of the 26 states. The remaining states are covered by NGOs through the Horn of Africa Initiative[22]. The annual risk of infection is estimated at 1.8%, of which around half are smear-positive. The total case load is estimated to be around 50,600 cases, half of it is notified. In the year 1999, maximum case notification was reached (26,950), but since then, case notification showed a gradually declining plateau. In 2005 the case detection rate was 44.3% which is far below the global target of 70%. The majority of TB patients are in the productive age of their life (15-45 years). There is also a strong link with HIV/AIDS; over the period 1988-96, 6% of TB patients were found to be HIV-positive. TB accounts for 12% of hospital admissions and is one of the main causes of hospital death.

The DOTS- strategy was introduced in model areas in each state in 1996 and was gradually expanded. *DOTS ALL OVER* was declared in the year 2002[23]. However, the rapid assessment of the National TB programme (NTP) conducted August 2006 showed that no health facility is complying with the DOT component of the strategy. Most of the DOT centres prescribe treatment for a week or a month. This was attributed mainly to the stigma associated with the disease or to the difficulty for the patients to come on daily bases to receive the treatment, especially when there is no near by health facility.

In 2004, the treatment success rate has reached 81.9%, close to the global target. The cure rate is only 52% because a lot of the patients completed the treatment without being checked for cure (29%). In addition, the conversion rate of sputum at the second month is 85% (15% of patients not investigated). The defaulter and transferred out rates are 9.6% and the failure rate was 2.7%[24].

The TB Control program is receiving considerable funds through different partners including Norwegian Heart and Lungs Association, Global Fund and WHO. The drugs and consumables are available at all levels. The local component needed for administrative and supervisory activities is insufficient. The rapid assessment showed as well marked weaknesses in the hierarchical set-up especially at locality level, high turnover of trained personnel, poor registration and reporting and poor training and motivation of health facility workers.

[21] WHO, 2002. *Annual TB Report*

22National Tuberculosis Program (2004): 2Nd In-Depth Review of National Tuberculosis Program of Sudan.

23National Tuberculosis Program (2004): 2Nd In-Depth Review of National Tuberculosis Program of Sudan.

24National Tuberculosis Program (2004): 2Nd In-Depth Review of National Tuberculosis Program of Sudan.

Table 16: **TB programme, Case finding Summary 1993-2005**

Year	Pulmonary			Extra Pulmonary	Total
	Smear Positive		Smear Negative		
	New	Relapse			
1993	897	39	170	167	1,273
1994	3728	513	6,471	2154	12,866
1995	8761	604	3,001	1,954	14,320
1996	8978	1,185	7,641	2,476	20,280
1997	10835	1,652	5,859	2,548	20,894
1998	10820	1,655	6,901	3,442	22,818
1999	14075	1,806	6,933	4,136	26,950
2000	12440	2,159	6,600	3,892	25,091
2001	11136	1,776	7,071	4,014	23,997
2002	10338	1,657	7,871	4,713	24,579
2003	11003	1640	7802	4666	25111
2004	11236	1600	7798	4012	24646
2005	11143	1552	8355	4501	25551
2006(3rdQ)	7951	528	1786	1111	5739
Total	133341	18366	84259	43786	274115

Table 17: TB programme, treatment results

year	Cure	Comp	Die	Fail	Def	Trans	Total	Cur Rate	Com Rate	Succ Rate
1995	3664	2882	177	591	890	122	8312	39.1	30.7	69.8
1996	2405	1705	187	246	971	192	5688	23.7	16.8	40.5
1997	3349	1674	301	280	1201	407	7212	26.8	13.4	40.2
1998	3710	1846	494	402	1735	339	8526	29.7	14.7	44.4
1999	6022	4544	661	298	1110	583	13214	37.9	28.6	66.5
2000	6344	3100	540	237	1266	675	12162	50.9	25.2	75.8
2001	6621	3381	494	85	862	462	10905	59	21	80
2002	6434	2135	367	67	803	263	10069	62.2	20.6	82.8
2003	6692	2236	326	103	1057	389	10803	60.8	20.3	81.1
2004	6819	2396	303	91	852	259	10720	60.6	21.3	81.9
Total	52034	24812	3849	2400	10746	3690	97531			

2.10.4 Schistosomiasis & STH control – status and trends

Schistosomiasis is endemic in different areas of the Sudan to varying degrees. It is the second major public health problem. In the years 2004 and 2005, the Federal Ministry of Health (FMoH), has conducted many epidemiological surveys. The prevalence rates of intestinal Schistosomiasis in sugar cane and irrigation schemes are very high, 53,7% (Asalaya), 44,3% (Gunaid), 55% (New Halfa), 43% (Sinnar), 48,7% (Managil), and 60.8% (Rahad). The reports of Schistosomiasis Control Program (NSCP) suggested that the disease burden has dramatically increased. The World Bank, Utroska et al. (1997) estimated that the minimum population at risk in the Sudan was 24 million, while 5 million are infected, with an average prevalence of 20.8%. On the other hand the government political and financial commitment and support both at the Federal and state levels have been insufficient and far below the challenge.

2.10.5 Leishmaniasis:

Visceral Leishmaniasis is a vector born disease, transmitted by sand flies. The disease is endemic in Sudan and affects 7 states (Gedaref, Sinnar, Upper Nile, blue Nile, south kordufan, south Darfur and Unity). About 8,000-14,000 cases are notified yearly through 19 diagnostic and

treatment centres. These figures are under-estimates of the real burden due to the limited diagnostic and treatment centres which covers 5 states only (Gedaref, Sinnar, Upper Nile, Darfur and Unity). It is a seasonal disease with a peak during November – February. The first line drug of treatment so far in Sudan is Sodium Stibo Gluconate (SSG), the reports showed an evidence of presence of some resistant strains.

2.10.6 Lymphatic Filariasis

Lymphatic Filariasis (LF) is a mosquito- transmitted parasitic infection widely prevalent in over 83 tropical and subtropical countries. The disease affects 120 million persons with 2 billion being at risk of contracting the infection. It is ranked as the second leading cause of permanent disability worldwide. The manifestations of Lymphatic Filariasis are enlargement of the entire leg or arm, the genitalia, breasts and internal damage to the kidneys and lymphatic system. The psychological and social stigmas associated with the disease are immense.
In the period December 2003 to December 2006 epidemiological mapping was curried out in 63 localities (in 12 states) using rapid immunochromatographic card test (ICT) for Wuchereria bancrofti. The prevalence rate of the disease ranges from 1% to as high as 54% in Amatong County (East equatorial State, Southern Sudan)
Table 18: LF prevalence per state:

State	***Prevalence***
Upper Nile	19.6 %
East Equatoria	33.4%
Bahr Eljebal	10.8 %
Kassala	5.4 %
Gadarif	4.8 %
Sinnar	1%
White Nile	3.3 %
Blue Nile	27%
South Kordofan	6.6 %
Khartoum	4.5 %
North Kordofan	41.0%
Algazeera	26.0%

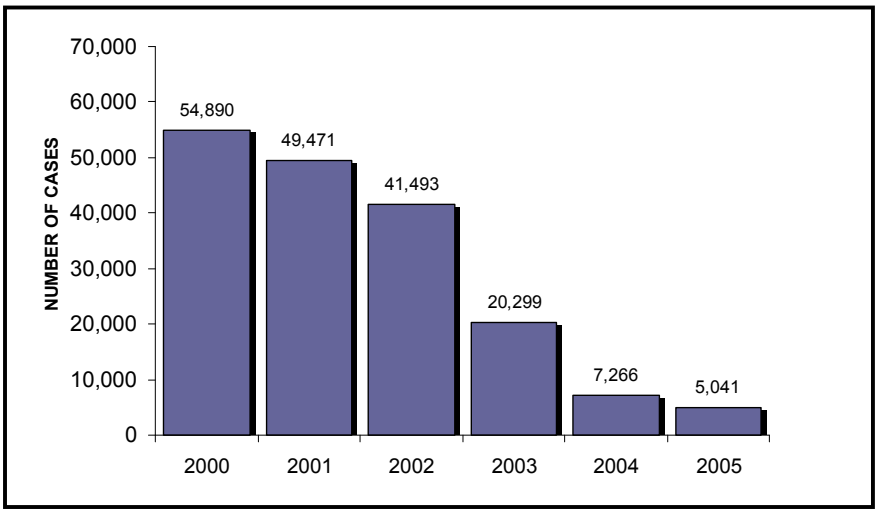
2.10.7 Sleeping Sickness

Human African Trypanosomiasis is a systemic protozoal disease transmitted to man by the bites of infected tsetse flies. It is endemic in south Sudan, particularly (central, West & East Equatoria). It is one of the most killing diseases in Equatoria Zone. In the past the control activities have been limited to few surveys and treatment of self reported cases.
In 1999 a prevalence of 19.5% and 30.3% was reported in East Equatoria and central equatoria states respectively. In 2001 Sero-positive cases, using CATT and CIAT test shows rates of 43.9 and 48.1% respectively In central equatoria state.

2.10.8 Guinea Worm (Dracunculosis):

Guinea Worm Eradication Program started all over the Sudan in 1993 by postal survey followed by active case search in all Northern states and accessible districts in the South (mainly capital cities). The national programme has been coordinating during the conflict period with OLS in the south. Case Containment strategy started in 1997 in the Northern states while the (OLS) in the south implemented case management strategy.
Sudan harbors more than 80% of the global Guinea Worm case load. In 2005 about 5,000 cases were reported in the country, in 2442 endemic villages. No endogenous cases were reported from the north since 2004.

After signing of the CPA more cases were reported in the south mainly from the previously inaccessible areas. Currently the control activities in the south are carried out by the GOSS.



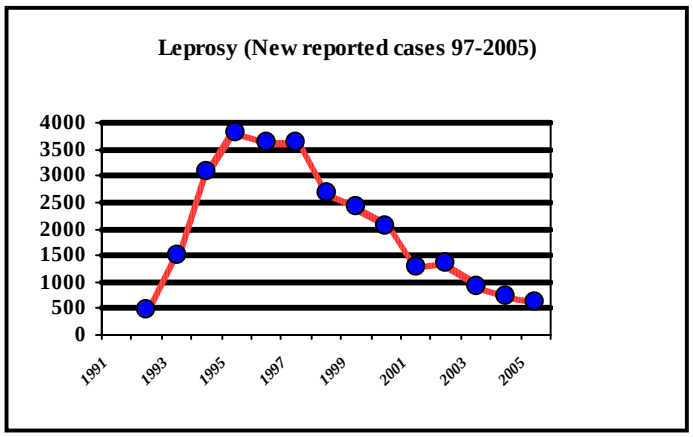
2.10.9 onchocerciasis

There are about 2 million people at risk of developing onchocerciasis (river blindness) mainly in North Bbahr Algazal state and the Northern State.

2.10.10 Leprosy:

Leprosy elimination programme was established in 1992. The programme managed to eliminate leprosy from all Northern state and the global target is reached in 1998, whereby the number of reported cases is less than one case per 10,000 of the population (0.6 case/10,000 in 2006). The number of discovered cases increased gradually from 260 cases in 1991 to a beak of 3,800 in 1995. The number of cases started to decease thereafter gradually to reach 625 in 2005. The total number of cases discovered since 1992 reached 31,407 cases. The number of treatment centres reduced from 720 to 280 centrs located where the cases are still reported. The treatment is provided free of charge (donation from GLARA, TLM and WHO). Completion of treatment has reached 96% and the disability associated with the disease (grade 2) has been reduced from 20% to less than10 % in 2005.

In south Sudan the disease is still prevalent especially in states previously controlled by the SPLA, its exact magnitude and incidence need to be determined



2.11 Prevention and Control of Outbreaks

Sudan is prone to a wide variety of epidemics including meningococcal meningitis, Viral Hemorrhagic Fevers and Acute Watery Diarrhea that keep causing recurrent outbreaks in different seasons and locations in the country. Acute Watery Diarrhea/Cholera for instance, starts to unfold over the last couple of years. There are various factors contributing to the vulnerability of Sudan to the risk of communicable diseases;

- poor coverage of the country by the disease surveillance system, particularly in Southern Sudan;
- low coping capacity of the health system;
- poor access to health care and fragile health care systems in the country resulting from various conflicts, displacement settings and ongoing population movement internally and across the international borders;
- impaired or lack of efficient environmental health system coupled with low-scaled civil services of water and sewage disposal.

Meningococcal meningitis: The largest recent outbreak of meningococcal meningitis occurred in Sudan in 1999 with more than 33,664 cases and 2,508 deaths (CFR: 7.5%). It was followed by another large scale outbreak in 2006 with 6,487 cases including 475 deaths (CFR: 7.3%).

Table 19: **Reported CSM cases from 1999 to 2006 with attack rate and immunization coverage**

Year	Cases	Cumulative attack rate/100000	Deaths	CFR
1999	33664	115	2508	7.5%
2000	5076	17	468	9.2%
2001	2252	7	336	14.9%
2002	2407	8	455	18.9%
2003	1436	4	158	11٪
2004	1133	3	175	15.4%
2005	3703	11	124	3.46٪
2006	6487	19	475	7.3%

Yellow fever: is endemic in some parts of Sudan where the vector is found. Between 1940 and 2005, 4 outbreaks occurred in the country with a total of 16,538 cases out of which 1,926 deaths have occurred, giving 11.7% overall CFR.

Table 20: Yellow Fever Outbreaks in Sudan

Year	Area	Cases	Deaths	CFR
1940	Nuba Mountains-South Kurdofan	15,633	1,627	10%
1959	Alfunj-Blue Nile	114	88	77%
2003	Imatong-East Equatoria	178	27	15%
2005	South Kurdofan	613	184	30%

Acute Watery Diarrhea: one of the epidemiological events that deserve thorough researches and better understanding of the factors involved in the spread of the diseases.

Disease surveillance system: The existing disease surveillance system in the country is a sentinel based one where surveillance reports are sent by the state health authorities on weekly basis using a standard reporting format. However, during the period of an outbreak, daily reporting systems are established between the epidemiology department of the FMOH and the health authorities of the affected states. For some diseases, three types of surveillance systems are currently in use;

- **Sentinel surveillance system:** currently there are over 650 sentinel sites sending weekly reports on 22 reportable selected diseases. These health events are reported on the basis of standard case definitions alone. Each sentinel site covers a geographic area of at least one administrative unit.
- **Early Warning and Alert Response Surveillance System (EWARS**): in view of the humanitarian crises in Darfur, a surveillance system for monitoring morbidity and mortality amongst the internally displaced population was established to monitor transmission of epidemic prone diseases in the camps and settlements. The system was established jointly between FMOH, WHO, other United Nations agencies and NGOs. The main objective of this early warning and alert response surveillance system (EWARS) of epidemic prone diseases is to:
    - ensure timely detection, response and control of communicable diseases outbreaks in Darfur; and
    - monitor the trend of communicable disease transmission amongst the Internally Displaced Populations (IDPs) in Darfur in order to trigger appropriate public health interventions timely and promptly.
- **Laboratory based Surveillance:** Meningococcal meningitis is the only disease enjoying this tool of monitoring. Sudan has, recently, been included in the WHO/EMRO's network for laboratory based bacterial meningitis, which is being implemented in six out of 25 states in the country. The laboratory based bacterial meningitis surveillance system was introduced in Khartoum state in 2004 and is now being expanded.

3 Challenges and opportunities

3.1 CHALLENGES

Political environment: With the signing of the peace agreement, Sudan has about turned the corner in the way international assistance can be framed and delivered to address the critical constraints affecting the health sector. The political environment, although improving, remains delicately balanced. Urgently needed health interventions can be used to further improve the environment and build trust between the North and the South. Health should be used as "a bridge for peace". Increased coordination of the current efforts is needed to ensure that the relief activities are coupled with capacity building to make a smooth transition from response to recovery and development in areas of conflict. Commitment, both from the government side and the donors, is needed to ensure continuous support to recovery and development activities and to prevent the entry into a vicious circle of chronic emergency – acute emergency – chronic emergency.

The governance function needs to be strengthened at all levels of the Health System. The FMOH has a relatively good capacity in terms of developing health polices and plans on all aspects of the Health System, guided by a National Health Policy. However, the ability of the FMOH to translate those polices into implementable programs at the state and local levels are still insufficient. The capacity of the FMOH is especially limited in the areas of health legislation and regulation, standard setting for public and private health facilities and academic institutions and building partnership with the non-state sector and civil society organizations. These are relatively new areas where the FMOH requires substantial technical assistance. In addition, the organizational and management capacity of the State Ministries of Health (SMOH) to provide effective health services is quite limited. For instance the management support systems are either poorly functioning or non-functional all together. Examples of these include the financial, personnel, and logistics management systems, as well as other support systems such as referral, monitoring and supervision, drug and contraceptive supply, and repair and maintenance. All these systems are essential for delivering effective health services.

Institutional weakness: The health sector institutional capacity to respond to health needs and expectations is insufficient calling for immediate interventions and resources aiming at restoring and scaling up the PHC services, mainly in more deprived areas. Together with the lack of resources; the managerial capacity especially at the state level, is quite low for the decentralization model. The peace process has brought further challenges to the sector, increasing the demands on the weak decentralized system. In particular, the different levels of governance, which are envisaged in the power-sharing protocols, will require the allocation of responsibilities among the three layers, avoiding possible conflicts of competencies and ensuring harmonization of technical areas.

Inadequate financing of health sector: The health system in Sudan is under funded with a total PHE estimation of 36 US $ per capita. The government share in the total health expenditure is around 30%. Reliable data is not available on financing and spending by households, private spending in addition to costing. It is estimated that out-of-pocket expenditure exceeds 65% of the total health expenditure, which is inequitable. Further, there is limited social protection; only 15% of the population are covered by prepaid schemes in spite of the fact that there is high level of poverty. In 2005, the budgeted central health spending was around 1.5 of the GDP which represents 5.1 % of the total government budget amounting to US$ 9 per capita

The information system (HMIS): is inadequate for informing the decision making process on priorities for resource allocation and for monitoring trends in health needs and programs. The HMIS needs revision and redesigning to make it broad based including information pertaining to

community, private sector and vertical programs and also responsive enough to provide specific information required for monitoring, planning and programme improvement.. The emergency information system needs to be established and strengthened to aid in early warning, information sharing among partners, evidence-based decision making, as well as research and documentation to add to the institutional memory of the ministry of health.

Inequities in the health system: Despite gaps in information on distributional data, there is anecdotal evidence that years of war and conflict have created serious inequities in the financing as well as the provision of health care in the Sudan. The inequities are not only between the states of the north and the south but also within the various states.

Gaps in human resources for health: There is a huge gap in the human resources, exceeding 64,000 nurses, medical assistants, pharmacy technicians, laboratory technicians, environmental hygienist, and anesthesia technicians. As a result of peace and relative stability, some health workers are expected to return, especially those working in refugee camps in neighboring countries. In addition, the quality and performance of the present work force is inadequate calling for systematic continuing professional development. The Health Professional Councils need to be strengthened to undertake their responsibilities in setting professional standards, enforcement of these standards, regulation of the workforce, and accreditation of education and training facilities in collaboration with other stakeholders.

3.2 OPPORTUNITIES

The peace agreement has brought forth strong prospects in relation to the shared vision, strategic objectives, and operational implications for the realization of a peaceful and unified Sudan, thus facilitating access to all areas of the country, ensuring the security of personnel, and beginning the implementation of rehabilitation, reconstruction and development. Peace will free resources, previously devoted to war, to support social services. A large number of Sudanese expatriates are expected to return and add to the existing human resources.

Rapid economic growth and political commitment; due to increasing oil revenues and growth in different sectors of the economy, the economy of the country has witnessed stable and sustained growth over the last 5 years. The annual GDP growth rate has been around 7% ranking the country as one of the fasted growing economy in Africa and expected to continue with the same pace over the coming years. The GDP has increased from US$ 330 in 2000 to above US$ 700 in 2006 and expected to reach 2000 by 2011. The central Government is planning a gradual increase on health spending to 1.5% according to the Mid-term expenditure framework.

Human Resource for Health: The availability of health training institutes in the Sudan, compared to other similar countries, is considered a great opportunity for the provision of highly qualified human resources. Moreover, the FMOH is taking the primary responsibility for planning, monitoring and evaluating the health workforce in order to meet the health needs of the country on setting the minimum acceptable educational standards and performance levels required to be attained in health professional training courses. The FMOH, recognizing the varied and inadequate levels of training of health workers, is committed to ensure that all training of health workers is relevant, cost-effective, of acceptable standard, competency based and addressing the priority health needs of the Sudan.

Federalism and Decentralization policy has an overall objective of minimizing disparities that are quite significant between federal, and states, urban and rural areas, and war affected and more stable areas. The local health system, based on the district health model, will be considered the building block of the national health system based on the PHC approach. Health affairs shall be accommodated within the local government authority that will emphasize transparency and accountability to the state authorities and their community. While it is anticipated that responsible and culturally sensitive decentralization in Sudan might lead to more

equitable, accessible, acceptable quality of health services at the local level, more efforts need to be taken to validate appropriate application and benefits to the communities served.

Enhanced international commitment to support the health system in Sudan is strong as reflected in the wide presence of multiple donors and organizations, especially WHO, other UN agencies and NGOs and in pledges of support by governments. Clear commitments and monitoring indicators will be supported by strong domestic ownership and resources mobilization. FMOH is scaling up its efforts to take the leading role in effectively coordinating different development organizations, donor agencies, NGOs and also other government departments to ensure an efficient and optimal utilization of resources.

Solidarity and patriotism: the Sudanese communities are well known by their strong national commitment, values of social solidarity and culture of tolerance and diversity. This will add up to what has already been legally addressed in the CPA especially power and wealth sharing across different regions of the Sudan.

4 Guiding polices and long term strategies:

4.1 The 25 year Strategy

This strategy was produced in response to the national government initiative of developing a 25 year strategic plan for all sectors in Sudan. The major priortites were to embark on an effective health system reform based on fair financing options, reduce the burden of diseases, promote healthy life styles, develop and retain human resources and introduce advanced technology while assuring equity, quality and accessibility.

The strategic directions for the coming 25 years stressed that improved health indicators for all citizens will be achieved through a broadened primary health care concept. Attention will be given to human resources development through well planned and managed programmes. Emphasis will be on health financing and pro-poor system reforms aiming to increase allocations and investing on health and especially targeting the poor and the disdvantaged groups. Health services and goods with public health importance will be the responsibility of the government.

4.2 The National Health Policy, 2006

The national health policy draft document summarized the policy directions for the health sector for the coming periods. it form a road map for the health sector-wide development and its national strategic directions for many years to come. the general guiding policies are summarized in paragraph " 1.4 General Guiding Principles for the Health strategy" page 3 of this document.

4.3 Health Policy South Sudan (1998)

A health policy for southern Sudan came into effect on October 1, 1998. The policy emphasizes health as a central development issue. The main features of the policy are as follows:

- The primary health care system will be backed by an appropriate referral system and integrated with disease-specific programs. Emphasis will be on health promotion and prevention of diseases as well as proper use and control of drugs.
- Communities will be mobilized to play a major role in all aspects of health services. They will be expected gradually to shoulder an increasing share of the costs and hence reduce their dependence on **external** sources.
- Human resource development will include reorientation of old and new health workers and communities in the concept of primary health care.
- Services that have a predominantly public effect or deal with vulnerable sections of the population shall be provided free of direct charge.

An update version of the policy was done in 2006 and a draft is ready for approval.

4.4 Joint Assessment Mission Framework 2006-11 (JAM)

This report has been prepared by a joint mission represented by the Government of Sudan, SPLM, World Bank, UNICEF, WHO and UNESCO. The purpose of this report was to assess the current situation of basic Social Services including health based on the available knowledge and information. The JAM report contains situation analysis and key recommendations for development of social services in Northern and Southern Sudan. The quantum of inputs is

different between the Northern states and Southern states of Sudan but priorities are almost similar as mentioned below:

- *Healthcare financing:* with the aim of substantially increasing public spending and reducing regional inequalities by targeting the more deprived regions. Cost recovery as a source of financing will be reconsidered. A substantial effort will be placed in strengthening financial management at the central and state levels through technical assistance and training. Of special consideration will be the provision of free health care services for children under the age of 5 years.
- *Technical assistance and capacity building:* Priority areas are policy development, planning/regulation/supervision, financial management, human resources strategies, pharmaceutical policy and regulation, and health information systems. In particular, support is needed for strengthening decentralization through the transfer of financial, administrative, and political authorities to the states and local levels.
- *Investment in infrastructure:* as per the stated targets to increase coverage, focusing on disadvantaged areas. It will mostly consist of rehabilitation, and focus on the most deprived areas.
- *Investment in human resources:* This component focuses on skilled Primary Healthcare (PHC) workers. The recovery programme should provide incentives for most PHC training programmes, graduates to be posted in areas of need, re-allocation of a number of existing staff, and for an intense programme of in-service training.

Expanding service delivery & quick wins: involve significantly increasing funding for recurrent costs and small-scale rehabilitation and re-equipping of the health system in the underserved areas. It also needs to involve strengthened partnership with international and national NGOs in order to expand services, targeting under-served areas. Priority health services to be strengthened are those addressing the main causes of child and maternal morbidity and mortality, including skilled birth attendants, referral services, expansion of family planning programmes, provision of reproductive health commodities (contraceptives, delivery kits); prevention, treatment and counseling services for STIs and HIV/AIDS, and prevention of harmful practices, including Female Genital Mutilation (FGM).

Accelerated Child Survival Initiative

Recent analysis of the progress towards the achievement of the MDG indicate that many Sub-Saharan African Countries are not on track to reach the MDG. Although Sudan belongs to the Middle East and North African Region (of UNICEF), the country's indicators especially MDGs 4 & 5 are lagging behind those of other counties in MENAR. Some of the reasons have been highlighted in the foregoing. Yet, it is well known that the interventions to reduce child mortality by two-thirds are available, the question is how to bring them to scale and to ensure that they reach those who need them most. To assist African Countries to accelerate the achievement of MDGs 4and 5, support is being provided by UNICEF, WHO, World Bank and other partners to scale up the provision of key high impact low cost interventions through well planned delivery strategies. Sudan will take full advantage of this initiative which will enable the country to expedite the fulfillment of achieving the MDGs 4&5. As highlighted already, most of the proposed interventions are already ongoing and will only require re-packing and going to scale.

In Sudan, the implementation package will eventually include: A minimum package(high-impact, low-cost interventions that need to be implemented at scale immediately (e.g. ITNs for pregnant women and infants; ANC, PNC; EBF; neonatal care; EPI; vitamin A supplementation; deworming; IMCI, PMTCT, BEmoC; antiretroviral drugs (ARVs) for the management of paediatric AIDS; and Hib vaccine for haemophilus influenza type B; an expanded package:

equivalent to the minimum package plus extra evidence-based interventions that include additional neonatal care and comprehensive emergency obstetric care and a maximum package(expanded package plus new planned interventions such as pneumococcal vaccine, and intermittent preventive treatment of malaria in young children and expanding the provision and availability comprehensive EmOC.

It is expected that a 3-phased approach will be use: i.e. (a) a Jump-start' through a national level campaign that aims to reach every child in Sudan with a few key critical interventions through the EPI infrastructure. At the minimum, this should include measles vaccination, provision of LLITN, Vitamin A supplementation and deworming for under-five children and TT immunization for Women of Child Bearing Age (WCBA). There will be ongoing parallel intervention of community capacity building for family/community level care as well as support to improved delivery of routine family/community interventions in selected localities/ communities to start with (b) Pulse Activities with key interventions to be supported at the sub-national level with the following components: (i) mapping to identify low coverage areas and and provide specific key interventions (every three -6 months); (iii) building capacity at all levels for scale up at locality and community levels for microplanning, monitoring including facilitating the establishment of community development committees and upgrading the skills and numbers of community health/nutrition promoters to increase demand for services(c) the third phase is the scaling up of family/community activities to ensure that all Sudanese children have access to the defined minimum package of care, no matter where they live or work.

5 Strategic framework:

In the last decade progress towards achieving the MDGs in Sudan has not been very significant; some indicators have actually deteriorated. Many constraints have been behind this slow progress or deterioration, in addition to the health system weakness, these include, inter alias, the civil strive in the South and other parts in the county, and the low levels of spending on health that make the significant part of the system (the PHC levels) not responding to the needs.

Two important milestones have occurred recently and have created favorable conditions. These include the improving macroeconomics framework reflected in the significant and the steadily increasing economic growth rate. The GDP has achieved an average of about 7% annual growth rate over the last 5 years and expected to sustain the same pace over the coming period (the GDP has increased from 330 in the 90^{s} and early 2000 to around 700 in 2006)[25] . The second important change is the signing of the *Comprehensive Peace Agreement* (CPA). However, many challenges are still ahead and needs to be well addressed to bring about the desired changes in the health outlook. These include how the health system is organized; how services are delivered and how to finance /pay for health services.

1) Addressing the how the health system is organized: encompasses strengthening the stewardship function of the MOH. This will address the following: Generation of intelligence for more informed decisions and better health outcomes, formulating strategic policy direction, ensuring tools for implementation of policies and interventions such as powers, incentives and sanctions, building partnerships for health, ensuring a fit between policy objectives and organizational structure and culture and ensuring accountability. The focus will be on building the capacities of the Federal and State Ministries of health and local health authorities. The strategy will further the implementation of the recent reform initiative implemented by the FMOH, the local health system. Organizational redesign aiming at improving the leadership role of the FMOH, good governance and accountability are the core of the interventions and policy directions envisioned.
2) How services are delivered: the strategy will strengthen and revitalize the PHC, since primary health care services substantially affect the health outcomes of a population because they tackle diseases that constitute most of country's burden of disease. Linking the health facilities through networking will be addressed. Also the strategy emphasizes availing the needed staff and competencies, improving the staff skills, ensuring sustained and adequate supply of drugs and other consumables, revamp the basic equipments and technology used. The vital role of the private sector will be acknowledged and needed guidelines for Public-private partnership and contracting will be developed and enforced. Improving the performance and quality of care in secondary and tertiary referral levels will receive the needed attention. Appropriate strategies to implement the ACSI will be developed and implemented.

3) Financing and paying for health service: the sun functions of health include collecting revenues, pooling resources, and purchasing services. They should be geared to improve health outcomes. The strategy aims at increasing investment in health while addressing the needs of the poor, provide financial protection, and ensure consumer satisfaction—in an equitable, efficient, and financially sustainable manner. The

[25] Sudan has moved from countries with low Human development index in the 1990s to Medium Human Development Index in the 2002 onward (HDI was 0.428 in 1990 and 0.512 in 2003)

expansion of prepaid schemes and health insurance to achieve universal coverage is a key priority and vision to be realized in the life span of this strategy

These should be part of a comprehensive and splendidly designed reform initiative package. The main objectives behind this reform are to improve the health system performance, making it sustainable, equitable, affordable and responsive.

This 5 year strategy, being built on what have been achieved in the past, draw lessons from previous pitfalls, and benefit from the growing international knowledge stock, experience, and innovative thinking in the social and health arena. Further, being part of a comprehensive framework stipulated in the National Health Policy (NHP), the 5 year strategy aims at fostering the future evolution and development of the health system. In line with African Union initiative, a Road map for the achievement of the ACSI will be included in key strategic and policy document and be implemented by the government with the support of partners.

6 VISION FOR HEALTH

To build a healthy nation, with emphasis on the health needs of the poor, underserved, disadvantaged and vulnerable populations, thereby contributing to the achievement of the Millennium Development Goals and the overall social and economic development of the country.

7 MISSION STATEMENT

The Ministry of health is focusing on the provision of equitable and quality health services that meet the Sudanese people expectations and needs, promote their health, improve their quality of life, and permits them to lead a dignified and prosperous life. This will be done through putting health at the centre of the country development policy, using best available evidence and efficient utilization of resources.

8 Goals, Strategic Objectives, Targets and Indicators

The vision for the health sector, set forth by the FMoH 25-year Strategy is to fulfill the MDGs, contribute to poverty reduction, and improves equity across and within states, and among vulnerable groups. The targets and indicators to be achieved by the country including the Millennium Development Goals related to health are summarized as follows:

Goal 1 - **Improve governance of the health system**

Strategic objective 1 - **Strengthening the governance and institutional capacity of the decentralized health system at all levels**

Targets

- Strengthen the institutional capacity of the FMOH in policy development, management, planning and implementation
- Improve leadership and governance function of the FMOH particularly in health legislation, standards setting and coordination;
- Reorganize and strengthen the decentralized health system structures, systems and capacities at SMOHs and local health authorities

Indicators

- # of policies developed and implemented by the FMOH /SMOH /LHA
- # of management sub-systems developed and implemented by the FMOH /SMOH /LHA
- # of staff at FMOH/SMOH/LHA trained and currently working in the areas of management and leadership.
- # of sub-national health councils/administrative units established and functioning

Strategic objective 2 - promote the culture of research and provide evidence for policy and decision making.

Targets

- Develop the national research priority agenda
- Dedicate at least 2% of the health budget to conduct priority researches
- Build a critical mass of health researchers

	- Make health research findings accessible and available - Assure compliance to research ethics -
Indicators	- % of budget allocated for health researches - Number of health professionals conducted/ participated in health research - Availability of up- to- date local health research database - Number of professionals trained evidence based policy/decision making/practice - Number of health research council meetings - Number of functioning ethic review committees
Goal 2	- **Improve coverage and accessibility to quality health services**
Strategic objective 3	- **Ensure equitable coverage and accessibility to the essential PHC package**
Targets	- Increase coverage with PHC health facilities from 1/14,000 population to 1/11,000 population - Improve the delivery of the PHC essential package in the existing health facilities from 22% to 63% - Increase access to community/family level health services through strengthening community development committees; building the capacity and remuneration of community level workers; provision of appropriate supplies, support to monitoring
Indicators	- Percent of population with adequate access to essential PHC services (living within 5 Kilometers of a PHC facility). - Health facility- population ratio - % of primary health facilities providing quality basic health care package - % of the targeted communities with community level development committees; - % of community health workers employed, trained to provide family/community health services and % remunerated.
Strategic objective 4	- **Ensure adequate production, equitable distribution and retention of skilled human health personnel based on the health system needs.**
Targets	- Increasing the training capacity of the allied health Academy and its branches in the states by 120% (from 3,090 to 7,000). - Production of 22,500 nurses 5,000 MAs/technicians and 7,500 midwives - Enroll 3,000 doctors locally and 750 abroad in general medical specialties - Enroll 550 doctors abroad and 15 locally in sub-specialties - Enroll 250 and 125 nurses/Allied health personnel locally and abroad for post basic degrees respectively
Indicators	- % increase in training capacity for each category of allied health personnel

	- Number produced of each category of health personnel
Strategic objective 5	- **Ensure equitable coverage and accessibility to quality referral secondary and tertiary health care services at all levels of health care**
Targets	- Ensure 50% of district hospitals are providing at least one of the basic specialties (Internal Medicine, Pediatrics, Obse.& gyne. and general surgery) - Ensure all district hospitals are providing emergency services and essential diagnostic services. - Ensure all states' hospitals are providing basic specialties (Internal Medicine, Pediatrics, Obse &gyne and general surgery) and priority sub specialties and related referral diagnostic services. - Reform major federal hospitals aiming at bridging the gap in tertiary services and establishing autonomous sub-specialized centers of excellence (see annex 2) - Establish efficient and effective referral system and ambulance network at the state level. - Expand triage system to cover all federal, state and district hospitals.
Indicators	- No of district/state hospitals providing basic/priority specialty services - No of states with functioning referral/ central ambulance systems - % increase in availability of sub-specialty services - % of hospitals implementing triage system -
Strategic objective 6	- **Reform and develop a pro poor health care financing policies**
Targets	- Increase public spending on health to 7% of the total central government budget (2.5 % of the GDP). - Increase the intra-sectoral allocation of government health spending on primary and first-referral services to 50%. - Develop and implement interventions (subsidies and prepayment schemes) to substantially reduce financial barriers specially for service package targeting mothers and children
Indicators	- Public central health expenditure as a percentage of national budget - Public health expenditure as a percentage of GDP - % of the PHE out of the THE - Per capita health expenditure (in international dollars PPP) - % increase of spending on PHC services - % decrease in direct out of pocket expenditure/ service
Strategic objective 7	**To improve the availability to affordable, safe and effective essential medicines**
Targets	- Assure the maintenance of quality and safety of all medicines through out the supply chain

	- Increase access to medicines by 80% in public health facilities - Promote rational use of essential medicines in public facilities
Indicators	- % of states implementing post marketing surveillance programme - % of population with access to medicines - Number of states with a functioning revolving drug fund system - % of contribution of local drug manufacturers - % reduction in adverse drug reactions
Strategic objective 8	**Introduction and adoption of quality management systems in all health facilities**
Targets	- Establish quality improvement programmes in all tertiary care centres, 50% of secondary care hospitals and 10% of PHC units. - Establish patient safety programmes in all tertiary and secondary care hospitals - Establish infection control programmes in all tertiary and secondary care hospitals - Enroll at least 80% of tertiary and secondary care hospitals and 20% of private hospitals in a voluntary accreditation programme - Recruit at least one professional quality manager at each state.
Indicators	- % of health facilities running. quality improvement programmes - % of health facilities running infection control programmes - % of health facilities running patient safety programmes - Adverse events/Hospital infection rate - %/Number of hospitals (public/private) joined/ accredited by the accreditation programme -
Goal 3	- **Improve child health**
Strategic objective 9	- **Reduce child morbidity and morality**
Targets	- Reduce under-five mortality rate to 70 per 1,000 live births by 2011 (compared to the estimated average of 122 in 2006) - At least 90% of children > 5 years nationwide receive an integrated package of interventions (measles vaccination, LLITN, deworming, Vitamin A) provided through the EPI infrastructure as part of the Accelerated Child Survival Initiative. - Reduce malnutrition among under-five children by at least 30% of 2006 level. - Attain 85% national coverage with DPT3, HepB3 & Hib3 with at least 80% coverage in each Locality. - Maintain the country polio-free. - Achieve measles elimination by the end of 2010. - Achieve neonatal tetanus elimination by the end of 2010 (<1 case per 1,000 live births). - Attain 90% coverage of children under 5 years of age with Vitamin A supplementation.
Indicators	- Under-five mortality rate

- Infant mortality rate
- No and % of primary HC facilities providing quality IMCI, Nutrition, and EPI services
- Prevalence of under-weight, stunting and wasting under five years of age
- Proportion of 1-year-old children immunized against measles
- Proportion of 1-year-old children immunized with DPT3
- % of localities with DPT3 & HepB3 coverage of at least 80%
- No of confirmed wild polio cases
- % reduction in measles cases/100,000 population
- No of localities reporting < 1 case of neonatal tetanus/1000 live births
- % of children under 5 who received at least two doses of Vit. A annually.

Goal 4 - **Improve Maternal Health**

Strategic objective 10 - **Reduce maternal and neonatal mortality and morbidity**

Targets

- Reduce maternal mortality to 260 per 100,000 live births by the end of 2011
- Reduce neonatal mortality to 20 per 1000 live births
- Increase institutional delivery from 14 % to 25%
- Increase postnatal care to 40%
- Ensure that 70% of referred maternal cases have timely and quality EmOC services
- Reduce major obstetric morbidities especially Vasico-vaginal Fistula (VVF) and provide needed health care for those affected
- Increase villages (> 1000 population) covered by skilled personnel to 90%.
- Increase percent of Service Delivery Points (SDP) providing more than 3 FP methods to 90%
- Increase percent of Service Delivery Points (SDP) providing ANC from 16% to 90%
- Strengthen communities involvement to support maternal and neonatal health (MNH) and overcome harmful traditional practices at least in the catchment's areas of health facilities providing midwifery services
- Strengthen and sustain the knowledge and capacity of youth (Secondary Schools graduates) in understanding MNH needs and risks

Indicators

- Maternal Mortality Ratio
- Neonatal Mortality Rate
- Proportion of births attended by skilled health personnel
- % of pregnant women who received prenatal and postnatal care
- % of referral facilities providing quality EmOC.
- % of institutional deliveries
- C/S rate
- % of SDP providing ANC/FP
- CPR

- Percent of villages (> 1000 population) covered with SBA
- Percent of FGM

Goal 5	- **Combat HIV/AIDS, TB, Malaria, and other communicable diseases**
Strategic objective 11	- **Ensure early preparedness and response to emergencies and epidemics**
Targets	- Build the institutional capacity of the health systems for effective emergences and epidemic preparedness and response (guidelines, training of teams, buffer stocks, logistic support, risk mapping, contingency planning and rehearsals and Emergency information system) - Promptly detect and abort within the acceptable standards > 90% of emergencies and epidemics - Strengthen/ establish Comprehensive Integrated Surveillance and Response System
Indicators	- % of states/ localities with a functioning units for emergency/epidemics preparedness and response - No. of emergency/ epidemics detected and aborted within the accepted standards - No / % of health facilities that submit regular reports
Strategic objective 12	- **Reduce HIV/AIDS transmission**
Targets	- Maintain the level of HIV/AIDS prevalence at less than 2% among the general population - Increase awareness and knowledge about HIVAIDS from 11 to 70 percent by 2011 - Increase percentage of health facilities providing syndromic management of sexually transmitted infections from less than 25% to 70% - Ensure 100% safe blood transfusion in all health facilities - Scale up of equitably distributed PMTCT services from 5 sites to 45 sites - Increase the number of equitably distributed VCT centers from 45 centers to more than 270. - Increase the number of patients on AIDS treatment including ARVs and OIs from less than 1000 to 20,000 by the end of 2011 - Apply second generation surveillance including improved AIDS Cases reporting, behavioral surveillance and sentinel surveillance - Build the capacity of the different partners including State AIDS program for effective and efficient program implementation - Mobilize stakeholders and communities through activation of National and State AIDS Multisectoral Council - Provide sustainable BCC and advocacy programs including different partners to ensure involvement of policymakers, communities, family and individuals in the AIDS prevention and to

Support people living with AIDS including combating stigma and discrimination

Indicators

- HIV prevalence among pregnant women attending ANC clinics
- Number of children orphaned by HIV/AIDS
- Percentage of women and men aged 15 – 49 who both correctly identify ways of preventing the transmission of HIV and who reject major misconceptions of about HIV/AIDS (By rural and urban)
- Number of people among most-at-risk target populations reached through BCC/counseling session(s) (By target population)
- Number of women and men with sexually transmitted infections at health care facilities who are appropriately diagnosed, treated and counseled
- Number of clients (By age & sex) received HIV test results and post test counseling
- Number of blood banks (public & private) providing HIV blood screening services using standardized protocols (By existing & new established)
- Number of people (By sex, age, pregnant women & children, new & follow-up) with advanced HIV infection receiving antiretroviral combination therapy
- Number of government sector(s) and private sector with a functional HIV/AIDS unit and has strategic plan with a budget for HIV/AIDS
- Amount of external funds disbursed and utilized by all the other partners for the HIV/AIDS programmes and activities (Disaggregated by disbursed & utilized in US Dollars

Strategic objective 13

- **Reduce Malaria related morbidity and mortality**

Target

- Reduce the morbidity and mortality of malaria by 50 % (of 2000 figures)
- Avail access to effective treatment (according to the new national treatment guidelines) for 90% of population living in high risk areas
- Ensure that 80% of pregnant mothers and children < 5 years of age in high transmission areas have access to and use effective preventive measures including ownership of LLITNs (80%), IPT (80%) in pregnancy and other vector control measures targeted at the general population (e.g. larviciding)
- Promptly detect and abort within two weeks > 90% of malaria epidemics
- Improve quality of laboratory diagnosis of malaria in > 90% of health facilities with microscopy and deploy RDTs in >90% of dispensaries in all states with low/moderate malaria transmission
- Provide early diagnosis and treatment with ACT to 1.8 million malaria patients in remote rural areas with poor access to health facilities, through HMM strategies
- Progressively provide access to rectal Artesunate in 682 dispensaries in the 10 states with the higher malaria burden
- Upgrade the RBM capacity at federal and state levels

Indicators	- Prevalence and death rates due to malaria - Proportion of malaria risk areas using effective malaria prevention and treatment measures - % of population in high risk areas who have access to effective anti-malarial treatment according to the National Treatment Protocol - % of health facilities' laboratories with improved malaria microscopy/ availability of rapid diagnostic tests RDTs. - % of states with a well functioning Malaria control Department - % of pregnant mothers and children < 5 years of age in high transmission areas who have access to and use effective preventive measures
Strategic objective 14	- **Reduce Tuberculosis related morbidity and mortality**
Targets	- Reduce the incidence and death rate from tuberculosis by 50% - Detect at least 70% of estimated new infectious TB cases. - Cure at least 85% of the detected infectious TB cases
Indicators	- Incidence (annual risk of infection) of tuberculosis per 100,000 people - Proportion of TB cases detected - Proportion of TB cases cured under directly observed treatment short-course
Strategic objective 15	- **Reduce Schistosomiasis related morbidity and mortality**
Targets	- Reduce the prevalence of Schistosomiasis to less than 10% in all endemic localities
Indicators	- Schistosomiasis prevalence among the school children
Strategic objective 16	**Control /Eradicate / Eliminate other communicable diseases**
Targets	- Reduce the no. of new leishmania cases by 30% in endemic states - Eradicate guinea worm by 2009 - Elimination of lymphatic Filariasis by 2015 - Elimination of leprosy by 2011
Indicators	- No of new leishmania cases detected and treated - No of new guinea worm cases detected and contained - No of localities with less than 1% prevalence of lymphatic Filariasis - No of localities with less than one leprosy case/10,000 population
Goal 6	**to promote healthy life styles reduce the burden of non-communicable diseases**
Strategic Objective 17	**To reduce morbidity and mortality related to major non communicable diseases**
Target s	- To increase early detection of targeted non-communicable

	diseases (CVD, hypertension, diabetes mellitus, cancer, accidents and injuries) by 30%. - To raise community awareness towards healthy life styles by 30%, and promotes behaviour & practice change by 30%. - Support policies addressing the health needs of special groups (adolescence , elderly), special settings(school health, health promotion workplace) and mental health
Indicators	- Prevalence of non communicable diseases - Prevalence of Tobacco, snuffing and alcohol use - Number of schools enrolled in school health programme - Number of rules and legislations endorsed
Goal 7	- **Creation of an environment conducive to partnership building and promotion of the role the private sector**
Strategic objective 18	- **Encourage private sector (for profit & not for profit) in contributing in health care provision and promote its collaboration with the public sectors**
Targets	- Increase the complementary contribution of the private sector in care provision, - Promote public private partnership
Indicators	- % contribution of the private sector in specific services
Strategic objectives 19	- **Support development of environmental health and community-based approaches for achieving health goals in partnership with other sectors**
Targets	- Support policies and develop strategies and services that ensure all people have access to save water supply and effective sanitation - Reduce adverse health effects of environmental hazards - Develop and implement systems to ensure food safety, chemical safety, solid waste and industrial waste management - Work in partnership with related sectors to combat pollution and control communicable disease vectors
Indicators	- No of developed policy/ strategy/ legislations - No of active coordination councils/bodies

9 Strategies and key interventions

10 Priority strategic interventions

Goal 1: Improve governance of the health system

Strategic objectives 1: Strengthening the governance and institutional capacity of the decentralized health system at all levels

a) Institutional strengthening and improved governance in the FMOH

This component shall be put into operation based on the following implementation strategies:

- *Institutionalized health policy formulation process:* For this purpose the policy unit in the General Directorate of Health Planning and Development, Ministry of Health should be strengthened. This unit should provide support in health sector policy formulation and analysis and oversee the policy implementation and its impact in federal, states and localities. This unit should be comprised of well qualified and experienced professionals having diversified competences and knowledge.
- There is a need to review the organizational structure of FMOH/ SMOH/ HAs and reorganize it with explicitly defined roles of each level and functional unit. Job descriptions have recently been updated by the Ministry of Health, however, there is a need to further refine the job descriptions and make some arrangements to ensure performance of the staff according to their predefined job descriptions.
- *Training and capacity development* – short- and long-term training shall be provided to FMOH staff in key areas such as leadership; health system development; governance, planning, equity and health; health financing and health economics; human resource development; organization and management; use of information for informed decisions; and project management.
- *Strengthening governance* – The governance function shall be strengthened through developing the FMOH capacity in health legislation and regulation, standard setting for public and private facilities and institutions, partnership building with the non-state sector and civil society organizations and improved accountability. In addition, the FMOH should adapt and take responsibility for the essential public health functions[26] in its national policy. These are relatively new areas for which substantial technical assistance shall be required.
- *Policy and systems research* – This shall be achieved through strengthening of research unit in the Directorate General of Health of Planning and Development, FMOH. Targeted policy and systems research shall be outsourced and facilitated by the Unit to provide evidence for developing national and sub-national health policies. Research priorities shall be identified based on consensus among all stakeholders in the health arena. Potential areas for research include the feasibility of contracting-out health services; roles of the private sector and public private partnership; health financing and utilization issues including equity in the financing and provision of health services; mapping of physical and human resources in health; and social determinants of health.
- *Management systems development* –capacity development at the institutional level through the development and strengthening of existing management systems in the FMOH. These included but not limited to, systems such as financial management,

[26] See Essential Public Health Functions, PAHO/AMRO (2004).

personnel management, drug management, procurement and logistics, monitoring and supervision; health information management.

- *Health management information, Monitoring and Evaluation System*: Establishing effective, efficient and sustainable Health Management Information and monitoring and evaluation system that provide valid, timely and reliable data is an important element in the improvement of health system performance. Such system if better designed and geared to this aim can provide and create demand for using data to inform decisions aiming at improving the health outcomes of the population.
- Health Information System shall be reviewed and redesigned to make it broad based including information pertaining to community, private sector and vertical programs.

- The health Financing Policy needs to be revised to be in accordance with the provision of the National Interim Constitution. There should be a clear financing policy with resource allocation formula to the different levels of the government levels. Federal Ministry of Health in coordination with the Ministry of Finance and National Economy should evolve a financial policy to ensure continuous increase in resources invested in health, focus on supporting lower level services in underserved areas, develop a transparent and equitable resource allocation formula and enhance financial allocations to the states for successful implementation of the decentralized system. Establishing National Health Accounts System for better management of financial resources is an important element for monitoring the financial system.

- *Technical assistance*- The above components shall be implemented with the support of targeted technical assistance in the form of short- and long terms experts who shall provide institutional support in the areas of governance, health legislation and regulation, system development, policy analysis and research, and information technology support for updating management systems in the FMOH.
- *Physical infrastructure and equipment*- infrastructure support shall be provided at the level of the FMOH. Priority area for support shall include information technology including computers and accessories, vehicles, renovation and construction/rehabilitation of administrative offices.

b) Strengthening and reorganization of the SMOHs and local health directorates in a decentralized health system

The health sector has to build its structures at all levels following the decentralization process going on in the country. Implementation will be based on the Local health system reform model adopted by the FMOH. The implementation plan will start by pilot in 6 localities to be followed by expansion phase. The implementation will be carried out in partnership with local communities, federal directorates (planning, state affair, and training directorates), FMOH programs (PHC programs, Malaria, Leishmaniasis, Schistosomiasis and environmental health program), States and localities authorities, NGOs; UN group, national and other international NGOs working in the field of health and development. Main activities would include;

- *Training and capacity development* – Multiple short- and long-term training shall be provided to SMOH and Local Health Authorities staff in key areas such as strategic and operational planning; personnel, financial and logistic management, system development, monitoring and supervision, community mobilization and participation, and training and upgrading skills of health workers in primary health care especially at the locality level. A critical group to be targeted in addition to the state and local authority's managers are the managers of state and rural hospitals.

- *Good governance and systems development* – Governance in health shall be improved through the development and strengthening of management systems in the SMOH and local health authorities. In addition to development of the financial, personnel, and logistics management systems, key support systems shall include referral (especially emergency obstetric referral system), monitoring and supervision, drug and medical supplies, and repair and maintenance.
- *Systems and operational research* – The focus shall be on operational aspects of the health system, which shall be undertaken based on the priorities identified by the Health System Research Unit in the FMOH. Potential areas for research include in depth health system analysis, referral system development, staff motivation and absenteeism, revolving drug fund, public-private partnership and community based initiatives.
- *Technical assistance* - The above components shall be implemented with the support of targeted technical assistance in the form of short- and long term experts to provide hands on support in the areas identified above. Technical assistance shall include, among others, training and capacity development, policy advice, development of tools, manuals, guidelines and protocols.
- *Redeployment and recruitment of staff* – This shall be undertaken to reduce the imbalance in the availability of staff between the federal and state levels, as well as, within states. In certain state MOH and local health authorities, special incentives shall be provided to recruit staff on a contractual basis in order to develop the necessary capacities to organize, manage and deliver health services.
- *Physical infrastructure and equipment* – Based on an adequate needs assessment infrastructure support shall be provided to all the SMOHs and local health authorities. Priority area for support shall include renovation and construction of administrative offices, supply of computers and accessories, office furniture and vehicles.

Strategic objective 2: promote the culture of research and provide evidence for policy and decision making.

The interventions will target the following:

- **Create a framework for leadership:** The research Directorate is the executive body for the National Research council. This council is formed to act as a country mechanism for governing of health research. It includes stakeholders. It plans and monitor implementation of the National Research Policy and plans through periodic meetings. The research Directorate will be strengthened and a program for leadership will be developed.
- **Development of the national priority agenda:** in order to focus research resources and energies, areas that are critical to the health and well being of the population will be defined in collaboration with stakeholders. The health research community should move over time to focus their health research activities in these areas. Criteria will be applied to ensure funds are consistent with research priorities. Funds will be aligned for programmes and researches of the outlined priorities.
- **Establish institutional technical and ethical review committees at Federal and states institutes:** The National Technical and Ethical Committees are responsible for setting the national regulations and guidelines and endorse selected research projects of national significance. All states ministries of health, universities, research centres and other institutes will be encouraged to form their review committees' inline with the national rules and guidelines. The Research Directorate will build the technical and ethical capacities through training workshops.

- **Strengthen partnership**: The Research Directorate will facilitate collaboration between key stakeholders through different forums and networking. The research must reflect the appropriate balance in health research activities in biomedical, clinical, health service delivery and population health areas. Joint projects, involvement in different steps and exchange of results through internal and external partnership will be encouraged.
- **Increase the number of active health researchers**: it is essential to attract, train and retain health researchers and health research trainees and health professionals to work in research. A comprehensive research career path program including rewarding opportunities will be implemented. Grant funding to help junior researchers will be organized. Capacity building includes development of the supportive environment of adequate and appropriate space and equipment.
- **Work with partners in all sectors to create a permanent and stable research funding source:** The National Research Council will work to ensure that 2% of programmes budgets goes for research and research related activities. The pool of health research funding will be increased by identifying and accessing other funding sources nationally and internationally. Benefit from the existing fund must be maximized through appropriate and transparent use.

- **Build the capacity of government and health professionals to incorporate available and new health research into appropriate interventions:** This is to ensure knowledge transfer in order to apply what we learn. It is essential to ensure that all research projects include a knowledge transfer component. Beneficiaries should be given the opportunity to receive or access training and education regarding the benefit and methods of sharing and using information
- **Make health research findings accessible and available:** all health care providers, health policy makers, the general public, commercial enterprises, and researchers should have access to research results. Strategies are to develop databases, encourage publications, and enhance public access to health journals and media sources.

Goal 2: Improve coverage and accessibility to quality health services

Strategic objective 3: Ensure equitable coverage and accessibility to the essential PHC package

Expanding coverage and geographic access to quality basic package of PHC services.

This five year strategy envisages different modalities for improving coverage and accessibility to the essential PHC package; this would include the following strategies;

i) Thorough and rigorous mapping of available health facilities to rationalize investing on health infrastructure. Advance technology will be used to map these facilities and build a computerized database. Cost-effective, best quality, durable and cultural acceptable facility Models will be developed, to be used in the health infrastructure development plan,

ii) Expand the service in under-served areas through construction of new health facilities and rehabilitating the existing ones. Currently, the service coverage gap is huge, where there is a need to construct 1,500 new health facilities, rehabilitate 2,460 existing health facilities

and upgrade 30% of the existing 3,005 dressing stations and PHC units to Basic Healthy Units (BHUs). In view of available and potential resources the FMOH should commit itself to construct 30% of the planned new health facilities (646), initially (to be increased incrementally as funds become available), rehabilitate and upgrade all targeted health facilities. The rehabilitation programme should also include medical equipment, furniture, transportation means and communication.

iii) The strategy shall support increased access to health care, through the injection of additional resources into the existing PHC system, to improve the quality of service and sustain service availability. The support will be in a form of package which shall include technical and material support to the drug supply system to expand coverage and ensure adequate supply of pharmaceuticals and medical supplies for health services.

iv) Incentives (cash and non-cash) for re-allocation of health workers to underserved areas as well as to improve health worker performance should be financed.

v) Contracting out and contracting in of selected package of PHC services: In areas with no existing government services, the provision of mobile and temporary clinics managed and staffed by government health workers reallocated from better-served areas and States.

vi) Another strategy for areas with no government health services is to finance private for-profit and non-profit firms and organizations to provide services on a contractual basis. This could include expansion of coverage of services provided by non-governmental organizations (NGOs) already operating in underserved areas.

vii) Prioritizing populations with little or no access to facility-based health services, the strategy should support the provision of high-impact health interventions directly to communities and households. This is intended to put knowledge and resources into the hands of households to improve their own health. The focus will be on interventions which do not necessarily require the existence of functioning medical services, thereby reaching populations currently out of reach of facility-based services. Included will be distribution of long-lasting insecticidal nets (LLINs) for malaria prevention in endemic areas which are not served by other programs, micro-nutrient supplementation, safe delivery kits, and information, education, and communication (IEC) on a variety of health issues (see below). Delivery package of health interventions with therefore include pulse delivery of integrated package of interventions (vaccinations, Vit A, LLITN, Re-treatment of nets; promotion of hand washing and breast feeding), in states with low coverage initially, but as time goes on all states will have the capacity to undertake pulse activities to reach all children with interventions. At the same time community capacity building and delivery of health care through community/family methods, especially in the rural areas will be implemented in a few localities initially, but scaled up to eventually achieve national coverage.

viii) In areas affected by emergencies, all attempts should be made to ensure that all receive quality PHC services. In this regard, the Emergency and Humanitarian Action directorate, in collaboration with other concerned directorates, should ensure the development of guidelines for service provision in emergency settings. According to risk assessments, enough stocks and supplies should be made available to ensure that PHC services are provided even under the most testing conditions, e.g. by use of mobile teams and mobile facilities. Such measures will certainly need to be backed up by robust communication and logistic arrangements.

ix) To ensure that health facilities continue to deliver quality services, the Emergency and Humanitarian Action directorate, with the concerned directorates (mainly PHC and Curative Medicine) should ensure that health facilities are reasonably prepared to deal with foreseen internal and external emergencies. This necessitates the improvement of pre-hospital and hospital emergency management systems and plans. These systems will be

based upon an assessment of possible threats and an inventory of available resources. Contingency plans are to be tested and updated regularly following conduction of rehearsals and drills,

Strategic objective 4: Ensure adequate production, equitable distribution and retention of skilled human health personnel based on the health system needs.

Investment in human resource development

Interventions will target assessment, planning, production, employment, deployment and management of HRH required to provide PHC services at the national and sub-national levels in a matter that copes the expansion of infrastructure and to sustain the scaling up of services. This requires a multi-pronged strategy and will include:

- Strengthen national capacity to support health workforce policy formulation, planning and management, monitoring and evaluation.
- Build the capacity of educational institutes of health professions to develop and ensure quality and adequate quantity of health human resource production in response to population needs (Rehabilitation of institutes that produce PHC categories and require urgent interventions (rehabilitation, equipment, improvement of boarding facilities and developing capacities of teaching staff));
- Reform SMSB to respond to the huge gap in specialities and sub-specialities. This would require revising the role and policies of the SMSB.
- Scaling up of external training for specialization and sub-specialization especially for those specialities with marked shortage in training capacities or increased demand (e.g public health specialists).
- Gaps in skilled work force with limited internal capacity for production will be covered through recruitment of expatriate health workers. Their numbers is to be reduced gradually with the increasing capacity of internal training programmes.
- Develop an enabling environment to recruit and retain the workforce through improvement of working conditions, including effective incentives, better salaries, career structure, and living conditions (Revision of the salary scale and hardship allowances, and/or special contracts for working in difficult areas, are policy measures that need to be taken in this phase).
- Ensure the appropriate staffing of all health facilities at every level of health services with special regard to rural and underserved areas and based on the personnel needs of the health system.
- Develop a national system of continuous professional development and continuous career development to ensure ongoing updating of competency for all health personnel recognizing different training need such as leadership and management development, etc.
- Strengthen health professionals' regulation to ensure protection of the public.

Strategic objective 5: Ensure equitable coverage and accessibility to quality referral secondary and tertiary health care services at all levels of health care

This objective requires interventions at all levels of the health system:

- At locality level the focus will be on rehabilitating the district hospitals to provide quality services covering the 4 main basic specialties (Internal medicine, pediatrics, general surgery, and obstetrics and gynecology).
- At state level the interventions include rehabilitating the state hospitals to provide quality specialized and priority sub specialized services which includes orthopedics, ophthalmology, renal dialysis, etc as well as availability of automated diagnostic and imaging devices.

- At the federal level the strategy target reform of the main federal hospitals to autonomous centres of excellence that fills the gap in specialties in the country and provide training opportunities for under and post graduate students. All secondary care services will be transferred to state level. The three major hospitals (Khartoum, Oumdurman and Khartoum North teaching hospitals) will be upgraded to tertiary care level centres of excellence to accommodate all the remaining sub-specialties. The option of finding new locations and replace the existing old buildings will be explored.
- Referral system is an important component facilitated by establishing ambulance network. An effective and workable Referral System needs to be designed and installed with clearly defined functions of each referral level along with patients flow mechanism from and to all levels of care; primary to secondary and tertiary levels and subsequent follow up. The monitoring unit should be strengthened and efficient and effective monitoring system should be designed and implemented. The regulatory system as well needs to be developed and strengthened to regulate the private sector.

Strategic objective 6: Reform and develop a pro poor health care financing policies

Health care financing reform is the most important policy prerequisite for improving health services and equity. It is recognized that these issues are of concern to the government as a whole, and will require coordination with, in particular, the Ministry of Finance and National Economy. The main required reforms In addition to the strategies and interventions discussed under strategic objective 2 are;

- The government's goal should be to scale up health spending targeting a minimum public health spending to reach 7% of the central government budget; the focus should be on supporting PHC services in underserved areas.
- Increases in financial transfers to the states:
- Development of a transparent and equitable allocation formula based on sound criteria and indicators
- Health financing policy should be revised to be in accordance with the provision of the National Interim Constitution**;**
    - Use analytical tools to assess health care financing policies such as national health account analysis and fairness of financial contribution
    - Promote equitable financing policies including increasing coverage by social and community based health insurance
    - Promote the use of economic tools and principles in health system planning and management.
- Free or subsidized MCH services package is to be costed and delivered at the primary and first referral level. This package should include in addition to the already free services (EPI, Vitamin A, ORS, Malaria, TB, Schistosomiasis, Leishmaniasis, leprosy, onchcerciasis, trypanosomiasis, trachoma, HIV/AIDS, STIs, ANC, family planning, etc):
    - Treatment of ill child based on IMCI protocol
    - Normal and caesarian sections
    - Iron and folic Acid supplementions

Strategic Objective 7: Improve the availability to affordable, safe and effective essential medicines

Assure the maintenance of quality and safety of all medicines through out the supply chain: This is considered the most important function of the federal and states regulatory authorities. The capacities of drug and pharmacy regulation and control authorities at national and state levels should be enforced. All legislations, standards, specifications, code of practice and guidelines should be developed and updated. Capacities of pharmaceutical inspectorates at federal and state levels must be upgraded. The new National Drug Quality Control Laboratory will be established. Regional laboratories will be rehabilitated. The programme for pre and post marketing surveillance will be expanded. Detailed plans for improvement of hospital pharmacy and human resource development will be implemented.
Increase access to medicines by 80% in public health facilities:
The National Drug Policy indicates that the public and private sectors should complement each other to attain this objective. An efficient drug supply and storage systems will be established to ensure all public health facilities receive regular quality supply of essential drugs. The health facility coverage by RDF will be increased to 100% in all states. Policies to address the following issues will be developed and adopted:

- Promote the role of the private sector in making drugs available
- Encourage the local manufacturing of medicines
- Reduce the price of medicine and secure accessibility to medical care and medicines

Promote rational use of essential medicines in public facilities: the essential drug list should be used at all levels. The rational drug use programme will be introduced into curricula of medical, pharmacy, nursing and health auxiliary schools and in the pre registration training. On-the-job training on rational drug use for all categories will be continued.

Strategic objective 8: Introduction and adoption of quality management systems in all health facilities:

The interventions will include;

- Quality improvement prorogrammes will be set in the targeted facilities. Multiple competency skill-based training will be conducted to clinical and administrative staff. External training will target planning and leadership quality staff. Standards, SOPs, Medical protocols, Manuals will be developed and disseminated. Multidisciplinary quality improvement team concept and applications will be adopted and implemented in federal hospitals.
- it is important to integrate the culture of quality improvement within the medical practice. Training and orientation sessions will target all categories of medical staff. It is important to put both patient and employee satisfaction as a goal of the quality management system. A system for their measurement will be put in place.
- a system for adverse events measurement will be incorporated within the quality system in hospitals. Patient safety, Infection control, occupational health programmes and guidelines will be strengthened and established at national and facility levels.
- Criteria for accreditation will be implemented in hospitals. Orientation sessions in accreditation will be held for healthcare providers. Hospital committees will be trained in accreditation. The hospital accreditation programme will be given the necessary authority to play its role and be supported to be recognized by international bodies (ISQua)

Goal 3: Improve child health
Strategic objective 9: Reduce child morbidity and morality

In order to achieve this goal, strategies have to be designed at two levels of care:
***a) Primary health care* – This should encompass;**

- Country-wide IMCI services considering the following;
  - Expansion of IMCI in a phased manner,
  - Strengthen commitment of both Federal and State levels to ensure sustainability of IMCI.
  - Investment in institutionalizing a well functioning educative supervision system at state level so that there is a continuous process of skills building of health workers and effective use of IMCI protocols.
  - Establishing a system of annual review of state health systems to find out their responsiveness to IMCI and finding appropriate options to the challenges identified.
  - Introduction of community component where facility-based component is functioning reasonably well. This will also help in tracing dropouts and improve immunization coverage of children.
  - An annual health facility survey to assess turnover of IMCI trained staff and training plan developed accordingly to fill-in the gap besides refresher training of in-service staff.
  - Pre-service training of medical assistant, doctors on the management of common childhood illnesses using IMCI protocols.
  - Active involvement of village midwife and nutrition educators in the community component of IMCI.
  - Distributing ITNs through EPI and health facilities.
  - Conscious efforts to integrate nutrition activities in the areas where services under IMCI strategy have been established. This particularly includes interventions related to breastfeeding, vitamin A supplementation to children between the age of 6-59 months and to women in the postpartum period, training of IMCI trained health workers in nutrition, infant & young child feeding, and reinforcement of growth promotion activities.
- Community-based nutrition interventions to combat low birth weight and promote child growth including micronutrient supplementation with vitamin A, iron, folic acid, iodized salts and promotion of exclusive breastfeeding up to six months.
- Immunization against the vaccine-preventable diseases of childhood; outreach and home services considering the following;
  - Institutionalize annual micro-planning process up to the locality level. An important element of the micro plans is to explore expanding routine EPI coverage through fixed sites and through mobile and outreach services. Alternative ways to reduce reliance on mobile strategy should be considered. Some of the options could be contracting out services to local NGOs, develop local CBOs and train their staff for delivery of immunization on contractual basis, select female teachers from the local primary schools and train them in immunization along with some monthly incentive, and etc.
  - DPT-HepB-Hib combination vaccines. Booster doses for diphtheria, tetanus (DT) and measles are to be introduced at school entry (6 years of age).
  - EPI surveillance and monitoring generated data is to be critically analyzed and used at all levels in order to derive appropriate evidence-based decisions related to the improvement of the EPI services.
  - Use dropout rate as an indicator of performance (DTP3-DTP1 drop out is presently estimated at 14% and more than half the localities (56%) have drop-out rates higher than 10%). The strategy should emphasize coordination with village midwives and community volunteers for tracing dropouts and un-immunized children and eligible women where possible.
  - New and improved communication strategies are necessary to convince mothers to complete the full immunization schedule for their children. At the same time, an intensified communication effort must be made to support an increased utilization of TT vaccination by women of child-bearing age. The introduction of new vaccines will need to be accompanied by a comprehensive communication campaigns.

- Advocacy to steadily increase government contribution to the overall EPI cost has to be pursued in order to achieve sustainability of programme implementation. In addition to that, the government shall undertake statewide assessment of non-salary budget to identify shortfalls and find options to fill-in the resource gap.
- Relevant and effective strategies to reduce vaccine wastages should be developed and implemented (14% of localities report more than 25% DTP wastages).
- Linkages between the EPI and other programmes such as malaria, reproductive health, IMCI, tuberculosis, nutrition, health education, school health and HIV/AIDS and the disease surveillance system need to be established and further strengthened.
- Using data quality audit as a method in the evaluation of EPI services in the localities should be maintained and further expanded.
- The vaccine supply system is to be carefully reviewed in order to prevent stock-outs, presently occurring in 21% of localities.

o Efficient village-based midwifery services to improve the quality and access to antenatal care and ensure that every birth is supervised by a skilled birth attendant, in addition to mother and child health services based on primary health care facilities (see below).
o Protection against malaria through multiple interventions for women and children.
o Behavioral change communication strategies;
  - Initiate advocacy with politicians, decision makers and administrators to apprise them of the benefits of IMCI strategy and for adequate financing, both at national and state level.
  - Develop and implement evidence-based behavioral change communication strategies to improve knowledge, attitude, practice and skills of caretakers and parents of children. The main focus will be on protecting children against vaccine preventable diseases, timely treatment of sick children, care of the newborn children, and use of appropriate preventive interventions against malaria.

b) Hospital care – This should include;
o hospital-based deliveries;
o 24-hour emergency obstetric care; and
o Neonatal and pediatric emergency care including management of severe malnutrition.

Substantial inputs are required to upgrade existing hospitals infrastructure, training and deploying appropriate human resources to strengthen EmOC and pediatric inpatient care and availing functional ambulance system.

Goal 4: Improve Maternal Health
Strategic objective 10: Reduce maternal and neonatal mortality and morbidity

Efforts should be made to make deliveries safer with professional assistance from skilled birth attendants. Complicated cases should have access to a well equipped health services including EmOC. The core strategic intervention is to strengthen the provision of a “continuum of care” model through addressing the three delays: delay in decision-making to seek adequate medical care during obstetric emergencies, delay in transporting the woman to an appropriate referral hospital and delay in receiving adequate care at the hospital. This entails developing;

o Quality midwifery care at PHC level including the community and supported with emergency obstetric care at the referral level.
o Upgrade the skills of mid-wives to include the key components of Basic EmOC
o Training of one skilled midwife for each village with a population of over 1000. And provide refresher courses to low performers to build their technical capacity.
o Midwives should be part of the public sector payroll. A system of supportive supervision should be established.
o Registration system of births and maternal deaths through midwives should be developed, this should include verbal autopsy.

- A system to provide consumables to midwives needs to be established.
- All PHC outlets should be able to deliver quality RH and family planning services to which village midwives could refer clients, particularly;
  - Expanding family planning services as a tool for child spacing and welfare of women. As a first step all outlets should be made eligible for delivery of family planning services. The village midwives could act as change agent and refer clients to health facilities.
  - Referral of high risk pregnancies and deliveries entering into risk.
  - Initiate short in-service training for doctors working in rural hospitals in management of complications of pregnancy, anesthesiology and Caesarian section (C/S).
  - Upgrading rural and referral hospitals with necessary equipment.
  - Develop and implement protocols and standard operating procedures for EmOC, ANC, delivery and postnatal care.
  - Conduct mapping of midwifery services aiming at identifying gaps in services provision, skills, and training needs.
  - Prioritization of states for expansion of reproductive health services. The RPI can be a good indicator to prioritize investments for expanding reproductive health services.

Goal 5: Combat HIV/AIDS, TB, Malaria and other diseases
Strategic objective 11: Ensue early preparedness and response to emergences and epidemics
The interventions should include;

a) Response to epidemics:

- Upgrade and maintain the role of the federal epidemiology department to provide the national leadership and technical reference.
- Improve early preparedness systems for rapid emergency response to outbreaks;
  - Develop a comprehensive epidemic contingency plan at national and states level
  - Train rapid assessment and response teams at state and district levels
- Improve rapid laboratory confirmation of outbreaks through systematic collection, transportation and processing of medical samples collected from the suspected cases, with a strategy to build up the capacity of public heath labs in selected geographical zones and at the level of the states.
- Review the ongoing sentinel-based surveillance system to ensure its representative to epidemic-prone areas, sensitivity and timeliness and that the results utilized for improvement. The system should be upgraded to integrate the exiting systems into a comprehensive system. Priority should be given to strengthen the system in south Sudan and other war-affected areas.
- Avail buffer stock supply (10% of the annual consumption of drugs, diagnostics and insecticides) at national and in epidemic-prone areas
- Adopt reactive mass vaccination strategy of the high risk population against circulating diseases when applicable.
- Improve the logistic and stock capacity of the epidemiology departments to be able to rapidly respond to the operations that necessitates logistic work.
- Establish / activate functioning partnership committees

b) Response to emergences:

- The capacity of the Emergency and Humanitarian Action (EHA) directorate should be raised to enable it to lead the efforts of raising the capacity of the health sector to manage emergencies. Early preparedness, and possibly prevention, of emergencies relies upon qualified staff conducting thorough risk mapping and vulnerability analyses to come up with priorities and contingency plans targeted to the needs of each region. These plans should then be supported fully (financially, supplies and equipment, and buffer stock) and they should also be tested and updated by conduction of regular rehearsals and drills. Coordination with other stakeholders should be promoted and sought throughout the different phases of this process. This will build up a stronger early warning and information management system, and will ensure the presence of more effective preparedness and response activities. In addition to regional contingency planning, contingency plans should be developed with the concerned directorates which address possible future threats and/or pandemics, e.g. avian influenza.

Strategic objective 12: Reduce HIV/AIDS transmission

HIV/AIDS control and prevention

- Availing of voluntary confidential counseling and test services.
- Provision of high-quality STI services based on syndromic management approach
- Treatment of opportunistic infections in PLWHA including TB
- Availing ARV therapy for AIDS cases and for prevention of vertical transmission.
- Educate youth using life skills curriculum to improve their knowledge, attitude, skills and behavior towards high-risk practices.

- Establishing well-focused behavioral change communication interventions.
- Screening of blood and blood products
- Ensuring surgical procedures and injection safety.
- Delivery of an appropriate service package to high-risk population sub-groups.

Strategic objective 13: Reduce Malaria related morbidity and mortality

Malaria control

- The interventions will be based on the global strategy for malaria control;
    - Institutionalize the implementation of standardized outpatient treatment protocols. A systematic plan for training of general practitioners, both in public and private sector in using the treatment protocols should be enforced. An annual assessment should be undertaken to monitor implementation of protocols.
    - Develop and implement a policy for community level prevention and treatment of malaria. Village midwife could be trained to provide intermittent preventive treatment to pregnant women and treat adult patients.
    - A standardized treatment protocols for hospitalized complicated malaria cases should be developed. An appropriate training programme have to be implemented to orient hospital staff i.e. specialists, general duty doctors and nurses.
    - Verbal autopsy of each hospital death from malaria should be made mandatory in order to assess lapses in the quality of care so that improvements could be made on ongoing basis. Simultaneously, the malaria case fatality rate of each hospital should also be monitored on annual basis with an objective to bring it down to less than 1% in every hospital.
    - Vector control using suitable measures will be strengthened at all levels. Emphasis to distribution of ITNs, treatment and re-treatment of nets will be at all levels. The strategy will also target expansion of biological control in all irrigated areas and strengthening environmental management component.
    - Early warning system, early detection and containment of epidemics shall be given priority in unstable malaria's areas in addition to areas in the South witnessing high rate of returnees.
    - Design and implement BCC campaigns focusing on encouraging early and proper care seeking for malaria, use of ITNs especially to protect pregnant women and children under five and the use of intermittent preventive treatment by the pregnant women with SP. It important to train healthcare providers in interpersonal communication techniques.
    - Annual planning workshops should be held inviting state malaria control program managers and partner NGOs for analysis of epidemiological data and design annual operational plans.
    - Improve the performance of blood smear microscopy in low performing states, either in terms of skills development of staff or supply of consumables or establishment of laboratory facilities. The GFATM funds earmarked for establishing state reference laboratories is an important step towards improving the quality of diagnostic services.
    - The program has already established linkages with IMCI, RH and EPI. It is hoped that these linkages will be further strengthened.
    - Exemption policy for charging anti-malarial drugs is an important pro-poor policy to be implemented.
    - Home management of malaria

Strategic objective 14: Reduce Tuberculosis related morbidity and mortality

TB control

- The interventions will be based on DOTS strategy. TB-DOTS service will be integrated within the PHC essential package. Emphasis should be given to the following;
    - Gradually expand TB-DOTS to all public health facilities (including facilities run by military and police forces) and integrate it within the essential PHC package.
    - Adopting DOTS/ community based dots to respond to TB/HIV,MDR-TB and other challenges (DOTS Plus)
    - Strengthen supportive supervision of diagnostic and treatment centers to improve the quality of services, reduce time lag in reporting, sample checking of DOT at patient level and tracing patients who default from treatment. This would require procurement of new vehicles, motorbikes and bicycles, provide operating cost for operational vehicles, make available reporting and monitoring tools, and provide on-the- job training.
    - Strengthen quality of sputum microscopy at TB diagnostic centers and state referral laboratories through in-service training and supply of equipment. The purpose is to institutionalize a system for random checking of sputum positive and sputum negative slides from all diagnostic centers with a timely feedback for corrective measures including reinforced supportive supervision and retraining, when and where needed.
    - Strengthen and make functional a two-way referral system of complicated/suspected TB cases. The activities comprise; adaptation of WHO guidelines and training of pediatricians/chest physicians/medical officers in management guidelines.
    - Design and implement a behavioral change communication strategy targeting suspected TB cases and their families to improve their knowledge, care seeking behavior and adherence to treatment.
    - Empowering patients and communities (ACS)
    - Enabling and promoting research and Tuberculin/MDR/ TB-HIV surveillance.

Strategic objective 15: Reduce Schistosomiasis related morbidity and mortality

Schistosomiasis control

- The control strategy will be based on WHO guidelines. The epidemiological situation prevailing in each state will determine the scale and scope of interventions.
- Priority should be given to capacity building and establishing control unit to supervise and conduct the epidemiological and control activities.
- Design and implement a behavioral change communication strategy to raise awareness and to improve the care seeking behavior of the population in the affected areas
- Develop partnership and intersectoral collaboration to address main health determinants related to the disease.
- Conduct epidemiological surveys to determine the pattern of morbidity and mortality related to Schistosomiasis and inform decision making.

Strategic objectives 16: Control /Eradicate / Eliminate other communicable diseases

Other communicable diseases:

- The strategy will target eradication of Dracunculiasis, elimination of leprosy and control of Leishmaniasis, Lymphatic Filariasis, Onchocerciasis and

sleeping sickness. Integrated approved strategies of communicable diseases interventions will be followed, including prevention, early detection, diagnosis and treatment, containment of epidemics promotion of nutrition, healthy lifestyles, clean environment, surveillance system, early warning and forecasting systems.

- **For LF**: The Global Strategy to eliminate Lymphatic Filariasis is absed on:
  - To interrupt transmission by using a combination of anti- filarial drugs given in a single annual dose (Mectizan and albendazole in much of sub- Saharan Africa, or diethylcarbamazine (DEC) and albendazole in the rest of the world).
  - To alleviate the suffering caused by the disease.
    - Basic hygiene to prevent and treatment of acute attacks.
    - Nursing- care for the patient
  - Vector control.
  - Health Education.
- **For Sleeping Sickness: the control strategy will be based on;**
  - Mapping Surveys using CATT and CIAT and microscopy.
  - Management of cases and vector control.
  - Raise the population awareness towards the disease control.
- **For Leishmaniasis: the strategy will be based on;**
  - Active case detection of the disease with increased access to diagnostic and treatment facilities.
  - Vector control (integrated with Malaria).
  - Raising awareness of the community about the disease.

Goal 6: Promote a comprehensive approach to Health
Strategic objectives 17: Promote healthy life style and reduce the burden of non-communicable diseases

a) To increase early detection of targeted non-communicable diseases: This will be done through institutional capacity building of NCD programme at national and state levels. The HMIS and research will be strengthened to form national registries for these diseases. A key strategy is to integrate the management of these diseases within the PHC facilities.
b) To raise community awareness towards healthy life styles by 30%, and promote behaviour & practice change: through an effective information education communication strategy to address risk factors and increase participation in regular physical activity. The numbers of tobacco, alcohol and snuff users are to be reduced by working in partnership with health authorities/boards and local communities. Laws and legislations will be actively developed and implemented and the role of religious values and Scholars *'fatwas'* that prohibit these practices will be activated.
c) Extension of the basic package of school health services: this will target students and schools with a basic preventive and pomotive package of services (health check ups, vaccination, Vitamine A, school water and sanitation). It will be done in collaboration with Ministry of Education.
d) Health promotion workplace programmes: The main strategies are to build the institutional capacity of the national Occupational/Workplace Directorate, set legislations and regulations that promote safety at workplace and identify the specific needs of small to medium sized enterprises in relation to workplace health
e) Support policies addressing the health needs of special groups: through strengthening the national and regional structures that address the health promotion needs of young and elderly people, working in partnership and consultation with the young people to

develop and implement a strategy to promote their health and develop strategies to care the elderly within their families & communities

Goal 7: Creation of an environment conducive to partnership building and streamline the role the private sector

Strategic objective 18: Encourage private sector (for profit & not for profit) in contributing in health care provision and promote its collaboration with the public sector:

f) Increase the contribution of the private sector in care provision, focusing on filling the gabs (primary, secondary and tertiary care): this will be done through development of policies and legislations that ensures full synergy and collaboration between the two sectors. The private sector will be encouraged to invest in areas where the public sector is insufficient. Models of public private partnership will be explored and adopted. The private sector will be contracted for both medical and non medical services to complement the public sector in areas of need.

g) The government is required to address the issues related to the private sector such as; quality control, ensuring fair competition, price moderation, regulations and public private partnership.

h) Enforcement of policies that regulate the practice of government employees in the private sector.

Strategic objective 19: Support environmental health and development of community-based approaches for achieving health goals in partnership with other sectors:

i) National councils and coordination mechanisms will be formed. The decentralized system in environmental management will be strengthened with emphases on capacity building at locality level. Capacity for policy development, regulations and guidelines will be enhanced. Modes of partnership (e.g. with private sector for waste disposal) will be explored and implemented. Strategies to address issues of healthy cities -towns and villages, healthy market places and promotion of food safety, CBIs, raising income of the poor, preventing road traffic accidents, pollution, safe water supply and wasted disposal will be developed and implemented. Proper health legislations and regulations should be enforced.

j) Community-based emergency management should be promoted. This includes forming of committees and continuous training and monitoring activities to ensure that, at least in the most vulnerable areas, communities are better prepared to deal with the emergencies unique to their special circumstances. This also involves selection of volunteers which will conduct assessments and response activities and who will be the backbone of the early warning system and the information system in general.

11 Projects/ programmes Key activities

Components	Defined	Quantity
Institutional capacity building and improving governance function of the FMOH		
o Conduct short- and long-term training of FMOH staff in key areas (leadership in health; health system development; governance, equity and health; health financing; human resource development; organization and management; use of information for informed decisions; and project management)	Ext. long training Ext. short training Int. long training Int. short training	12 100 100 200
o Provide technical assistance to Strengthen governance function (health legislation and regulation, standard setting, partnership building)	STP/year	4
o Provide technical assistance to Strengthen Management systems development (financial management, personnel management, drug management, procurement and logistics, monitoring and supervision; referral system, health information management; etc)	STP/year Capital cost	2
o Provide technical assistance to strengthen policy and systems research and conduct priority health system researches	STP/year Policy research	2 10
o Rehabilitate physical infrastructure and equipment of administrative of offices (information technology including computers and accessories, vehicles, renovation and construction).		
o Develop system for National Health Accounts and conduct 2 rounds		
Strengthening & reorganization of SMOH & local health directorates		
o Setting the Administrative Structures At state & localities (LHMTs) according to the standard		
o Provide training and capacity development of the state and local directorate managers and managers of state and rural hospitals (strategic and operational planning; personnel, financial and logistic management system development; monitoring and supervision; community mobilization and participation)	Ext. long training Ext. short training Int. long training Int. short training	50 200 200 3000
o Provide technical assistance to Strengthen governance function and systems development (management systems in the SMOH and local health directorates, financial, personnel, logistics management systems, referral system, monitoring and supervision, drug and contraceptive supply, and repair and maintenance).		
o Provide technical assistance to Strengthen Policy and operational and research and conduct priority health system researches		
o Redeployment and recruitment of staff (incentives shall be provided to recruit staff on a contractual basis in		

Components	Defined	Quantity
order to develop the necessary capacity to organize and deliver health services).		
o Rehabilitate physical infrastructure and support to all the SMOHs and local health directorates (renovation and construction of administrative offices, supply of computers and accessories, office furniture and vehicles).	Office rehab, Office equip Vehicles	93 93 279
Promote the culture of research and provide evidence for policy and decision making.		
Meetings of the national research council	meetings	10
Implementation of research leadership program	Training, staff, equips	
Develop the national research priority agenda	Meetings workshops	15 2
Establish institutional technical and ethical review committees at Federal and states level institutes	Meetings	10
Training in research methods, research ethics, evidence for policy and decision making, scientific writing …	Workshops Fellowships	30 40
Implementation of research career path program	Fellowship, promotions, rewards	
Small grants for junior researchers	Small grants	50
Supportive environment	Equips, buildings, Connectivity, subscription	
Development of data bases, publications	Software, data collection, issuing journals and newsletters	
Investment in infrastructure and equipment; Expand universal coverage and geographic access of basic package of health services		
o Undertake needs assessment, especially at the state and local levels to improve the condition of the physical infrastructure and equipment.		
o Investing in building new health facilities in areas of low coverage • 313 HCs • 318 Basic health units (BHU) • 15 RHs	Number of HCa Number of BHUs Number of RH	313 318 15
o Rehabilitation of 3,005 (dressing stations and PHC units) and upgrading 39% of them to basic health units	Number of DS & PHC units	3005
o Rehabilitation of 2103 existing health facility (HC, BHU) to enable it to deliver the essential minimum PHC package	Number of HC& BHU	2103
o Rehabilitation of 350 rural hospitals specially for EmOC	Number of RH	350
o In service training of 2,460 Medical assistants of RHs, HC, and BHU in integrated training to deliver essential PHC package (the focus will be on IMCI and SOC)	In service training course	123
o Training of 11,487 midwives in ANC, FP and EPI to expand their role in delivering the PHC package at community level	In service training course/ locality	88
o Provide essential medicines, consumables and supplies in accordance with BPHS	medicines, consumables and supplies	

Components	Defined	Quantity
o Deploy essential staff in all health facilities according to standard guidelines		
o arrange with non-governmental actors (contracting out, contracting in)		
o mobile clinics	No of mobile clinics	180
o injection of resources into the existing health system – in particular personnel incentives and drug supply – in order to reactivate services		
Investment in human resource development		
o Strengthen national HRH directorate to support health workforce policy formulation, planning and management, evaluation and monitoring.		
o Rehabilitation of institutes that produce PHC categories and require urgent interventions (rehabilitation, equipment, improvement of boarding facilities, etc);	(state branches)	25
o Produce quality and adequate quantity of health human resource production based on the 10 yrs strategic plan for HRH	Number of HW trained: Nurses (basic training)/5 years MAs (basic training)/5 years Doctors (local basic specialty) /5 yrs Doctors (abroad basic specialty) /5 yrs Doctors (local sub - specialty) /5 yrs Doctors (abroad sub- specialty) /5 yrs Nurses/MA (local basic specialty) /5 yrs Nurses/MA (abroad basic specialty) /5 yrs	 22,500 5,000 3000 750 15 550 250 125
o Provide adequate incentives to teachers and supervisors; Procure and distribute textbooks and other learning material;		25
o Plan in-service training after an assessment of learning needs		
o Revision of the salary scale and hardship allowances, and/or special contracts for working in difficult areas,		
o Avail jobs to recruit the appropriate staffing of all health facilities at every level of health services and with special regard to rural and underserved areas and based on the personnel needs of the health system.		
o Develop a national system of continuous professional development and continuous career development		
Ensure equitable coverage and accessibility to quality referral secondary and tertiary health care services at all levels of health care		
o Avail standard list of essential equipment, furniture, basic supplies and consumables to district and state hospitals	Equipment sets (district) Furniture sets (district) Equipment sets (state)	134 134 25

Components	Defined	Quantity
	Furniture sets (state) Basic supplies and consumables Rehabilitation (district) Rehabilitation (states)	25 - 134 25
o Avail ambulances	See below	
o Develop and implement referral guidelines ad system	-	
o Reform federal hospitals into autonomous sub-specialized centres of excellence (partnership)	Turn key projects	3
o Expand triage system to cover all federal, state and district hospitals.	No of hospitals	50
Reform and develop a pro poor health care financing policies		
Provison of free/ subsidized service package targeting mothers and children		
Introduction and adoption of quality management systems in all health facilities:		
Targeted on- the- job training in quality issues	Workshops Fellowships	50 10
Development standards, SOPs, Medical protocols, Manuals	Document development, printing, dissemination	10,000
Formation of multidescplinary quality teams	meetings	1000
Patient and employee satisfaction surveys	Surveys in 20 hospitals	20
Adverse event measurement system	Surveys in 20 hospitals	20
Establishment patient safety prorogrammes in all tertiary and secondary care hospitals	Training, formats	
Establishment infection control prorogrammes in all tertiary and secondary care hospitals	Training, formats, research	
Establishment of the programme of hospital accreditation	Training, standards, surveys	
Strengthen national and establish quality department at state level	Recruit and train staff	40
improve the availability to affordable, safe and effective essential medicines		
Target: Assure the maintenance of quality and safety of all medicines through out the supply chain		
Build capacities of pharmacy regulation authorities and pharmaceutical inspectorates at national and state levels	Training, office and equip	25
All legislations, standards, specifications, code of practice and guidelines and policies	Document development, printing, dissemination, training	500,000
Establish new National Drug Quality Control Laboratory and rehabilitate regional laboratories	Buildings, equips	1
pre and post marketing surveillance programme expanded	Training, sampling	
Strengthen hospital pharmacies and human resource development.	Workshops, training	
Target: Increase access to medicines by 80% in public health facilities		

Components	Defined	Quantity
Establish drug supply and storage systems	Logistics, training, stores	25 state
Expand/ introduce RDF	Logistics, supply, buildings	25
Target: Promote rational use of essential medicines in public facilities		
Introduction of rational drug use into curricula	Workshops, document development	
On the job training on rationale drug use for all categories	Training workshops	50
Information dissemination and public awareness	ICE	
EPI		
o Expand routine immunization services network to provide services for un reached children & women (25- 60 % of the target population)	Transport, social mobilization, programme Management, maintenance & overheads	
o Secure availability of sufficient staff (personnel & training) Recruit 250 qualified vaccinators in 134 localities. o	Cost for service providers (fixed, outreach, mobile, supervision, trainings)	
o Eradicate polio through; polio campaigns	Vaccines & operational costs	
o Conduct catch up and follow up campaigns to eliminate Measles	Vaccines & operational costs	
o Conduct campaigns for MNT elimination in identified high-risk localities.	Vaccines & operational costs	
o Introduce New Vaccines(Hepatitis B & Pentavalent)	Vaccines	24,966,568 doses
o Routine Vaccines -Avail vaccine -Injection supplies	-Vaccines DTP, BCG,OPV,MEASLES,TT - Syringes & safety boxes	63,888,231 doses 49,505,298
o Cold Chain: Procure adequate quantities of cold chain equipment and spare parts, conduct preventive maintenance and establish maintenance workshops	Equipments 15,241 (solar fridges, ice-lining, cold rooms, freezers, monitors, cold boxes, vaccine carriers	
o Strengthen disease surveillance for Polio AFP surveillance & other EPI diseases		
IMCI		
o Supporting the core team with trained facilitators for SCM courses and follow up team leaders: • Conduction of IMCI SCM course for doctors to select potential facilitators.(10 courses) • Conduction of facilitator's technique course doctors.(10 courses • Conducting one course for follow up supervisors doctors.(10 courses)	 Course Course course	 10 10 10
o Availing supervisors to strengthen the supervisory system in the state (Training of supervisors for routine supervision)		

Components	Defined	Quantity
o Conduction of facilitator's technique course community health promoters trainers(30 courses):	course	30
o Training of care providers to cover all health facilities: • Training of all care providers in SCM courses for 11 days.(135 courses) • Conducting first Follow up rounds for all care providers.(135 rounds)	 Course course	 135 135
o Conducting refresher 3 days courses for care providers who had old training (two years)	courses	
o Ensuring availability of IMCI Drugs, equipments and reporting forms: • Providing IMCI kits to all health facilities (4500HF) • Providing all rural hospitals and IMCI implementing health facilities with oxygen concentrator and nebulizers (124 RH) • Providing recording forms, daily register and monthly report to IMCI implementing health facilities.	 Kits O2 conc. & Nebulizers Registration books	 4,500 124
o Conducting quarterly supervisory visits to all IMCI implementing health facilities at state level.		
o Introduction of IMCI community component in at least one locality in each state. • Conducting planning workshop at locality level to Select one community for implementation(122 workshops) • Conducting KAP studies in each locality(122 studies) • Training of CHPs in the selected communities(268 courses) • Conducting post intervention survey	 Courses Study Courses	 122 122 268
o Dissemination of IMCI messages through mass media and schools: • Distributing IMCI T.V and radio program spots through media • Distributing IEC materials for schools		
o Introduction of IMCI strategy in the curriculums of the medical schools & medical ass. Schools: • Conduction orientation workshops in all remaining schools (20 medical & 13 medical ass. Schools) • Availing the logistic needed for adoption of the strategy (33 schools)	 Courses	 33
Improve Maternal Health		
Increase percent of Service Delivery Points (SDP) providing ANC FP (more than 3 methods) from 16% to 90%		
o Rehabilitation, establishment and equally redistribute health centers and basic health units to meet the standards of maternal care	GIS- mapping, Office rehab and building,	
o Provision of the health facilities and the community with	Training of HVs	400

Components	Defined	Quantity
the needed human resources to provide quality ANC/FP services	Training of AHVs In-service training for MAs (see HRH)	1500
o Provision of equipment and supplies including drugs to the health facilities and midwives to cope with ANC/FP service provision.	Midwifery kits lab kits for routine investigations	9,000 16,000
o Provide outreach services to remote areas	Vehicles/Ambulances,	400
o Conducting regular facilitative supervision		
o Organization of in-service competency-based training courses (CPD)		
o Provision of Guidelines and standards for maternal services management to all Care Delivery Points (CDP)	Printing of Hands out, pamphlets, posters, wall charts	
o Assessment and removal of the cultural barriers that hinder the use of services	Surveys	
Increase coverage of villages with more than 1000 population by skilled personnel to 90%.		
o Availing 9000 Skilled birth attendants to the villages	Training of SBA (18 months	9000
o Organization of competency-based training courses (CPD)	in-service training	600
o Conduct assessment for the status of village midwives performance currently in service (11847)	Training needs assessment	30 rounds
o Incorporation of VMWs into the health system	Salary/5 year	
Ensure that 70% of referred cases have timely and quality services (strengthen the referral system), Increase institutional deliveries and C/S rates		
o Rehabilitation, establishment and equally redistribute rural hospitals to meet the standards of maternal care	GIS- mapping, Office rehab and building	
o Provision of blood transfusion services to RH hospitals	(See HIV below)	
o Provision of human resources to the RH to cope with Emergency Obstetric Care and provide training in EmOC	Course	80
o Sustainable provision of the minimum needed supplies including drugs to the RH to cope with Emergency Obstetric Care	S/E including consumables	250
o Provision of Guidelines and standards for EmOC services to RH	Printing of Hands out, pamphlets, posters, wall charts	
o Training of the Care Providers (RH) on the Guidelines and standards for maternal services management	In service training course	80
o Establish a village emergency fund at community level to support referral	Sensitization campaign and seed money	
Strengthen Individuals, Families and Communities involvement to support maternal and neonatal Health (MNH) and overcome harmful traditional practices that affect the health of girls and women at least in the catchment's areas of health facilities providing midwifery services		
o Strengthen and sustain the knowledge and capacity of youth (Secondary Schools graduates) in	Orientation workshops, Seminars and training courses	15 workshop

Components	Defined	Quantity
understanding MNH needs and risks		60 seminars 264 courses
o Establishment of local networks between community based organizations, non-governmental organizations, community leaders and governmental bodies	Orientation workshops, Seminars, training courses	60 workshop 120 seminars 264 courses
o Carry out KAP studies to identify community specific HTPs	Surveys	One /State (15)
o Carry out behavioral change campaigns targeting the identified community specific HTPs	IEC materials and campaigns	
Ensue early preparedness and Ensue early preparedness and response to emergences and epidemics		
o Assessment of the ongoing sentinel-based surveillance system	Survey	
o Upgraded sentinel-based surveillance system to a comprehensive system	S&E, Training and Logistics	
o Develop a comprehensive epidemic contingency plan at national and states level		
o Train rapid assessment and response teams at state and district levels	Courses	
o Avail buffer stock supply (10% of the annual consumption of drugs, diagnostics and insecticides) at national and in epidemic-prone areas	Drugs and consumables	
o Establish / activate functioning partnership committee and conduct regular meetings with stakeholders (all partners) at states level		
o build up the capacity of public heath labs in 7 geographical zones		
o **Malaria**		
o **Effective case management**		
o Improve Malaria diagnosis through: • Rehabilitation of 25 malaria reference labs enabled to carry out QA for microscopy and RDTs • Provide RDTs kits • Training of health facilities personnel (At least one/health facilities) • Training on malaria microscopy • Avail S&E for microscopy • Training abroad for 12 senior lab personnel to lead the diagnosis of malaria at national and sub-national level	Number Kits Number Number S&E Number	25 2,500 2,500 12
o Improve management of Malaria cases through • Avail the malaria treatment protocol to public and private health facilities (in form of booklets, posters and bench-aid) • Wall chart on Guidance to manage severe malaria	Number Hospitals	8,800 350

Components	Defined	Quantity
cases • Incorporate The malaria treatment protocol into all medical, pharmacy and lab science schools curricula • Train all health personnel every 2 year (related to treatment) • Build a functioning drug distribution system in all states • Avail drugs (36 million doses of ACTs (1st, 2nd …) and 4 million treatment package for severe malaria) • Develop a system to provide mothers (care providers) with free ACTs • Pilot HMM project using different approaches • Establish a system for post-marketing surveillance once per year for each anti-malarial drug for any registered drug brand	Courses Drug	
o Improve Integrated Vector Management through: • Spraying of 95,000 houses (IRHS) every year at least once using appropriate insecticide • Procure and distribute in collaboration with partners 5.7 million LLNs free of charge in rural settings using COMBI methodology • Avail 2 million doses of nets treated/ re-treated freely (so 400,000 nets treated every year) • Establish a system for regular entomological survey at all level (NMCP, SMCP and Districts) • Establish 10 insectaries and entomological labs established at national and regional levels • Integrate Malaria vector control fully with other vector control diseases at the locality level with endorsement of IVM concepts • Train all vector control personnel at all level at least one day training every year • 15 public health officers/ scientists trained to work as entomologist at regional and nation level (fellow-ship, Diploma, MSC…) • 30 public health officers trained to lead IVM at national and state level (Diploma, MSC…) • Avail one pump / worker, one truck-mounted machine / 100,000 population, one car per locality and one car per state for IVM at any time • Procure and distribute 20,000 kg, 7,000 litres, 15,000 litres and 425,000 doses of insecticides to be used for IRS, chemical larviciding, space spraying and treatment/ re-treatment of nets respectively for use on annual basis according to WHOPES specifications	ITN Impregnation tablet Lab. Courses Fel. Int training S&E S&E	5,700,000 400,000 10 15 30
Epidemic containment		
o Review the ongoing sentinel-based surveillance system		

Components	Defined	Quantity
to ensure its representative to epidemic-prone areas, sensitivity and timeliness and the results utilized for improvement		
o Develop Malaria epidemic contingency plan at states and national level		
o Train rapid assessment and response teams at state and district levels (3 from each epidemic-prone state/ district)	Courses	
o Avail buffer stock supply (10% of the annual consumption of drugs, diagnostics and insecticides) at national and in epidemic-prone areas	Drugs	
Capacity building, advocacy and partnership		
o Establish / activate a functioning partnership committees		
o Conduct regular meetings of the RBM taskforce (all partners) at states level		
o Train for all states at least one person for diploma in malariology (2 courses, each 20 persons needed)	Course	2
o Train at least one person in ICCP (9 months diploma) in each locality (120 persons need to be trained)	Int. diploma course	120
o Train 12 personnel from national and states for the regional training course in Bandar Abbass (planning malaria control programmes)	Short Ext. training	12
o Advocacy to malaria control maintained (by biannual newsletter, annual report, Africa/ World malaria day, National Week, press release …)		
o At least 10 Operational researches carried out (4 case management, 4 IVM and 2 others)	Training course	10
HIV/AIDS		
o Conduct BCC and advocacy campaign including life skills training , peer education and awareness sessions targeting policy makers , community leaders , Young people and general public	Cost of Radio , TV spots	100,000
	Cost of life skills training per young person	100,000
	Cost of awareness raising and advocacy session	100,000
	Cost of IEC material	10,000,000
o Delivery comprehensive service package to most at risk population sub-groups including promotion of safer sexual practice	Estimated Cost of comprehensive package per person	1,000,000
o Improve STIs management through procurement and distribution of drugs , training of HWs and operational research	Cost of drugs per pat	100,000
o Provide kits, logistics , trained personnel and monitoring tools for 100% safe blood transfusion	Cost of screening one blood unit	500,000
o	Cost of training of one provider	1000
o Establishment and expansion of VCT services to 720 sites	Cost of establishing one VCT	720
o provide ARV and OI treatment and nursing care for 20,000 HIV/AIDS patients	Cost of ARVs per patients per year	20,000

Components	Defined	Quantity
TB		
o Expand gradually TB-DOTS to all public health facilities and integrate TB-DOTS services as part of the essential PHC package (avail free drugs)		
o Strengthen educative supervision of diagnostic and treatment centers (procurement of new vehicles, motorbikes and bicycles; provide operating cost for operational vehicles; make available reporting and monitoring tools; and provide on job educative supervision)	S&E	
o Strengthen quality of sputum microscopy of state referral laboratories (in-service training and supply of equipment).	Courses	
o Training of pediatricians/chest physicians/medical officers of teaching hospitals in use of treatment guidelines, provide anti-TB drugs.	Courses	
o Design and implement a behavior change communication strategy using private sector advertising agencies, (BCC messages through electronic and print media, and interpersonal communication.		
o Expand TB-DOTS through health facilities of Ministries of Interior and Defence to provide access to additional 4.5 million employees and their families working in Defence and police force and to jail inmates in 36 prisons. (Establishment of 40 diagnostic and 240 treatment centers; training of staff; provision of anti-TB drugs, reagents and consumables; and monitor implementation).		
Enabling and promoting research and Tuberculin/MDR/ TB-HIV surveillance.		
Control /Eradicate / Eliminate other communicable diseases		
o Diagnosis, treatment	Drugs and consumables: - leishmania - leprosy - LF -GW (filters) -onchcerciasis - SS	
Containment of epidemics promotion of nutrition, healthy lifestyles, clean environment, surveillance system, early warning and forecasting systems.	See above	
Vector control.	Equipment and supplies	
Mapping and epidemiological surveys		
Mass drug administration (LF, SS, Onco.)	Running cost of MDR campaigns	
Goal 7: promote healthy life style and reduce the burden of non communicable diseases		

Components	Defined	Quantity
Reduce the morbidity and mortality related to non communicable diseases		
o Baseline surveys for priority NCD and risk factors	Cost of survey	5
o Establishment of national registries and strengthening HMIS	Cost of system in state	15
o Integration of NCD within the basic PHC package	Cost of training one provider Cost of equip/unit	5000 5000
o Developing and implementing nationwide initiatives like *"Towards a Tobacco Free Society"* and *"Towards a snuffing Free Society"*	Advocacy materials logistics	10,000,000
o *Establishment of IEC center*	Buildings, staff and equipment	
o Introduction of the basic school health package	Equipment and Supplies IEC materials and curricula	
o Develop and implement the priority strategies and policies: health promotion policy, young and elderly people, workplace, environment and pollution…)	Cost of taskforce meetings	
o Development and endorsement of targeted legislations and regulations		
o Establishing partnership with relevant bodies to develop a healthy village/town model [healthy hygienic houses, streets]. And piloting it	Meetings, TA, logistics	
o Development and implementation of interventions for a health workplace	TA, development of guidelines and regulations training	
Creation of an environment conducive to partnership building and promotion of the role the private sector		
Encourage private sector (for profit & not for profit) in contributing in health care provision and promote its collaboration with the public sectors:		
Increase the contribution of the private sector in care provision, focusing on filling the gabs:		
development of private sector policies and legislations	taskforces	
Piloting public private partnership		
Contracting out of services	Bidding for medical and non medical services	
Strengthening of systems (MHIS, licensing, quality control…)	Logistic support	
Enforcement of employment policy	compensation	
Support development of environmental health and community-based approaches for achieving health goals partnership with other sectors:		
Formation of the High National Council and Forum of Health Promotion and states councils	meetings	20
Capacity building of environmental health structure at locality, state and national levels	Training Infrastructure	15
Development of surveillance systems for food safety, chemical safety and industrial waste management	Equipment training	
Development of manuals, protocols and guidelines	TA, logistic support	

Components	Defined	Quantity
Healthy cities projects	pilot	
Development of environmental strategies and legislations		
Research and pilot projects	studies	
Community based development initiatives		
Development of coordination mechanisms and councils at all levels	Meetings and logistics	
Awareness raising	IEC material	10,000,000

12 Costing and resources required for financing the 5 year strategy:

Costing the MDGs has received significant attention from leading agencies in the health such as WHO and development partners such as the World Bank. Generally there are two approaches and methodologies for costing; either a top-down or a bottom up-approach. In both methodologies, key steps have to be followed which include problem definition, service description, identification, measurement and valuation of resource use27. We have to admit beforehand it is a daunting undertaking; hence it is difficult to come up with the exact cost. Therefore the figures we are presenting are the best possible estimates. Our costing work has befitted from other exercises undertaken by the WHO (CMH recommendation), the World Bank (Development Goals: History, Prospects and Costs')28 and the United Nation Millennium Project.

1. In a first step, we identified goals strategic objectives and targets
2. Second we identified key strategies and interventions such as the provision of services, goods, and infrastructure necessary to meet the Goals. They include sets of interventions that are required to meet the Goals, such as improving access and coverage to health services. We used unit cost identified in previous exercises such as the JAM and the MDTF and updated these unit costs based on new knowledge and prices changes.
3. Third, we identified quantitative targets for each intervention for 2011, such as coverage rates or health outcomes related, for instance to reduce maternal mortality and the number of teachers, classrooms, and learning materials required to ensure universal primary education and the expansion of secondary education.
4. Fourth, we estimate the capital and operating costs of the health related MDGs and other health interventions, including human resources and infrastructure. We project an exponential scaling up of interventions to allow for a gradual expansion of service delivery capacity
5. Fifth, we iteratively revise needs estimates to integrate synergies across intervention areas that would affect overall MDG investment needs.
6. six we used available data on health expenditure to calculate current levels of spending
7. In a final step, we develop a financing strategy by matching MDG investment needs with substantially increased domestic resource mobilization compared to current levels of spending to estimate the MDG financing gap.

[27] The main methodological issues in costing health care services, Centre for Health Economics University of York, Zsolt Mogyorosy, Peter Smith

[28] World Bank Policy Research Working Paper, "Development Goals: History, Prospects and Costs," by Shantayanan Devarajan, Margaret J. Miller, and Eric V. Swanson.

We emphasize here what has already been concluded by the CMH recommendations that health is not an ultimate effect of economic growth; it is a cause for development and economic growth. Health is also a key input to economic development because it raises the productivity of the work force and increases the attractiveness of the economy for investors, domestic and foreign. Pandemic diseases such as malaria, TB, and AIDS not only increase suffering but deter investments in infrastructure, tourism, agriculture, mining, and industry29.

Exercise done in other low income countries showed that achieving the health-related MDGs will require are around $13–$25 per capita in 2006, rising to around $30–$48 in 2015

[29] Investing on development: a practical plan to achieve the millennium development goals: UN millennium project 2005

Estimation of resources needed for the strategy (in million US$)

	Y-2006	Y-2007	Y-2008	Y-2009	Y-2010	Y-2011
GDP current prices (million) US$	34,120	45,605	53,780	62,435	70,545	79,710
Population (million)	36.4	37.1	38.0	39.0	40.0	41.0
Exchange rate	225	200	200	200	200	200
GDP annual growth rate	9.0	10.0	7.6	7.0	7.2	7.1
Total government expenditure (million) US$	8,618	11,795	13,095	14,020	14,880	16,030
Expected allocation for health based on the assumption resources will increase from 5-7% of GGE (million US$)	431	649	786	911	997	1,122
Other resources expected (donors and multilateral agencies) for health in million us$		93	100	107	116	125
Total resources expected (Government + donors and multilateral) million US$		**741.48**	**885.45**	**1,018.79**	**1,112.72**	**1,246.69**
Resources need to finance essential interventions to achieve the MDGs+		927.50	1045.00	1179.75	1331.00	1500.70
Resources need to finance Major infrastructure (loans and Grants)		92.75	114	140.4	172.8	212.544
Total resource required in million US$	**6716.45**	**1020.25**	**1159.00**	**1320.15**	**1503.80**	**1713.25**
Resource Gap in million US$	1711.33	278.78	273.55	301.36	391.08	466.56

Estimation of resources needed for the strategy (in terms of US$ per capita)

	Y-2006	Y-2007	Y-2008	Y-2009	Y-2010	Y-2011
Per capita expected allocation of resource for health	11.84	17.49	20.68	23.37	24.92	27.37
Other resources expected (donors and mulitlateral agencies) for health percapita US$		2.5	2.63	2.76	2.89	3.04
Total resources expected (Government + donors and multilateral) per capita US$		19.99	23.30	26.12	27.82	30.41
Resources need to finance essential interventions to achieve the MDGs+ in per capita		25	27.5	30.3	33.3	36.6
Resources need to finance major infra structure in per capita		2.5	3.0	3.6	4.3	5.2
Total resource required in per capita		27.50	30.50	33.85	37.60	41.79
Resource Gap in per capita		7.51	7.20	7.73	9.78	11.38

	Y-2006	Y-2007	Y-2008	Y-2009	Y-2010	Y-2011
GDP current prices (million) US$	**34,120**	**45,605**	**53,780**	**62,435**	**70,545**	**79,710**
Total government expenditure (million) US$	**8,618**	**11,795**	**13,095**	**14,020**	**14,880**	**16,030**
expected allocation of resource for health as % of government budget	5%	5.5%	6%	6.5%	6.7%	7%
Per capita expected allocation of resource for health	11.84	17.49	20.68	23.37	24.92	27.37
Expected resources allocated for health as % of the GDP	1.26	1.42	1.46	1.46	1.41	1.41
Other resources expected (donors and multilateral agencies) for health per capita US$		2.5	2.63	2.76	2.89	3.04
Total resources expected (Government + donors and multilateral) per capita US$		19.99	23.30	26.12	27.82	30.41
Resources need to finance essential interventions to achieve the MDGs + in per capita		25	27.5	30.3	33.3	36.6
Resources need to finance major infra structure in per capita		2.5	3.0	3.6	4.3	5.2
Total resource required in per capita		27.50	30.50	33.85	37.60	41.79
Total resource required) as % of GDP		2.24%	2.16%	2.11%	2.13%	2.15%
Total resource required as % of government budget		8.65%	8.85%	9.42%	10.11%	10.69%
Resource Gap in per capita		7.51	7.20	7.73	9.78	11.38

Country macroeconomic scenario and the cost of the health MDGs:

The macroeconomic outlook has been favorable and stable during the last 5 years with annual growth of about 7% and expected to keep growing with the same pace. Further the macroeconomic policy for the coming 5 years has identified achieving the MDGs and attaining poverty reduction as key priority.

We modeled our costing to the macro economic scenario and projected the expected resources and the financing gaps.

Resources required for the 5 year strategy and achieving the health-related MDGs

	Y-2006	Y-2007	Y-2008	Y-2009	Y-2010	Y-2011
GDP current prices (million) SDD	7,677,000	9,121,000	10,756,000	12,487,000	14,109,000	15,942,000
GDP current prices (million) US$	34,120	45,605	53,780	62,435	70,545	79,710
Population (million)	36.4	37.1	38.0	39.0	40.0	41.0
Exchange rate	225	200	200	200	200	200
GDP annual growth rate	9.0	10.0	7.6	7.0	7.2	7.1
Total expenditure government expenditure (million) SDD	1,939,000	2,359,000	2,619,000	2,804,000	2,976,000	3,206,000
Total expenditure government expenditure (million) US$	8,618	11,795	13,095	14,020	14,880	16,030
Expected allocation for health based on current trend (5%) million SDD	96,950	117,950	130,950	140,200	148,800	160,300
Expected allocation for health based on current trend (5%) million US$	430.89	589.75	654.75	701.00	744.00	801.50
Per capita expected allocation of resource for health	11.84	15.90	17.23	17.97	18.60	19.55
Expected resources allocated for health as % of the GDP	1.26	1.29	1.22	1.12	1.05	1.01
resources need to finance essential interventions to achieve the MDGs the MDGs+		25	27.5	30.3	33.3	36.6
Other resources expected for health (donors and multilateral agencies)		2.1	2.21	2.32	2.43	2.55
Resource Gap		7.00	8.06	9.96	12.24	14.50

Components	*Y2007*	*Y2008*	*Y2009*	*Y2010*	*Y2011*	*Total 5 years*
Improve governance of the health system	**14,094,294**	**15,973,534**	**18,416,545**	**21,141,441**	**24,336,148**	**93,961,962**
Institutional strengthening and improved governance in FMOH	1,976,814	2,240,389	2,583,037	2,965,221	3,413,299	13,178,760
Strengthening & reorganization of SMOH &local health directorates	11,551,703	13,091,930	15,094,225	17,327,554	19,945,940	77,011,350
Promote the culture of research and provide evidence for policy and decision making.	565,778	641,215	739,283	848,667	976,910	3,771,852
	-	-	-	-	-	0
Investment in infrastructure and equipment:	**67,854,384**	**76,901,635**	**88,663,062**	**101,781,576**	**117,161,903**	**452,362,560**
1-Infrastructure (physical and equipment) needs assessment, especially at the state and local levels	170,415	193,137	222,676	255,623	294,250	1,136,100
313 HCs	6,857,987	7,772,385	8,961,102	10,286,980	11,841,457	45,719,910
318 Basic health units (BHU)	3,870,855	4,386,969	5,057,917	5,806,283	6,683,676	25,805,700
15 RHs	2,738,813	3,103,988	3,578,715	4,108,219	4,729,016	18,258,750
Upgrading of 3,005 (dressing stations and PHC units) to basic health units	18,289,181	20,727,739	23,897,864	27,433,772	31,579,320	121,927,875
Rehabilitation of 2103 existing health facility (HC, BHU) to enable it to deliver the essential minimum PHC package	18,885,634	21,403,718	24,677,228	28,328,451	32,609,194	125,904,225
Rehabilitation of 350 rural hospitals specially for EmOC	17,041,500	19,313,700	22,267,560	25,562,250	29,424,990	113,610,000
2-Provide integrated training and in service training of PHC worker, MA, MW	787,804	892,845	1,029,397	1,181,706	1,360,275	5,252,028
3- Provide essential medicines, consumables and supplies in accordance with BPHS	24,345,000	27,591,000	31,810,800	36,517,500	42,035,700	162,300,000
4- Out reach services (mobile teams, clinics, etc…)	12,488,985	14,154,183	16,318,940	18,733,478	21,564,314	83,259,900
Investment in human resource development	**23,967,653**	**27,163,340**	**31,317,733**	**35,951,479**	**41,384,147**	**159,784,350**
Ensure equitable coverage and accessibility to quality referral secondary and tertiary health care services at all levels of health care	**131,540,904**	**149,079,691**	**171,880,115**	**197,311,356**	**227,127,294**	**876,939,360**
Reform and develop a pro poor health care financing policies (Provision of free/ subsidized service package targeting mothers and children)	**85,207,500**	**96,568,500**	**111,337,800**	**127,811,250**	**147,124,950**	**568,050,000**
Introduction and adoption of quality management systems in all health facilities:	**520,983**	**590,447**	**680,751**	**781,475**	**899,564**	**3,473,220**

Components	*Y2007*	*Y2008*	*Y2009*	*Y2010*	*Y2011*	*Total 5 years*
improve the availability and access to affordable, safe and effective essential medicines	**61,585,547**	**69,796,953**	**80,471,781**	**92,378,320**	**106,337,710**	**410,570,310**
EPI	**43,033,828**	**48,771,672**	**56,230,869**	**64,550,742**	**74,305,076**	**286,892,187**
Goal 3. Improve child health	**1,012,495**	**1,147,495**	**1,322,994**	**1,518,743**	**1,748,242**	**6,749,969**
Goal 4. Improve Maternal Health	**62,354,362**	**70,668,276**	**81,476,366**	**93,531,542**	**107,665,198**	**415,695,744**
Increase percent of Service Delivery Points (SDP) providing ANC FP (more than 3 methods) from 16% to 90%	7,741,710	8,773,938	10,115,834	11,612,565	13,367,353	51,611,400
Increase coverage of villages with more than 1000 population by skilled personnel to 90%.	48,203,830	54,631,008	62,986,338	72,305,746	83,231,947	321,358,869
Ensure that 70% of referred cases have timely and quality services (strengthen the referral system), Increase institutional deliveries and C/S rates	5,626,130	6,376,280	7,351,476	8,439,194	9,714,450	37,507,530
Strengthen Individuals, Families and Communities involvement to support maternal and neonatal Health (MNH) and overcome harmful traditional practices that affect the health of girls and women at least in the catchment's areas of health facilities providing midwifery services	782,692	887,051	1,022,717	1,174,038	1,351,448	5,217,945
Early preparedness and Ensue early preparedness and response to emergences and epidemics	**1,911,083**	**2,165,894**	**2,497,148**	**2,866,624**	**3,299,802**	**12,740,550**
Malaria	**40,140,036**	**45,492,041**	**52,449,647**	**60,210,054**	**69,308,462**	**267,600,240**
Effective case management	39,802,614	45,109,630	52,008,749	59,703,921	68,725,847	265,350,762
Epidemic containment	52,342	59,321	68,393	78,513	90,377	348,945
Capacity building, advocacy and partnership	285,080	323,091	372,504	427,620	492,238	1,900,533
HIV/AIDS	**25,148,385**	**28,501,503**	**32,860,556**	**37,722,578**	**43,422,878**	**167,655,900**
TB	**4,321,238**	**4,897,403**	**5,646,417**	**6,481,856**	**7,461,337**	**28,808,250**
Control /Eradicate / Eliminate other communicable diseases (leishmania, leprosy, LF-GW, onchcerciasis, SS)	**11,198,700**	**12,691,860**	**14,632,968**	**16,798,050**	**19,336,422**	**74,658,000**
Promote healthy life style and reduce the burden of non communicable diseases and reduce the morbidity and mortality related to non communicable diseases	**8,943,623**	**10,136,106**	**11,686,334**	**13,415,434**	**15,442,655**	**59,624,151**
	-	-	-	-	-	0

Components	*Y2007*	*Y2008*	*Y2009*	*Y2010*	*Y2011*	*Total 5 years*
Building partnership for heath and promote the role the private sector	**21,387,204**	**24,238,831**	**27,945,947**	**32,080,806**	**36,928,573**	**142,581,362**
Encourage private sector (for profit & not for profit) in contributing in health care provision and promote its collaboration with the public sectors:	12,917,579	14,639,923	16,878,970	19,376,368	22,304,353	86,117,192
Environmental health and community-based approaches for achieving health goals partnership with other sectors:	8,469,626	9,598,909	11,066,977	12,704,438	14,624,220	56,464,170
Sub total	**641,844,006**	**727,423,207**	**838,676,168**	**962,766,010**	**1,108,250,651**	4,278,960,043
Salaries	**372,762,975**	**422,464,705**	**487,076,954**	**559,144,462.5**	**593,935,673.5**	2,485,086,500
Total resources	**1,014,606,981**	**1,149,887,912**	**1,325,753,122**	**1,521,910,472**	**1,702,186,325**	**6,764,046,543**

13 Implementation, Monitoring and Evaluation framework:

The implementation of the plan will take place at all levels of the health system. Annual plans will be developed in consultation with all related partners. The planning process will be bottom –up and top-down planning and it will build on the FMOH experience in developing micro- plans with the states and localities. There will be an annual micro-planning process for all localities to be followed by the annual planning meeting for the states. The national annual plan will be based on state's plans. This strategy will serve as guidelines and directives for states and localities plan to address the national priorities, objectives and targets.

Most of the implementation activities will take place at state and locality level. The federal level will carry the stewardship function to supervise and provide guidance to the states and localities. Capacity building of states and localities especially in planning and monitoring and evaluation is an important element in assuring the implementation of the plan.

The plan will be monitored regularly. The indicators listed in the table below will for the base for the M&E. Annual, mid-term and end term reports will be developed. The monitoring process will depend on the regular reports of the HIS as well as the reports of the programs and departments. Part of the indicators will be assessed only at the mid-term or end-term evaluations (see the table below). This will be done through surveys as well as reports.

There will be some national surveys such as;
- MICS at the end of plan
- HIV/AIDS sero-prevalence and behavioral survey (baseline-end term)
- Nutritional surveys (mid term and end term)
- Annual public expenditure reviews
- 2 rounds of the NHA
- Tuberculin survey (baseline- end term)
- Prevalence surveys for communicable diseases (mid term and end term)

For assessing the financing of the health system the NHA is an important tool. Fortunately the FMOH availed funds through the MDTF/ MOFN funded health project to develop NHA.
The success of the M&E system will depend to a greater extent on improving the HIS, the integrated disease surveillance system and the reporting and communication system.

M&E indicators, baseline and targets

Indicators	defined	baseline	target	Notes	Method of data collection	Periodicity	Responsible bodies
Strategic objective 1: Strengthening the governance and institutional capacity of the decentralized health system at all levels							
# Of staff at FMOH/SMOH/LHA trained and currently working in the areas of management and leadership.	Ext. long Ext. short Int. long Int. short		50 200 200 500		Reports	Annual	FMOH
# of management sub-systems developed and implemented by the FMOH/SMOH/LHA (Supervision, procurement, supply and logistics, HIS, M&E, performance appraisals, accounting, personnel management, etc)	Sub-systems		10		Reports	Annual	FMOH
- # of policies developed and implemented by the FMOH /SMOH /LHA		TBD	TBD		Reports	Annual	FMOH
# of sub-national health councils/administrative units established	Administrative units		159		Reports	Annual	FMOH
- **Strategic objective 2: promote the culture of researches and provide evidence for policy and decision making.**							
% of budget allocated for health researches	Percent	<2 %	>2%		Reports	Annual	FMOH
Number of health professionals conducted/ participated in health research		TBD	TBD		Reports	Annual	FMOH
Availability of up- to- date local health research database	Up-to-date database	1	1		Reports	Annual	FMOH
Number of professionals trained EB policy/decision making/practice	number	20	500		Reports	Annual	FMOH
Number of health research council meetings	meetings	3	10		Reports	Annual	FMOH
Number of functioning ethic review committees		1	20		Reports	Annual	FMOH
Strategic objective 3: Ensure equitable coverage and accessibility to the essential PHC package.							
Percent of population living within 5 kilometres of a PHC facility.	Percentages	41%	70%	Estimation	Micro-planning process	Baseline-Midterm- end term	FMOH, SMOH, LHAs
Health facility- population ratio		1/14000	1/11000				
No and % of primary HC facilities providing quality basic health care package.	Percentages	22%	63%		Micro-planning process	Baseline-Midterm- end term	FMOH, SMOH, LHAs

Indicators	defined	baseline	target	Notes	Method of data collection	Periodicity	Responsible bodies
Strategic objective 4: Ensure adequate production, equitable distribution and retention of skilled human health personnel.							
% increase in training capacity for each category of allied health personnel		3090	7,000		Reports	Annual	FMOH
Number produced of each category of health personnel: MAs Midwives Nurses Doctors (local specialization) Doctors (specialization abroad) Nurses (post basic training locally) Nurses (post basic training abroad) Doctors (sub-specialization abroad)	Numbers/yr	 320 1100 1250 80-100 50 TBD TBD TBD	 1500 1750 4500 400 150 50 25 110		Reports	Annual	FMOH
Strategic objective 5: Ensure equitable coverage and accessibility to quality referral secondary and tertiary health care services at all levels of health care							
No of district/state hospitals providing basic/priority speciality services	No	TBD	134		Reports	Annual	FMOH, SMOH, LHAs
No of states with functioning referral/ central ambulance systems	No	1	25		Reports	Annual	FMOH, SMOH, LHAs
% increase in availability of sub-speciality services	Percentages	TBD	TBD		Reports	Annual	FMOH, SMOH, LHAs
% / No of hospitals (public/private) joined/ accredited by the accreditation programme	No /%	0	50%		Reports	Annual	FMOH, SMOH, LHAs
No of hospitals implementing triage system	No	3	40		Reports	Annual	FMOH, SMOH, LHAs
Strategic objective 6: Reform and develop a pro poor health care financing systems							
Health expenditure as a percentage of national budget	Percentages	1.8%	7%	Estimation	Expenditure survey/ NHA / reports	annual	FMOH
Health expenditure as a percentage of GDP	Percentages	? 1 %	2.5%	Estimation	Expenditure survey/ NHA / reports	annual	FMOH
Per capita health expenditure (in US$)	Dollars	? 20	> 40	Estimation	Expenditure survey/ NHA / reports	annual	FMOH
Mean public sector per capita expenditure	Dollars	? 9-10	20-25	Estimation	Expenditure survey/ NHA / reports	annual	FMOH

Indicators	defined	baseline	target	Notes	Method of data collection	Periodicity	Responsible bodies
Strategic objective 7: To improve the availability to affordable, safe and effective essential medicines							
%/ no. of states implementing post marketing surveillance programme	No of states	6	25		Reports	Annual	FMOH, SMOH,
% of population with access to medicines	%	<40%	80%		Surveys	end term	FMOH
Number of states with a functioning revolving drug fund system	No of states	1	25		Reports	Annual	FMOH, SMOH, LHAs
% of contribution of local drug manufacturers	%	24%	40%		Reports	Annual	FMOH, SMOH, LHAs
% reduction in adverse drug reactions	%	TBD	TBD		Surveys	end term	FMOH
Strategic objective 8: Introduction and adoption of quality management systems in all health facilities							
% of HF running. quality improvement prorogrammes	Tertiary care 2ry 1ry	 0 0	100% 50% 10%		Reports	Annual	FMOH
% of HF running infection control prorogrammes	Hosp/ %	29 (8%)	357 (100%)		Reports	Annual	FMOH
% of HF running patient safety prorogrammes	Hosp/ %	29 (8%)	357 (100%)		Reports	Annual	FMOH
Adverse events/Hospital infection rate		TBD	TBD		Reports	Annual	FMOH
%/Number of hospitals (public/private) joined/ accredited by the accreditation programme	Public hosp Private hosp	23 (6%) 0%	80% 20%		Reports	Annual	FMOH
Strategic objective 9: Reduce under-five mortality rate to 70 per 1,000 live births by 2011							
Prevalence of severe under-weight, stunting and wasting in under five years of age	Under-Wt% Stunting% Wasting%	8.6% 14.6% 3.3%	>6% >10% >2.2%		Nutrition surveys	Mid term survey - End term survey	FMOH
Under-five mortality rate	Rate/1000	122	70	(2006 estimates)	MICS	End term	FMOH- CBS- UN Agencies
Infant mortality rate	Rate/1000	77	60		MICS	End term	FMOH- CBS- UN Agencies
Proportion of 1-year-old children immunized against measles	Percentage	72%	90%		Reports - MICS	Annual- End term	FMOH, SMOH, LHAs - UN Agencies
Proportion of 1-year-old children immunized with DPT3	Percentage	83%	90%		Reports - MICS	Annual- End term	FMOH, SMOH, LHAs - UN Agencies
% of localities with DPT3 & HepB3 coverage of at least 80%	#	58%	100%	(2004)	Reports	Annual	FMOH, SMOH, LHAs
no of confirmed wild polio cases	#	0	0		Reports	Annual	FMOH, SMOH, LHAs

Indicators	defined	baseline	target	Notes	Method of data collection	Periodicity	Responsible bodies
% reduction in measles cases/100,000 population	Percent		Measles eliminated	Reduction in measles incidence	Reports	Annual	FMOH, SMOH, LHAs
no of localities reporting < 1 case of neonatal tetanus/1000 live births	#	89%	100%		Reports	Annual	FMOH, SMOH, LHAs
% of children under 5 who received at least one dose of Vit. A annually.	Percentage	76%	90%	2006 estimates	Reports - MICS	Annual- End term	FMOH, SMOH, LHAs - UN Agencies
Strategic objective 10: Reduce maternal and neonatal mortality and morbidity							
Maternal mortality ratio	Rate/100,000	638	260	2006 estimates	MICS	End term	FMOH- CBS- UN Agences
Neonatal mortality rate	Rate/1000	33	20		MICS	End term	FMOH- CBS- UN Agences
Proportion of births attended by skilled health personnel	Percentage	57%	90%		MICS	End term	FMOH- CBS- UN Agences
% of pregnant women who received prenatal and postnatal care	% Prenatal % Postnatal	68.7%, 13%	90% 40%		Reports - MICS	Annual- End term	FMOH, SMOH, LHAs - UN Agencies
Institutional deliveries	Percentage	19.6%	25%		Reports - MICS	Annual- End term	FMOH, SMOH, LHAs - UN Agencies
C/S rate	Percentage	2.4%	5%	(1999 estimates)	Reports - MICS	Annual- End term	FMOH, SMOH, LHAs - UN Agencies
% of referral facilities providing quality EmOC.	Percentage	49%	70%	(2005 estimates)	Reports	Annual	FMOH, SMOH, LHAs
% of SDP providing ANC/FP	Percentage	16%	90%	(1999 estimates)	Reports	Annual	FMOH, SMOH, LHAs
Percent of villages (> 1000 population) covered with SBA	Percentage	43%	90%		Mapping survey- Micro-planning	Baseline- Midterm- end term	FMOH, SMOH, LHAs
CPR	Percentage	7.7%	35%	(2006 estimates)	MICS	End term	FMOH- CBS- UN Agences
Strategic objective 11: Ensue early preparedness and response to emergences and epidemics							
% of states/ localities with a functioning units for emergency/epidemics preparedness and response							
No. of epidemics detected and aborted within the accepted standards	No.	?	90%		Reports/ surveillance	Annual	FMOH, SMOH, LHAs

Indicators	defined	baseline	target	Notes	Method of data collection	Periodicity	Responsible bodies
					system		
No / % of health facilities that submit regular reports	No. /Percentage	?	90%		Reports	Annual	FMOH, SMOH, LHAs
- **Strategic objective 12: Reduce HIV/AIDS transmission**							
HIV prevalence among pregnant women attending ANC clinics	Percentage	1%	1%		HIV/ AIDS behavioral and epidemiological survey	Baseline- end term	FMOH
Number of children orphaned by HIV/AIDS	Orphaned children	63,000	?		HIV/ AIDS behavioral and epidemiological survey	Baseline- end term	FMOH
Percentage of women and men aged 15 – 49 who both correctly identify ways of preventing the transmission of HIV and who reject major misconceptions of about HIV/AIDS (By rural and urban)		45%	90%		MICS- HIV/ AIDS behavioral and epidemiological survey	End term	FMOH- CBS- UN Agencies
Percentage of young women and men aged 15-24 reporting the use of a condom the last time they had sex with a non-marital ,non-cohabiting sexual partner		<10%	70%		MICS- HIV/ AIDS behavioral and epidemiological survey	End term	FMOH- CBS- UN Agencies
Number of people among most-at-risk target populations reached through BCC/counselling session(s) (By target population)					Reports	Annual	FMOH
Percentage of health facilities which are applying STIs Syndomic Approach		25%	60%		Reports	Annual	FMOH
Number of clients (By age & sex) received HIV test results and post test counselling		-	1,000,000		Reports	Annual	FMOH
Percentage of blood banks(public & private) providing HIV blood screening services using standardized protocols (By existing & new established		100%	100%		Reports	Annual	FMOH
Number of people (By sex, age, pregnant women & children, new & follow-up) with advanced HIV infection receiving antiretroviral combination therapy		400	20,000		Reports	Annual	FMOH
Number of HIV orphaned and vulnerable children whose households received free basic external support in caring for the child		0	5,000		Reports	Annual	FMOH
Number of government sector(s) and private sector has strategic plan with budget for HIV/AIDS in place with a	HIV units within	12	30		Reports	Annual	FMOH

Indicators	defined	baseline	target	Notes	Method of data collection	Periodicity	Responsible bodies
functional HIV/AIDS unit	Federal Ministries						
Amount of external funds disbursed and utilized by all the other partners for the HIV/AIDS programmes and activities (Disaggregated by disbursed & utilized in US Dollars	Dollars		200,000,000$	4,000,000 $ in 2006	Reports	Annual	FMOH
Strategic objective 13: Reduce Malaria related morbidity and mortality							
Prevalence and death rate associated with malaria	Percent reduction		50%	2000 figures	Reports / surveys	Annual – mid term- end term	FMOH
Proportion of malaria risk areas using effective malaria prevention and treatment measures	Percentage		90%		MICS	End term	FMOH- CBS- UN Agencies
% of population in high risk areas who have access to effective anti-malarial treatment according to the National Treatment Protocol	Percentage		90%		Reports / surveys	Annual – mid term- end term	FMOH
% of pregnant mothers and children < 5 years of age in high transmission areas have access to effective preventive measures	Percentage		80%		MICS/ surveys	mid term- End term	FMOH- CBS- UN Agencies
% of health facilities' laboratories with improved malaria microscopy/ availability of rapid diagnostic tests.	Percentage		90%		Reports	Annual	FMOH
% of states with well functioning Malaria control Department	Percentage		100%		Reports	Annual	FMOH
Strategic objective 14: Reduce Tuberculosis related morbidity and mortality							
Incidence of tuberculosis per 100,000 people	Percentage	1.8%	1%		Tuberculin survey	mid term- End term	FMOH
Proportion of TB cases detected and cured under directly observed treatment short-course	Detection rate/100 Cure rate/100	44.3% 81%	70% 85%		Reports	Annual	FMOH
- **Strategic objective 15: Reduce Schistosomiasis related morbidity and mortality**							
Schistosomiasis prevalence among the school children in endemic areas.	Percentage	>40%	<10%		Periodical Surveys	mid term- End term	FMOH
Strategic objective 16: Control /Eradicate / Eliminate other communicable diseases							
No of new leishmania cases detected and treated	No.	8,000	5,000		Reports	Annual	FMOH
No of new guinea worm cases detected and contained	No. North South	 0 5,000	 0 0		Reports	Annual	FMOH

Indicators	defined	baseline	target	Notes	Method of data collection	Periodicity	Responsible bodies
No of localities with less than 1% prevalence of lymphatic Filariasis	Percentage				Prevalence surveys	End term	FMOH
No of localities with less than one leprosy case/10,000 population	No.	?	All localities		Reports	Annual	FMOH
Strategic Objective 17: Promote health life styles and reduce the burden of non communicable disease							
Prevalence of non communicable diseases	% of HPT % of DM % of cancer % of CVD	1.5 1 - 0.2	< 1.5 <1 - <0.2		MICS	End term	FMOH- CBS- UN Agencies
Prevalence of Tobacco, snuffing and alcohol use	% of tobacco use % of snuffing				MICS	End term	FMOH- CBS- UN Agencies
Number of schools enrolled in the school health programme	Number of schools				Reports	Annual	FMOH
Number of rules and legislations endorsed					Reports	Annual	FMOH
Strategic objective 18: Encourage private sector (for profit & not for profit) in contributing in health care provision and promote its collaboration with the public sectors:							
- % contribution of the private sector in specific services	% form total utilization % from bed capacity	20 17	40% 40%		Surveys	Mid term- end term	FMOH
Strategic objective 19: Build partnership with other sectors and support environmental health and development of community-based approaches for achieving health goals:							
No of developed policy/ strategy/ legislations	Number of endorsed documents	-			Reports	Annual	FMOH
No of active coordination councils/bodies	% of active locality councils % of active state councils	-	1 for each state/ locality		Reports	Annual	FMOH

14 References

15 Acknowledgements:

16 Annexes

[1] DHS 1990

[2] SHHS, 2006

[3] DHS 1990

[4] SHHS, 2006