بسم الله الرحمن الرحيم

Republic of the Sudan

Federal Ministry of Health

25 YEARS STRATEGIC PLAN FOR HEALTH SECTOR

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Minister's Foreword

I have the pleasure to introduce the 25 years strategic plan for health in Sudan, which was developed in response to the national government initiative and with its full support. This strategy comes on a time the health system is facing many challenges resulting from the high burden of communicable diseases, recent increasing burden of non communicable diseases, the economic constraints, poverty, the civil conflict that has been going on for decades and the climatic factors related to floods and drought.

With the rising prospective of peace the media is now suitable for different stakeholders to work in collaboration in order to deliver major improvements in health services throughout Sudan. We also anticipate with hope the recent positive economic growth -due to investment in oil production- and its expected impact on health and development in the country.

The strategy forms a highly ambitious agenda for change. The major challenges are to apply an effective health system reform, find alternative ways of funding, 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 strategy outlined the priorities, directions and goals of the health programmes. The effect of local and international changes are considered and the values of equity, quality, open communication and proffessional ethics are emphasized. Implementation starts immedietly and will stretch for 2 and half decades and it is expected to involve a wide sector of people from different categories.

On behalf of the government I would like to thank all those participated in the development of this strategy. We would like to express our commitment to make the positive changes and to co-ordinate our actions and invite all partners to move forward with a spirit of openness and ownership to bring about this strategy into reality.

Dr. Ahmed Bilal Osman
Federal Minister of Health

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Dr. Omar Haj Suleiman	National consultant	Deputy Head of committee
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Sudan Map:

Why a 25 years strategy:

This strategy was prepared in response to the national government initiative of developing a 25 years strategic plan for all sectors in Sudan.

The previous 10 years strategic plan, had made some progress in the areas of health and development, however a lot remains to be acheived. There are gaps and clear deficiencies that need to be addressed. A new approach is needed to adress the changes associated with the major public reforms that took place in Sudan recently. The improved knowledge and better understanding of the health system during the past few decades, necessitate structural changes in the health system whereby the knowledge is applied and changes accommodated. This would require a comprehensive, ambitious approach or blue print for health development and setting of core strategic directions and principles

The purpose of this policy document is to give a framework for health systems and services development during the coming 25 years (2003-2027). It provides a road map for identifying key priority areas and defining the context within which the health system will perform. The strategy will provide a guide for policy makers and service providers to achieve the future vision.

In appreciation of the importance of participatory approach in developing the strategy, a national team was formed to coordinate the process. Wide scale consultation was carried out with Ministry of Health directors and programme managers, workers in the health sector, related sectors, community, state ministers of health and general directors. Intensive documents review was also carried out.

The way forward:

The implementation of the strategy will receive direct support from the minister of health. It will be endorsed by the Council of Ministers and then presented in a special conference to which all stakeholders are invited. The purpose of the conference is to advocate for the strategy, gain commitment of different partners and undertake official launch. The strategy will be publicized through the media to the community. Ministry of health staff will be enlightened for wider participation and involvement during implementation.

A steering board chaired by the undersecretary will be established to monitor the delivery of the plan. The plan will be disseminated to relevant departments according to different goals. Implementation of the strategy will be divided into 5 years plans that are being further divided into annual action plans to facilitate monitoring, review and follow up. Regular review to the different goals is necessary based on the changes in different aspects intervening in health service provision.

The implementation will be followed up through regular meetings chaired by the undersecretary of the Federal Ministry of Health. An annual review will be carried out to assess the progress towards achieving the long term gaols. A 5 years review will also be undertaken.

1. Current situation

1.1. Introduction

Sudan is the largest country in Africa. It has an area of 2.5 million km2. It is characterized by a strategic geographical location, that links the Arab world to Sub Saharan Africa, and it shares its borders with 9 countries, where the Sudanese population and those of the neighbouring countries move freely across these borders. The environment ranges from damp rainy in the south, to desert in the northern areas. Climatic factors can contribute to humanitarian emergencies related to drought and flooding, and ecological factors expose much of the population to major infectious and parasitic diseases.

Overall, the country has scarce and inconsistent information on health, due mainly to the fractured system and multiple actors operating. Recent surveys such as MICS2000 showed marked disparities between states for most indicators.
In order to discuss and define the health system a conceptual framework is used. Contextual issues are discussed and the health system is described under the following terms: general organization, system resources and functions of the health system

1.2. Contextual issues:

1.2.1. Political context

The government adopted the federal system in 1994. Decentralization was introduced as a system of governance compatible with the needs of the multi-ethnic and multi-cultural society of Sudan. The country is divided into 26 states and 134 Localities.

''The system is founded upon a multi-tier government: federal, state and local governments. The federal level is concerned with policy making, planning, supervision & co-ordination. The state governments are empowered for planning, policy making and implementation at state level''[1]. ''A number of problems appeared during the implementation of the federal system, the most prominent being uneven distribution of financial resources & manpower between states and between rural and urban areas''[2].

Marked internal and exteranal changes have occurred and expected to affect health in the coming few years, these could be summarized as follows:

- Globalization of economic forces and increasing demand for competitiveness. The world shifted to a neoliberal and market approach in health with recent focus on health system development, poverty reduction and sector wide approaches SWAps.
- The international pressure for structural adjustement from international donors and organizations.
- The growing role of the private sector supported by government policies.
- Disease transition towards non communicable diseases, diseases related to life style and diseases of eldery.

- Progressive advances and invention in medical technology.
- Increased population awareness towards their rights.
- Consideration of the fact that health is a human right which has to be spelt in health policies.
- Country movement towards industrialization and investment in petrochemicals.
- Expected peace agreement in the south of Sudan.

1.2.2. Social context:

Sudan is classified as a low-income country by World Bank standards. On the Human Development Index deviced by UNDP, human development is also extremely low in Sudan. In 2002, Sudan ranked 139 out of 173 countries for which the index was calculated[3]. Life expectancy at birth, a measure of the general health condition and an indicator of the standard of living was estimated around 54 years, about the average of least developed countries. The country suffers from continuous civil strife in the south, leading to successive waves of massive population movement, coupled with drought and desertification, major floods in the northern part of the country, and severe loss of human resources (brain drain) especially in health sector. All these factors have severely affected the health infrastructure and health status in the country. They further reduced the country's ability to undertake sustainable control without external support[2].

Poverty and inequality: "The trend of poverty in Sudan during the nineties was most likely upwards, with considerable variation in the different parts of the country [2].
Although no recent household-level data is available to measure consumption or income in money terms, it is widely believed that the incidence of poverty is very high and that there is considerable variation in poverty between states and within states.
In general, urban areas are better off than rural areas. However available data indicates that there is significat inequality in urban areas and that the extent of urban poverty has likely increased in tandum with migration to urban centres. Wide spread poverty and the erosion of household coping capacities due to war make wide segment of the population vulnerable to food insecurity brought on by crisis such as flooding, drought, conflict and displacement. Regional and urban/rural disparities in economic resources have clear implications for health and nutrition out come as well as services". 10

The table below describes the main educational and sanitary indicators in the country, it is worthwhile mentioning that there are well marked variations of these indicators if listed detailed by states.

Education:
Literacy rate of population over age of 15 years in northern Sudan
- -Males 50.6%
- - Females 48.2%
- - urban areas 67%

Literacy rate of population over age of 15 years in southern Sudan
- - Urban areas 54%

The percentage of children of primary school age attending primary schools in northern states is 48.3%
- -females 46.9%
- -males 49.7%

The percentage of children of primary school age attending primary schools in southern states is 67.8%
- -females 67.3%
- - males 68.4%

improved drinking water sources:
Proportion of the population with access to improved drinking water sources in the northern states 59.8%
Proportion of the population with access to improved drinking water sources in the southern state (urban) 60.7%
Sanitary means of excreta disposal:
percetage of the population using sanitary means of the excreta disposal, north Sudan 59.7%
percetage of the population using sanitary means of the excreta disposal, south Sudan 48%
source MICS 2000[4]

1.2.3. Demographic:

The population of the country is estimated at 32 million (projected from 1993 census). The population is unevenly distributed in the 26 States, the majority are concentrated in 6 States of the Central Region with a mean population density of 10 people per square kilometres, increasing to 50 at the agricultural areas. Natural disasters and the conflict resulted in high rates of rural-urban migration reaching 15%. The growth rate is 2.6%, indicating that the population doubles every 27 years[5]. "Around 30% of the population live in urban areas due to migration which includes large numbers of internally displaced persons (IDPs) from southern Sudan. The UN estimates that there are 4 million IDPs in Sudan. In many cases, particularily in Khartoum, the distinction between IDPs and urban poor has become blurred over the years. Immigration of skilled professionals is also a significant issue in nothern Sudan, causing a continuing brain drain " [10]

The box below shows a summary of some of the demographic indicators including life expectancy at birth which have seen some improvement during the past few decades.

- Total population estimated for year 2002: 32 million
- Children under the age of five years comprise 16.4%, while 0-14 years 44% of the total population.
- Children under 15 years of age 45%
- Rural population accounts for 68%
- Total fertility rate 5.9 child
- Life expectancy at birth (46 for males and 50 years for females in 73, compared to 54 for males and 57 years for females in 1993)
- Contraceptive utilization rate 7%
- Infertility rate 7.2%
- Crude death rate 14/1000

Sources population data sheet (UNFPA, CBS), MICS2000

1.2.4. Economic context

Sudan is rich in terms of natural and human resources, but economic and social development have been below expectations. The GDP per capita was US$395 in 2001. Agriculture is considered as the backbone of the Sudanese economy and the most important production sector involving 55 to 80%(10) of the population and accounting for about 38% of GDP[10] and 15% of total export earnings[18]. Increasingly, however, the industrial sector is becoming important for growth in urban areas. The agriculture contribution to GDP has declined during the last five years while the contribution of oil sector has increased to more than 11% of GDP during the same period. Oil and petroleum products now account for over 80% of exports and 40% of public revenues[18].

Economic reform packages have been implemented since 1992. Encourging results in curbing macroeconomic imbalances and inflation were obtained. It resulted in revival of economic growth and increased per capita income. However, widespread poverty, highly skewed income distribution and inadequate delivery of social services remain serious problems[2].

Since 1997, the annual growth of the economy has been around 5-6% and inflation rate has come down to single digit. However, this growth has not yet been translated into improved living standards for the majority of the Sudanese people. At the end of 2001, Sudan's external debt was estimated at US $ 20.9 billion, equal to 180% of GDP.[2]

The prospect of economic growth in Sudan in the coming years will make more resources available. Macro-economic stability, renewed engagement with the international community, increased oil production, and above all, peace are setting the stage for further economic growth[10].

1.2.5. Conflict and post conflict context: [10]

Sudan has suffered from civil conflict for much of the period since independence in 1956, with the present civil war having started in 1983. Most of the fighting has occurred in southern Sudan, as well as areas of Southern Kordofan and Blue Nile states. Civil conflict has also flared up in other parts of nothern Sudan in recent years, in particular Darfur, Kassala and Red Sea.

The health, nutrition and population effects of the war have undoubtedly been significant, with the figure of 2 million deaths often cited. Health services, not well-developed even before the war, have deteriorated over two decades of conflict so that most are now supported by international humanitarian agencies. The Operation Lifeline Sudan (OLS), formed in 1989, is a coordination mechanism which includes various UN agencies and NGOs. It provides humanitarian assisstance to government and non government held war affected areas. A number of NGOs also operate in southern Sudan outside this mechanism.

A cease fire has been in effect between the fighting parties since October 2002 and there is optimism that the ongoing negotiations will result in a lasting settlement. After the peace agreement, reconstruction and development are needed as well as humanitarian assisstance in the health and nutrition sectors, particularily in newly accessible areas. Coordination and weak local capacity are seen as the main challenges facing the health sector development in the post conflict setting.

1.3 Priority health problems

1.3.1 Programmes for Maternal and child health:

1.3.1.1 Child health[2,4,6,7]

The 2001 health statistical report showed that deaths among children under five were caused by malaria (17%), pneumonia (14%), malnutrition (13%) and diarrhoea (9%) which is highly correlated with life style, living conditions and the nutritional deprivations experienced by the poor [6].

"SMS 1999 showed an improvement for both infant and under-5 mortality rates. The under-5 child mortality rate in Northern Sudan declined from 143 to 105/100.000. These levels are lower than the Sub-Saharan Africa (SSA) average of 162 [2,7,] but, masks rates that are comparable and sometimes higher than the SSA average, namely in South Kordofan, Kassala, Blue Nile and Red Sea. With this trend it is clear that Sudan will not reach the Millennium Development Goal[18] by 2015 of a reduction by two-thirds the 1990 level, unless the child mortality declines at a rate of 5.9 percent per annum from 1999 onwards" [2].

- Diarrhoeal diseases estimated at 16%
- Malnutrition cases 18.5% (Vitamin A deficiency 1-8,4 %.
- Female genital mutilation is over 90%
- Incidence rate of thyroid goitre is 22%
- Usage of iodised salt reaches 0.6% in northern states, 0.5% in southern states.
- The rate of nutritional blindness is estimated to be 1-4.8%
- The rate of exclusive breast feeding (at least for 4 months) is <20%
- The incidence rate of diarrhoeal diseases is estimated at 16.4%
- The incidence rate of ARI is estimated at 24.4%
- Incidence rate of anaemia >90% (survey done in1997)

1.3.1.2 Immunization [2,8,8]

Immunization coverage does not present a confident picture. Routine immunization reports in 2000 gave figures of 66% for BCG, 65% for DPT3, 65% for polio3, 61% for measles and 37% for TT2, which indicate a marked deterioration from 1996 figures of 96, 79, 75, and 43% respectively. This was markedly attributed to shortage of funds, logistic support, cold chain problems and weak capacity of States[2]. According to MICS 2000 the percentage of children aged 12-23 months who are vaccinated is shown in the table 1

Table 1: Proportion of children vaccinated in Sudan 2000

Areas/Regions	DPT3	OPV3	Measles	BCG
Northern Sudan	40.2%	42%	49.7%	62.6
Juba, Wau and Malakal towns	43%	46.3%	34%	51.1%

Source MICS2000

The figures masked a marked variation between states ranging between 28-87 % for BCG, 8-74% for DPT3, 13-68% for Polio3 and 20-70% for Measles.
Transmission of wild Polio virus appeared to be interrupted, the last case reported in July 2001. Ten double rounds of National immunization days have been conducted including accessible areas in the south since 1994, with high coverage of under-5 children. House to house strategy was adopted in 2000.

1.3.1.3 Maternal health

According to SMS 1999 maternal mortality has declined from 556 to 509 per 100,000 live births. An average of 6.8 % annual reduction would be required for attaining MDGs, which is far higher than the current rate of 5%.
In the provision of reproductive health services there is a similar picture, which is compounded by the continued high incidence of traditional practices like female circumcision and food taboos.
The box below shows a summary of some health indicators related to child and maternal health and indicators related to prevalent communicable diseases [4,7,9,11]:

- Total fertility rate 5.9 child
- Home deliveries 83%
- Maternal mortality ratio 509:100.000 live births
- Deliveries attended by skilled birth attendants 57%
- Under-five mortality rate 105/1000 live births
- Estimated malaria episodes (8 million / year)
- Deaths due to malaria (35.000 / year approximately.)
- Bilharzias relevance rate between school children in irrigated areas range bet 28-76 %
- HIV/AIDS prevalence rate 1.6% (2003)
- TB prevalence rate 1.8%
- Routine EPI coverage 51-65% in 2001

1.3.2 Control of communicable diseases:

Communicable diseases dominate the health scene with high vulnerability to outbreaks, which the health system is not equipped to combat.

1.3.2.1 Malaria: [11]

Malaria is a major health problem in Sudan causing 7.5- 8 million episodes annually, it accounts for about 21% of all diseases seen at outpatient departments in health facilities in the country, ranging from 20-40% and 30-40% of admissions. In terms of mortality, malaria accounts for 20% of all hospital deaths in the country with an estimated annual figure of 35000 deaths.

Endemicity of malaria ranges from hypo- endemic in northern Sudan, meso-endemic in the centre to hyper or holo-endemic in central and southern parts of Sudan.

Plasmodium falciparum is responsible for more than 90% of malaria cases. However, there is an increase in malaria cases caused by P.vivax outside its classical zone; Anopheles' arabiensis is the principle vector.

Sudan has a long history of malaria control activities dating back to pre-colonial times. The attempt at malaria eradication started 1954-64 with the introduction of DDT and it focused on vector control, residual spraying, environmental management and public education. The program had very limited success due to managerial, technical and financial constrains.

The establishment of the Blue Nile Health Project (BNHP) in 1978 with support from WHO, WB, Kuwait Japan and USA, led to successful control of malaria for 10 years with the prevalence of the disease coming down to <1%. Unfortunately, external funds stopped, leading to discontinuation of control operations in 1989.
The WHO announced Rollback Malaria in January 1998 as a global initiative to reduce the size of the problem in all countries especially in Africa through participation and integration of the different levels. By the year 2030, the initiative aims that malaria will no longer be the main factor in mortality, morbidity and socio-economic deterioration. Moreover, it is expected that by the year 2015 the mortality rate will approach 30%, and 20% by the end of 2025.

1.3.2.2 Schistosomiasis:- [12]

Schistosomiasis is one of the main endemic water-borne diseases in Sudan. The disease is wide spread in Gezira & Central states; however, it is endemic in all states of the Sudan except Red Sea. Twenty four million people are under the risk of contracting the infection. The prevalence ranged between 28-80% among school children surveyed in central States in 2001.
Since the cessation of the Blue Nile Health Project, there were no organized control activities.

1.3.2.3 Tuberculosis: [13]

The National Tuberculosis Control Programme was launched in 1974. The programme covers 22 states out of the 26. The Horn of Africa Initiative is taking care of the remaining four States.
Approximately the annual rate of infection for tuberculosis equals 1.8%. This indicates that for every 100,000 there are 90 infective cases. As a result, Sudan is classified, as having a high prevalence rate in East Mediterranean Region and ranks 3rd. The estimated number of cases is 45,000. However, it has been noticed that the number of cases is static, at 27000 cases per annum from 1999 to 2002. Case detection rate is 56% and success rate, has reached 75.5%. Age specific rate were highest among the age groups 25-34. Rates were higher in men. Pulmonary

cases represented 80.6% (55.4% smear positive, 36.8% smear negative) and extra pulmonary disease constituted 19.4% of total cases.

Since 1995 NTP is gradually implementing the TB programme at all levels of administration in accordance with IUATLD and WHO approved criteria. DOTS all over was achieved by the end of the year 2002 by establishment of 297 diagnostic centers and over 900 DOTS centers

1.3.2.4 HIV/AIDS: [9]

HIV is a growing problem in Sudan. 9.791 cases of HIV have been reported to the Sudan National AIDS Control Program, since 1986 up to the end of 2002. The prevalence of the disease is estimated to be 1.6% in 2002 with an estimated 500,000 to 600,000 persons living with HIV/AIDS. Transmission is predominantly through unprotected sexual contacts (97%). Higher prevalence is reported among specific vulnerable populations, such as sex workers (4.4%) and refugees (4%), with a considerable variation in prevalence rates across different regions of the country.

There are many alarming factors regarding the spread of the disease in Sudan, these include the geographical location of the country, high population movement due civil war, natural disasters and economic factors.

1.3.2.5 Leishmaniasis

Leishmaniasis is endemic in Sudan, affecting 6 states in the North and South. Visceral leishmanisasis accounts for high mortality in those areas. The yearly disease burden is estimated at 6,000 - 9,000 in the North and 2,000-5,000 in the South. Successive outbreaks occurred during the last few years leading to a lot of mortalities.
The lack of knowledge on the vector character and transmission pattern has made it difficult to develop solid plans to decrease the transmission rate.
Still the drug of choice is Sodium Stibogluconate (Pentostam), however, drug resistance was reported in Malakal.

1.3.2.6 Guinea Worm:

Sudan remains one the few countries where the disease has not been eradicated. The program started at the end of 1992, since then a considerable reduction of cases in the GOS controlled areas in the southern region was achieved. The civil strife in the south which led to continuous displacement towards the north, long duration of the rainy season, difficulties in accessibility and lack of basic infrastructure in the southern states delayed the effort of eradicating the disease from the country.

1.3.2.7 Sleeping sickness and lymphatic filariasis:

Sleeping sickness & lymphatic filariasis are two important endemic diseases that are leading to permanent physical, social, economical & psychological disabilities.
Sleeping sickness and lymphatic filariasis are widely prevalent in the southern states, south Darfur, southern parts of the Blue Nile state. There is no recent

documented information on the prevalence of these diseases or their impact on health in endemic areas. The control programmes for these diseases are weak and under funded.

1.3.2.8 Blindness Control Programme

Cataract is the leading cause of blindness in the country, it is estimated that 1-1.5% of the population is blind i.e. 300,000 and are in need of at least one eye surgery which is far from the current capacity (30-40 thousands cataract extraction operations annually) (see table)

Table 2: Main causes of blindness in Sudan:

Cause	Percentage
Cataract	70.5%
Glaucoma	18.5%
Trachoma	3.3%
Others	7.7%

1.3.3 Non communicable diseases (NCDs) [13, 14]

The trend of transition of disease pattern from predominantly communicable diseases to non-communicable diseases has been remarkably noted throughout the world. The contribution of non-communicable diseases to the burden of disease was estimated globally at 60 percent (31.7 million) of deaths and 43 percent of the overall burden of disease in the year 1998. The estimates for the coming 20 years go further to that non-communicable diseases, mental disorders and injuries will constitute 73 percent of deaths and 60 percent of disease burden.

More to say, developing countries are suffering increasingly from non-communicable diseases; a status previously considered peculiar to prosperous communities, creating new conditions of aggravated health status due to the shift to double burden.

Regionally increases in sedentarization, accompanied with increased poverty rates and high rates of illiteracy, modified people's lifestyle due to urban expansion and globalization influence, has led to the current shift of disease pattern in EMR. Factors such as increased rates of smoking, obesity in addition to increasing injuries due to traffic accidents and violence are pushing more to the imbalance.

Sudan is not an exception of the international trend. Same factors and conditions apply to its situation. Additional factors further complicate the situation in the country i.e. armed and political conflicts, scarce resources and poor capacity for future foreseeing and strategic planning.

Data on the disease burden of NCDs in Sudan is scarce and deficient. As an indicator of this shift, DM represents the ninth cause of hospital admission in the Sudan, contributing by 1.9 percent. The number of patients has doubled between 1997 and 2000, with a crude prevalence of 3.4 percent (men 3.5 %, women 3.4 %) and average attributed death of 5.9 percent in the same period. The highest crude

prevalence is in the northern part (5.5 %) and the lowest in the western desert–like parts (1.9%). The highest prevalence is demonstrated in Danagla tribe (8.3 %).

Another example is that cancer incidence rates have significantly increased to become one of the major killer diseases (second in 2002), with a percentage of 34.5 and 14.3 percent for breast and cervical cancers respectively. The same is believed regarding cardiovascular diseases, mental illnesses and accidents, as hospital data shows an increase in the numbers of cases although no adequate information is available.

Tobacco use, on its part, is contributing to the transition as showed in a recent assessment: 25 percent of Sudanese men, 2 percent of women and 20 percent of school students use different types of tobacco.

In late 2001, The Health education department in the Ministry of Health was changed to health promotion directorate as an umbrella for seven programmes, namely mental health, school health, oral health, cancer prevention, Sudan initiative for tobacco control, national diabetes program and health of the elderly programmes. However, integration has not yet been fully achieved. Recently, a department for NCDs was established within the PHC directorate.

1.4. The health system

1.4.1. General organization (Stewardship)[11]

Sudan has 26 State Ministries of Health (SMoH), one in each State. The Federal Ministry of Health (FMoH) is responsible for the development of national health policies, strategic plans, monitoring and evaluation of health systems activities. The SMoH are mainly responsible for policy implementation, detailed health programming and project formulation. The implementation of the national health policy is undertaken through the district health system based on the primary health care concept.

Health services are provided through different partners including in addition to federal & state ministries of health, armed forces, universities, private sector (both for profit and not for profit) and civil society. However, those partners are performing in isolation due to ill defined managerial systems for coordination and guidance.

The adoption of the decentralized system in Sudan was faced with many problems arising from the abrupt implementation without prior effective training programmes. The qualifications of many of the senior staff at state ministries of health are irrelevant to the assigned jobs. The federal rules, although comprehensive, are not equally understood at the state level, moreover, lack of mechanisms to identify, analyze and solve problems has led to accumulation of many unsolved problems, and there is no system for experience exchange between different states. The main problems with the organizational structures in the governmental health services at different levels are:

- Rigidity of the organizational structure.
- Poor coordination between departments.

The federal ministry of Health experienced marked reforms in its general directorates during 2002. Even though, its systems are still immature to withstand integration of programmes between different directorates. Both evidence based decision-making and collaboration needs to be promoted. [15]

PHC was adopted as a main strategy for health care provision in Sudan and new strategies were introduced during the past years, include:

- Health area system.
- Polio eradication in 1988.
- IMCI initiative.
- Rollback Malaria strategy
- Basic developmental needs approach in 1997 (15 models in 8 states).
- Safe Motherhood, making pregnancy safer initiative, eradication of harmful traditional practices and emergency obstetrics care programme.

1.4.2 System resources

1,4,2,1 Human resources [6,16]

According to the statistical report of the year 2002, there were 5.765 doctors (962 specialists), 210 dentists, 302 pharmacists, 27.583 nurses and midwives.
"The number of nurses and general practitioners has declined in relation to population growth. The total number of nurses, after declining in the mid nineties, has increased by only 3.4 percent over the last decade (equivalent to a rate of only 0.3 percent per annum) and the number of general practitioners has increased by only 2.7 percent (a rate of 0.6 percent per annum). On the other hand the number of midwives has increased by 75 percent (a rate of 5.2 percent per annum). These changes compare with the growth in Sudan's population during the nineties of about 2.6 percent per annum. Evidence indicates that staffing in rural areas is much weaker compared with urban areas. The main reasons are the substantially lower incentives and employment conditions for health care professionals working in rural areas compared to urban areas"[2].

Recently a marked increase in higher medical education has occurred (Table 3)
Table 3: The increase in number of medical schools 1990-2001

Faculty	Number before Educational reform	Number after Educational reform	Private faculties	Percent increase
Medicine	3	24	5	700%
Pharmacy	1	8	5	700%
Dentistry	1	8	5	700%
Laboratories	1	7	6	600%
Public health	1	5	0	400%
X rays	1	4	2	300%

Nursing	1	7	2	500%
Optics	1	1	0	0%

Despite the increasing number of graduates, this does not satisfy the need due to the following facts: -

- Imbalance in training of different health cadre especially technical & nursing cadres.
- Shortage in certain specializations such as surgery, pathology, general practitioner & family physician.
- High attrition rate.
- Lack of continuing education programmes.
- Poor distribution of health manpower.
- The standard of auxiliary workers does not meet the required level.
- Low personnel morale, satisfaction, ownership feelings, motivation, respect to work values and attitude towards patients and colleagues.
- Poor culture of evidence based practice.
- Absence of clear guidelines for medical practice and service protocols.

1.4.2.2 Infrastructure, equipment and other technologies

''The health care delivery system in Sudan is provided through more than 6,540 health facilities comprising 2729 PHC units, 1442 dressing stations, 1468 dispensaries and 673 health centres. There are, in addition, 230 hospitals, 44 tertiary level teaching hospitals, 13 universities with medical and health science facilities, and 250 allied health cadre's schools and institutes'' [6].

''Between the years 1989 and 2000 there was a steady increase in the number of health centres at an average of 3.5 % annually and 3.8% for hospitals. Both figures are above the growth rate of 2.7%. The number of available primary health care centres is probably an over-estimate because it is widely accepted that numerous primary health care centres are closed due to shortage of funds and trained staff. Hospital beds have increased in number by 20 percent (a rate of 1.7 percent per annum). On a national basis the number of beds equivalent to about one bed per 1,000 in the population. This compares with a ratio of half a bed per 1000 people in Egypt and around 10 in middle-income European countries'' [2].

The most important part of the story, however, is the distribution of these health care facilities. The decrease in the number of primary health care units has been almost exclusively in rural areas.

The health Services suffer from inherited problems, which can be summarized as follows:

- Absence of referral systems
- Lack of means of patients transport and ambulances
- Lack of work standards
- Service is not based on the concept of client satisfaction
- Weak infrastructure and distribution
- Lack of clear vision, mission and plans

- Many health facilities are not constructed according to the recommended standards for its location, buildings…etc
- Low quality of tertiary services leading to patients seeking treatment abroad
- Weakness of integration between curative and preventive services leading them to work in isolation

1.4.3 Finance of the health services

The data on health financing and expenditure is deficient and incomplete. However, the available information showed that the overall government health expenditure is very low and the health sector is under-funded. As overall government expenditure has increased largely due to growth in oil revenues, allocation to health sector in absolute terms have also increased. GDP per capita for 2001 estimated at 395 $. The total public expenditure as percentage of the GDP 10.4%, 11.8%, and 14.6% for the years 98, 99, 2000 respectively, while public expenditure on health as a percentage of GDP is 0.9%, 0.7% and 0.9% respectively for the same years[2]. The health expenditure was in the range of 5.4-8.5% of the total government expenditure in the corresponding period. When translated into per capita, it came to US $ 2.5 in the year 2000. [18]

Recently, increased government revenues (largely due to oil production) have allowed an increase in public expenditure on the health sector. However, as a proportion of total government spending it has remained relatively constant at very low levels in comparison with other developing countries.

The main resources for states health budget come from the ministry of finance. It is noted that at best the expenditure of the allocated budgets never exceed 70% and most of it comprise the salaries component. The national states support fund gives support to some states, which is automatically added to the states budget. Part of the budget comes from household's direct contribution through user fees or through health insurance premium.

The National Health Insurance Scheme, introduced in the mid 1990s covers about 8% of the population, most of them are government employees(75%), the remaining are poor families (6%), families of martyrs(3%) and students (2%). The programme is reported to spend around US$ 90 million annually, 40% of which goes to health care services and 30% to drugs. It is estimated at around 1% of GDP. [10]

The user fees for government health services were introduced in the mid 1990s, including exemptions for vulnerable groups and for emergency services. Government policies in the recent years has encouraged the growth of the private sector. However, these services are concenrtated mainy in urban and better off rural areas and invest on clinics and hospitals. [10]

Although no data is available on household health spending, it is estimated that total out-of-pocket expenditures are as large or larger than total government health

spending (1%or more of GDP). In addition, spending on health services abroad is reported to be substantial. [10]

Total percapita expenditure from different sources including public, out of pocket and health insurance is estimated at 15-20 $ compared to 34 $ recommended by WHO for delivering minimum essential package of service.

The international assisstance to the health sector in the past decade has not been significant. The donors inputs for health through FMOH in the year 2002 amounted to US $ 20 millions, which comes to US $ 0.6 per person. While the allocated budget for the NGOs working in Sudan is estimated at US $ 41 million in 2002. The donors inputs are generally on control of communicable diseases (Vaccine preventable diseases, Malaria control, TB control, Leprosy control, HIV/AIDS, G. Worm control and control of river blindness), nutrition and PHC. [18]

Disparities: Available information indicates that spending is highly skewed towards the better off. Regional disparities resulted following decentralization due to lack of financial resources and managerial capacities. This led to deterioration of the PHC system particularily in rural and peripheral areas. Government spending used to be focused on hospitals leading to an unbalanced health sytem. Out-of-pocket payments benefit the better off and so is spending for care abroad. The insurance system covers only 8% of the population, most of them are government employees.[10]

1.4.4 Functions of the health system

1.4.4 .1 Health Areas

Since the beginning of the nineties, Sudan Federal Ministry of Health has adopted the health area system as a policy to promote primary health service delivery in all parts of the country. The health area system is considered to be the most effective system that solves the problems of the health services. However its application in Sudan was not accompanied by the necessary regulatory laws and rules and the weakness in the applied areas was attributed to:

- Lack of committed trained leadership and lack of job description and responsibility borders.
- Weakness of monitoring and supervision from the federal ministry of health and lack of continuous supervision by the states
- Lack of a clear vision regarding the objectives of the health system which resulted in reduction of the administrative and financial support
- Community mobilization in some areas was not enough to support this system; it was limited to some isolated PHC activities such as immunization.
- In general the weak performance is due to lack of feelings of ownership by the state authorities in addition to weak supervision, monitoring and poor local capacity and the high turnover of the trained staff in the health areas

1.4.4 .2 Health Information System

The system is suffering from many complications, which can be summarized as follows:

- Weakness of monitoring and supervision
- Low availability of registration books and formats
- The current system is based upon health units with minimal use of the information at the community level.
- Problems of timely sending of reports.
- Poor local utilization of data.
- Lack of feedback systems
- The system is paralleled by a number of vertical health information systems without clear coordination and integration.
- The basic and continuing training programmes for static clerks are inadequate.

1.4.4 .3 Research

The Research Directorate was established as the health system research unit at 1998 as a WHO initiative. It is noted that there is no considerable activity in the field of health research or studies directed to the priority problems of the health system and that researchers concentrate on clinical and biomedical researches. Although the global culture of health research and evidence based health planning became a prominent feature of the health systems in many countries, Sudan still lacks this culture. Additional problems are summarized as follows

- Lack of adequate funds and resources for health research
- Weakness of coordination of the research activity at the national level
- Most of the researches are conducted for academic purposes with no consideration to the health system priority problems
- Lack of training on research methodology

1.4.4 .4 EPR

In 2001 a review for the EPR program including control of communicable diseases was carried out by WHO expertise. The result shows that there is a dire need for strengthening EPR at all levels. The main features are:

- Absence of an Epidemiology department in almost 80% of the states, instead it is merged with environmental health department.
- The report shows that only 16.7% of the states have a plan.
- Only 31.3% of the health facilities have the capacity to collect, test, store or transport at least one specimen of malaria.
- There is no buffer stock available at the federal level in the Epidemiology Department. The stock was available in only 16.7% the states MOH.

1.4.4 .5 The health legislations

Most of health legislations are old and require changes to satisfy the new system reforms including the federal system**.**

1.4.4 .6 Laboratory technology and Blood transfusion services

Laboratory services in Sudan suffer from many weaknesses which include:

- Weak supervision and regulatory system.
- Absence of quality assurance systems.
- Inequitable distribution of laboratory services over the country.
- Lack of modernization.
- Inadequate in-service and specialized training.
- Brain drain
- Weak public health and reference laboratory services.

1.4.4 .7 Private sector: (profit and non profit)[10]

The private sector in Sudan has expanded during the last few years especially in towns and better-off rural areas, however; the magnitude of the service provided is unknown. It focuses on curative services and has little role in preventive interventions such as vaccination. Public practitioners are allowed to practice in the private sector in addition to their work in public facilities. The bulk of the private health care facilities are clinics. Private secondary and tertiary care expansion is limited to few states like Khartoum and Gezira states. The quality and prices of care is often criticized, although it is perceived by the users to be better than government services.

There is deficiency in the available information about NGOs working in Sudan regarding their plans, budget and distribution. However they play an important role in filling some of the gaps in coverage of the government system and serving populations which are not attractive markets for the private providers such as IDPs. There is no clear national policy towards NGOs and the monitoring and coordination mechanisms are weak.

2. Sudan and Millennium Development Goals; [10,18]

Emanating from the Millennium Declaration, The eight Millennium Development Goals bind countries to do more and join forces in the Fight against poverty, illiteracy, hunger, lack of education, gender inequality, child and maternal mortality, disease and environmental degradation. Poverty, health and development are interlinked, and any improvement in the health status of Sudanese people should be accompanied by improvement in the harmful impacts of poverty and development of the overall indicators of the country. In 2002 the Human Development Index was 0.499, ranking Sudan at number 139 out of 174 countries and the Human Poverty Index 32.7%, ranking the country 53 among 88 developing countries.

At a glance there has been some improvement in the health indicators through the recent decades. However, this improvement is still below ambitions, and the child and maternal mortality rates, although seem better compared with the records of sub-Saharan countries, are still high. The MDGs indicators reveal considerable disparities between regions and between rural urban areas. The forecast of the health situation in the next decade based on evidence and what is achieved recently shows that Sudan has the opportunity to successfully reach the targets stated in the MDGs concerning health (three of these targets are directly concerned with the improvement of health status) Keeping in view other favorable conditions are provided (peace, economic improvement, political stability, etc).

Goal 1 of the MDG targets is to eradicate extreme poverty and hunger and specifically to halve between 1990 and 2015 the proportion of people suffering from hunger. Estimated prevalence of chronic malnutrition among under-5 children rose from 33% in 1993 to 36% in 2000, indicating that significant progress will be required to reach the MDG target. Similarly, the estimated prevalence of acute malnutrition increased during the same period from 13% to 16%.

Goal 4 of the MDG targets for 2015 child mortality to be reduced by two thirds. For under-5 mortality: survey data referring to time periods between 1975-99 and 1995-99 indicates that after declining from over 140 per 1,000 to around 100 in 1980s, progress was slower in the 1990s. By implementing proposed incremental changes, it may be possible to bring down infant mortality to around 50-55 per 1000 live births and mortality under 5-years to 80 –90 per 1000 live births by the year 2015. Therefore, there is a need to develop successive five-year strategic plans and then monitor processes outputs annually at state level and national level.

Goal 5 of the MDGs targets for 2015 improve maternal health and reduce by three quarter the ratio of women dying in childbirth. Extrapolating from historical experience, reduction of over 50% maternal mortality in about 10-12 years is realistic for Sudan i.e. from current level of 509 to 250 per 100, 000 live births (against MDG target of 140 per 100,000 live births). Combined with girl's education more impact could be achieved because of likely favourable change in family size, higher age of marriage, more number of current users of family services for child spacing and, etc as is evidenced from SMS findings.

The relevant stakeholders need to be oriented with Millennium Development Goal 5 so that future planning, programming and monitoring is done in line with MDG 5 and ICPD indicators or other appropriate indicators.

Goal 6 of the MDGs targets for 2015 to halt and begin to reverse the spread of HIV/AIDS and the incidence of Malaria, Tuberculosis and other major diseases:

Malaria: The target is to halt by 2015 and begin to reverse the incidence of malaria. With focus on monitoring the outputs and outcomes and fine tuning program plans in the light of lessons learnt, there is every likelihood that program would remain on track to meet the Millennium Development Goal 6. However, this is subject to the condition that program funding does not dry up if financing from GFATM is not available in future.

TB: The TB-DOTS program is likely to reach its goal of 70% case detection and 85% treatment by 2005. The programme has all the potentials to meet the Millennium Development Goal 6 relating to TB. However, detailed planning is required for low performing states in consultation with the state level stakeholders. In case funding from GFATM does not materialize, alternate funding arrangements would have to be made to meet the deficiencies, especially relating to extension of the program to cover additional populations. The GOS should give high priority to prevention and control of HIV/AIDS in the country, which has already reached to the level of generalized epidemic. HIV is causing TB epidemic to grow by 10% in African countries and Sudan would catch up with other African countries if action is further delayed. The PLWHA have about 7-10% of risk of becoming active TB patient every year and have a very high risk over lifetime.

HIV/AIDS: The number of HIV/AIDS cases is likely to increase much more rapidly without interventions. And with initiation of a comprehensive program, it is possible to slow down the upward trend of epidemic and halt the trend after 8-12 years. Neighbouring country, Uganda, took nearly 10 years to reverse the epidemic trend. Although epidemic level would be much higher than now, it is still possible with the proper political and financial commitment at central and states level, to meet MDG 6.

In general these estimates are subject to continuation of inputs in water supply and sanitation sector, and girl's education. Achievement of the target is also linked with the recent efforts in formulating poverty reduction strategy with allocation of poverty alleviation fund for development of social sectors, continuation of IMF led macroeconomic structural adjustment program, successful negotiation of peace efforts. Further, the relevant stakeholders need to be oriented with Millennium Development Goals so that future planning, programming and monitoring is done in line with indicators of the MDGs.

3. Vision-[12]

Building a nation of healthy individuals, families and communities, served by a health system that is equitable, accessible, affordable, efficient, technologically appropriate, environmentally appropriate and consumer friendly, with emphasis on quality, innovation, health promotion and in which the society participates actively.

Emphases would be put to reduce morbidity and mortality, and to focus on the poor, dwellers in areas of conflict, marginalized, vulnerable and high-risk groups.

More emphases would be put to improve policies supporting social, economic, environmental, developmental dimensions and to create an institutional environment for the health sector.

Mission:

The mission is to provide health care that will enhance the quality of life of all citizens, permit them to lead socially and economically productive life, provide them with health basic needs and reduce their suffering.

4. Organizational Values:

The following are the principles upon which the strategy is based:

- Comprehensive concept of health.
- Health-promotion and healthy public policy.
- Developmental approach to health
- Evidence-based policy and practice.
- Continuous quality improvement and client satisfaction.
- Accountability.
- Equity.
- Accessibility, affordability and appropriateness.
- Efficiency and effectiveness.
- Transparency.
- Intersectoral collaboration and partnership.
- Community participation and empowerment.
- Innovation.
- Environment friendly
- Human resources developing.
- Work values and ethics.
- Gender sensitivity.
- Teamwork.

5. Policy priorities for the Coming 25 years

- Provision of essential health care is a principal human right.
- Health for all will be achieved through a broadened primary health care concept that is accessible, focus on the poor and vulnerable, gender sensitive and environment friendly.
- Human resources development through well planned and managed programmes, with special emphases on community oriented training, professional values, ethics and leadership development.
- Goods with public health importance will be the responsibility of the government; this would include environmental health services, prevention of diseases, health promotion and quality assurance.
- Cost sharing in providing health care especially for curative services will continue, however, no body is to be denied health care because of economic, social or ethnic reasons. Social solidarity funds and health insurance should play an integral role in this respect.
- Encouraging more investments and participation of the private sector particularly in public health.
- Building partnership with UN agencies, NGOs, countries, regional and international banks and funds.
- Enhancing collaboration and coordination in health policies, researches, and health services provision with neighbouring countries.
- Collaboration with related sectors in promoting the provision of safe water supply, promotion of healthy environment and prevention of all kinds of pollution.

6. Health Priorities

System related priorities

- Improving health service coverage and accessibility and eliminating geographical and financial barriers.
- Capacity building and health system management.
- Health human resources development (policies, planning, production and management to ensure balanced and equitable distribution)
- Improving financing of health services and reducing the burden of direct out–of-pocket payment for health services.
- Research.

Disease related priorities

- Reducing high maternal and child mortality rates.
- Control of communicable diseases (e.g. Malaria, HIV/AIDS, Tuberculosis, Bilharziasis, etc)
- Promotion of healthy life styles and expanding public information.
- Environmental health services
- Accident, emergency and rescue services

7. Future strategic directions :[3]

General directions:

1. National health system has to be founded on solid policies, based on scientific and critical analysis of the situation.
2. Strategic plans with clear objectives, priorities, aims, targets and outcomes have to be set out.
3. Sustainable and equitable health care especially for the poor is to be provided with special consideration to financial, technical and administrative sustainability.
4. Building the capacity of federal, state and locality levels in policy formulation, priority setting, management and planning as well as development of health information and research capacities.

1. Primary Health Care is the key to achieving Health for All:

Primary health care should be considered as a method for providing sustainable quality health care to all. This could be promoted through the following approaches:

- Advocacy for the primary health care to attract political commitment to increase allocation of resources for health.
- Reforming health sector to match the broaden concept of health.
- Capacity building and improvement of management skills.
- Strengthening of intersectoral collaboration.
- Promotion of community participation.
- Introduction of quality improvement mechanisms
- Articulation of consistent rules and regulations for the private sector as well as policies for cost sharing.

2. Human Resources for Health:

- There should be a clear and effective policy for human resources based on situation analysis and taking into account the surrounding changes and health policies. This should be compiled in plans that ensure balance between need and supply.
- These policies should consider the need for educated trained health workforce who is able to meet the challenges of society need as well as new technologies.
- Training should be community-based, with structured continuing education programmes
- Redistribution of the health personnel to counter imbalances and development of retention policies to combat rural urban migration and brain drain.
- Setting of appropriate regulations and rules for employment and ethics.
- Curricula should be dynamic, updated and provide graduates with skills in critical thinking and ability to seek new information.

3. Response to emergencies/ health as a bridge for peace:

- Health should be used to enhance peace building and rehabilitation.

- Support should be given in ways that facilitate return to normal situation and long-standing development.

4. **Securing adequate and sustainable financing for health.**
   - Stress should be made on making financing and **pro-poor** system reforms and changes to increase allocations for health care, aiming at:
     - Resource reallocation to develop accessible systems of PHC supported by appropriate referral hospitals.
     - Concentration on diseases and conditions of the poor.
     - high quality and appropriate care
     - Cost containment, affordability and collective risk sharing.
   - Poor groups should be considered to receive government support and fee exemptions.

5. **Promotion and protection of a Healthy Environment as an integral component of sustainable Development:**
   - Providing adequate resources to ensure a supply of safe drinking water and pure air, safe food, proper elimination of waste products, prevention of chemical pollution and hazardous waste products and control of disease vectors.
   - Re-evaluation of financial, management and supervision responsibilities and health legislations to ensure conservation of healthy environment.
   - Attention should be paid to problems of drought; desertification, pollution and contamination e.g. air pollution, noise, and problems of medical waste products elimination, food industry, food safety and safety of work environment.

6. **Promotion of Healthy Lifestyles:**
   - Promotion of healthy life styles -including healthy diets, physical activity and avoiding alcoholic drinks, narcotics and tobacco use- oral health and injury prevention and prohibiting media from advertising unhealthy lifestyles and practices.

7. **Elimination, Eradication and Control of Disease:**
   - An integrated approach is required to reduce the burden of communicable diseases supported by promotion of nutrition, healthy life style and development of environment services.
   - Priority should be given to strengthening surveillance systems, development of early warning and forecasting systems and prevention, early detection and containment of epidemics.
   - More attention should be paid to ever-increasing non-communicable diseases that gain increasing importance resulting from demographic and lifestyle changes.

8. **Partnership and Collaboration for Health**
   - The government should create an environment conducive to partnership building between different levels and actors, to allow sharing of experience, resources and increasing commitment by all partners to achieve health gain.
   - It is essential to have good relations with different concerned partners in health with a win-win approach

8. Goals of the strategy:

Goal 1:
Combat HIV/AIDs, malaria, T.B. and other communicable diseases.

Goal 2:
To promote healthy life style and reduce the burden of non- communicable diseases

Goal 3:
To reduce child and maternal mortality

Goal 4:
To develop, manage, and organize health human resources to fulfil the health system requirement

Goal 5:
To develop an integrated model of health care provision that deliver high quality accessible services.

Goal 6:
To build the capacity of federal and state ministries of health to be able to implement the strategy

Goal 7:
To develop sound financial and pro-poor policies and systems that increase the allocation of resources for health to support the delivery of the strategic plan and optimize use of resources.

Goal 8:
To create an environment conducive to partnership building and promote the role of the private sector.

9. Objectives of the strategy

Goal 1. Combat HIV/aids, malaria, T.B. and other communicable diseases.

- To prevent further increase in the prevalence of Malaria, Tuberculosis, HIV/AIDS, Leishmanaises, Schistosomiases, Sleeping sickness and Oncocerciases and to reverse it gradually by 2015.
- To conform to the global initiatives to;
    - Eradicate poliomyelitis by 2007
    - Eradicate guinea worm by 2009
    - Elimination of measles by 2010
    - Elimination of lymphatic flariases by 2015
    - Elimination of leprosy by 2007

Goal 2 to promote healthy life style and reduce the burden of non-communicable diseases

- To increase early detection of targeted non-communicable diseases (CVD, hypertension, diabetes mellitus, cancer, accidents and injuries) by 80% by 2015.
- To raise community awareness towards healthy life styles by 90%, and promotes behaviour & practice change by 60% by 2027.

Goal 3 to reduce child and maternal mortality

- To reduce by half between 1999 and 2015, the infant mortality rate. (99 level is 68/1000 live births).
- To reduce by two thirds between 1999 and 2015, the under five mortality rate (99 level is 104/100,000 live deliveries).
- To reduce by three quarters between the year 1999 and 2015, the maternal mortality ratio (99 level is 509/100,000 live births).
- To reduce female circumcision in girls aged (5-10 years) by 50%.
- To reduce the incidence rate of PEM in under five children to < 5% by 2027.

Goal 4. To develop, manage, and organize health human resources to fulfil the health system requirement

- To have by 2015, at least 80% of the health facilities fully staffed by qualified health cadres according to the approved standards for health care.

Goal 5 to develop an integrated model of health care provision that deliver high quality accessible services.

- To accomplish a fully functioning decentralized health care system in all localities based on health area policy (including IMCI and CBI such as BDN) by the year 2010.
- To achieve equitable accessibility of more than 90% of the population to a minimum package of services addressing the leading causes of mortality and

morbidity and using the most cost effective strategies by 2027. The coverage indicators targeted are as follows:

- One basic health unit to every 5000 of the population.
- One health centre to 20000 of the population.
- One rural hospital to every 100- 250 thousands of the population in the rural areas and an urban hospital to cover 500000 of the population in the urban areas.

Goal 6 –To build the capacity of federal, state ministries of health and local health authorities to be able to implement the strategy

- To develop and strengthen management and quality improvement systems at federal and state levels by 2010.
- To ensure that staff with enhanced management role at all levels is equipped with the skills and knowledge for management, planning and leadership by 2007.
- To develop a health information system based on health area and to generalize it in all health areas by 2007.
- To increase the allocation for priority research problems to at least 2 % of the national health budget and create a critical mass of researchers at all levels by 2010.

Goal 7: To develop sound financial and pro-poor policies and systems that increase the allocation of resources for health to support the delivery of the strategic plan and optimize use of resources.

- To increase public expenditure on health to reach 15% of the public expenditure by 2027.
- To improve by 2007 the balance of budget allocation between urban/ rural areas & preventive/ curative services inline with the general health polices.

Goal 8: Creation of an environment conducive to partnership building and promotion of the role the private sector.

- To encourage private sector (for profit & not for profit) in contributing with 70% in providing health care and promote its collaboration with the public sectors by 2027.
- To collaborate with partners in other sectors to achieve health related goals:
  - Provision of safe water and improved waste management
  - Prevention and reduction of environmental pollution
  - Raising income of the poor
  - Reducing tobacco consumption,
  - Preventing road traffic accidents.

10. Strategies

Goal 1. Combat HIV/aids, malaria, T.B. and other communicable diseases.

Objectives	Strategies	Indicators
• To prevent further increase in the prevalence of Malaria, Tuberculosis, HIV/AIDS, Leishmanaises, Schistosomiases, Sleeping sickness and Oncocerciases and to reverse it gradually by 2015. •	• Rollback malaria strategy: o Early diagnosis and prompt treatment. o Multi-approach prevention, including selective vector-control and insecticides treated nets (ITN) o Establishing systems for proper forecasting, surveillance, early detection and rapid response o Building the capacity of Malaria control programmes at state and locality levels o Raising awareness among citizens. o Community mobilization. o Enhancing partnership and sectoral collaboration. o Enforcement of existing laws and regulations. o Conduction and support of applied research o Training of health personnel	• malaria cases and deaths • Proportion of population in malaria risk areas using ITNs. • Proportion of cases receiving appropriate treatment within 24 hours from start of fever. • Proportion of health facilities reporting no disruption of anti-malarial drugs supply within the last three months
	HIV/AIDS • Developing strategic plan in each State, based on epidemic and behavioural surveys and response analysis • Health education and awareness raising • Political commitment and partnership building • Community participation. • Training of health cadres • Development of live skills curricula • Providing clinical care and psycho-social counselling for HIV/AIDS patients	• HIV prevalence among 15-to-24-year-old pregnant women • Condom use rate of the contraceptive prevalence rate • consistent use of condoms with non regular partners • Number of children orphaned by HIV/AIDS • Percentage of persons having x % of standard knowledge or skill. • Percent of donated blood screened for HIV/AIDS and other blood borne infections. • Percentage of population seeking voluntary HIV

	• Disease surveillance. • Improving blood bank services and infection control programmes.	testing
	• DOTS strategy- Stop TB strategy: o Increasing coverage with quality diagnosis and treatment centres o Capacity building of federal and States TB control programmes o Strengthening of the surveillance system. o Strengthening of information systems and establishment of Electronic TB Record (TB REC) o Improving accessibility to TB drugs (free of charge) o Health education and Community participation o Strengthening Microscopic Network, o Applied research. o Training of health personnel	• Annual risk of infection • Proportion of tuberculosis cases detected and cured under directly observed treatment short course (DOTS) • Reduction of prevalence of the disease.
	Schistosomiasis • Adopting integrated control methods (mass treatment, training, vector control, disease surveillance & health education) • Capacity building of control programme at federal and state levels. • Community awareness and mobilization. • Updating health legislations. • Intersectoral collaboration. • Strengthening disease surveillance system. • Political commitment. • Inclusion of an element of health in all of the present & future agricultural schemes.	• Point prevalence rate
• To conform to the global initiatives to; o Eradicate poliomyelitis	•	•

by 2007 o Eradicate guinea worm by 2009 o Elimination of measles by 2010 o Elimination of lymphatic flariases by 2015 o Elimination of leprosy by 2007		

Goal 2 to promote healthy life style

Objectives	Strategies	Indicators
• To increase early detection of targeted non-communicable diseases (CVD, hypertension, diabetes mellitus, cancer, accidents and injuries) by 80% by 2015. • To raise community awareness towards healthy life styles by 90%, and promotes behaviour & practice change by 60% by 2027.	• provision of health promotion services at health area level & provision of specialized rehabilitative services at state level • Updating rules & regulations. • Targeting risk factors e.g. Smoking, pollution, and obesity in special programs • School health, oral health and health workplace programmes • Healthy cities • CBI • Inersectoral collaboration and building partnership • Disease burden surveys	• Prevalence of non communicable diseases • Percentage of persons having x % of standard knowledge or skill. • Tobacco use

Goal 3 to reduce child and maternal mortality and nutrition related problems

Objectives	Strategies	Indicators
Child health • To reduce by half between 1999 and 2015, the infant mortality rate. (99 level is 68/1000 live births). • To reduce by two thirds between 1999 and 2015, the under five mortality rate (99 level is 104/100,000 live deliveries).	• Implementing and expanding IMCI strategy • Improving coverage and accessibility to child health services. • Promotion of qualifications of health personnel and expansion of village based midwifery cadre. • Improving the setup of referral hospital for EmOC with improved and functional ambulance system. • Promotion of health awareness of families and communities • Strengthening of the ongoing immunization program and management of cold chain system • Neonatal mortality reduction through improvements in maternal nutrition, malaria prophylaxes for pregnant women, improve quality and access of ANC services, skilled birth attendants, improved referral of pregnancy complications and training of doctors from the rural hospitals in EmOC and neonatology. • Subsidy to the poor...	• Under-five mortality rate • Infant mortality rate • Percentage of children under one who are fully immunized • Proportion of 1-year-old children immunized against measles • Percent of health facilities implementing IMCI guidelines.
Reproductive health • To reduce by three quarters between the year 1999 and 2015, the maternal mortality ratio (99 level is 509/100,000 live births). • To reduce female circumcision in girls aged (5-10 years) by 50%.	• Safe motherhood strategy • Making pregnancy safer • Family planning	• Maternal mortality ratio • Proportion of births attended by skilled health personnel. • Percent of married women aged 15-49 who use or whose partner use modern contraceptive at a given time. • Percent of pregnant women attending at least 4 ANC visits /year • Percent of (one or two) tetanus immunization doses given to pregnant women/ year. • Percent of girls aged 5-10 who are circumcised. • Case fatality rate of Em.O. problems of not more than 1%/health facility

Objectives	Strategies	Indicators
		• Percent of expected complication (15% of all births) took place in E.O. unit.
Nutrition • To reduce the incidence rate of PEM in under five children to < 5% by 2027.	• Increase availability of drugs • Promotion of breast feeding, iodized salt, vitamin A supplementation. • Training of health workers in nutrition, • Reinforcement of growth promotion activities.	• Percent of children weighed /month. • Percent of children (weight for age) below 2 SD in defined age group. • Percent of children who are exclusively breast fed. • Percentage of children with nutritional blindness. • Incidence of thyroid goitre. • Percentage of children and pregnant women with haemoglobin below 10 gm. /dl.

Goal 4. To develop, manage, and organize health human resources to fulfil the health system requirement

Objectives	Strategies	Indicators
• To have by 2015, at least 80% of the health facilities fully staffed by qualified health cadres according to the approved standards for health care. •	• To develop a workforce policy and plans that identifies future staffing requirements and the associated resources to deliver them by 2005. • Strengthen planning and management systems of human resources for health. • To redistribute the health personnel within the public system and develop retention policies to counter geographical and rural/urban imbalances. • Introduction of upgraded training programmes: o To phase out the technical nursing education programme to be replaced by professional nursing educational programme. o To introduce BSc programme (post secondary) to graduate laboratory technicians, optometrists, anaesthesiologist, physiotherapists, nutrition assistants and public health officers. o To introduce 3 years post secondary schools diploma to graduate dental assistants, pharmacy assistants, psychiatry assistants and health statisticians and to meet the requirement by 2015 o To expand in MSc nursing programme, to meet the needs for teaching staff in nursing schools. o To introduce postgraduate diploma courses on community nursing, psychiatry, and care of emergencies. • Curricula development "Community oriented" • To develop a monitoring system of performance appraisal according to staff terms and conditions of service. • Distance learning • Research	▪ No. of (specific) health workers /10,000 of the population ▪ **Percent of nursing and allied health workers graduated according to Sudan Declaration.** ▪ Percent of staff having x % of standard knowledge or skill.

Goal 5 To develop an integrated model of health care provision that deliver high quality accessible services.

Objectives	Strategies	Indicators
• To accomplish a fully functioning decentralized health care system in all localities based on health area policy (including IMCI and CBI such as BDN) by the year 2010.	• Developing evidence based policy for health care reform and defining roles of different sectors. • Creating an environment conducive to private sector development supported by appropriate legislations. • Planning for the provision of hospital services including bed capacities at different levels and to define roles of different partners especially for tertiary care and highly specialized services. • Increasing political commitment to health care reform policy. • Conduction of applied researches	• Clearly organized roles and responsibilities of secondary and tertiary care (services and facilities) within the health sector. • Degree of decentralization. • % of health care services provided by private sector. • Percent of functioning community health committees.

• To achieve equitable accessibility of more than 90% of the population to a minimum package of services addressing the leading causes of mortality and morbidity and using the most cost effective strategies by 2027. The coverage indicators targeted are as follows:
  • One basic health unit to every 5000 of the population.
  • One health centre to 20000 of the population.
  • One rural hospital to every 100- 250 thousands of the population in the rural areas and an urban hospital to cover 500000 of the population in the urban areas.
○
	• Rehabilitation of existing health facilities
	• Construction of new health facilities.
	• Outsourcing to NGOs
	• Encouraging and contracting private sectors
	• Encouraging nongovernmental provision of health services in underserved areas.
	• Community involvement
	• Human resources development (integrated training)
	• Expansion of telecommunication facilities to increase the coverage through designing cost-effective models for teleHealth
		• Percent of population living with in 5 Km of health facility.
		• No of specific health structure / 10,000 of the population.
		• Percent of functioning health facilities.
		•

Goal 6 –To build the capacity of federal and state ministries of health to be able to implement the strategy

Objectives	Strategies	Indicators
To develop and strengthen management and quality improvement systems at federal and state levels by 2010.	• To undertake analysis of the functions and roles for all departments and sections in the organizational structure in line with stated polices, and to recruit suitable staff. • System development • Technical and logistic support • Training of human resources • develop a national policy on quality • development of standards and work guidelines • establishing auditing and accreditation systems	• Appropriateness of organization and management structures and systems • Percent of departments and health facilities with more than 80% of specific equipment. • Availability of maintenance funds and workshops. • Percent of functional hospital equipment. • Provider and patient's satisfaction. • Clinical practice audited against protocols.
To ensure that staff with enhanced management role at all levels is equipped with the skills and knowledge for management, planning and leadership by 2007.	• Training of human resources	• Degree of effective and competent leaders
To develop a health information system based on health area and to generalize it in all health areas by 2007.	• Revising and unifying the HIS (reporting, summarizing, sending, standards,…). • Rebuilding the HIS based on health area policy • Human resources development (basic and continuing education- curricula development) • Advocacy for data use among health care providers • Supportive supervision • Availing registration and reporting formats all levels • Exchange of experience. • Development of a computerized HIS databases for data analysis and transmission and promotion of GIS use	• Percent of reports produced / received at a given time.
• To increase the allocation for priority research problems to at least 2 % of the national health budget and create a critical mass of researchers at	• Strengthening of health research management system. • Partnership • priority setting	• Number of researchers in different areas • Number of research results disseminated / used • Evidence based health policies and plans.

Objectives	Strategies	Indicators
all levels by 2010.	• capacity buildings (training, setup, funds) • promotion of research ethics • promotion of use of research results for evidence based health policy, planning and practice.	

Goal 7: Develop sound financial management skills and systems to support the delivery of the strategic plan and optimize use of resources

Objectives	Strategies	Indicators
• To increase public expenditure on health to reach 15% of the public expenditure by 2027. • To improve by 2007 the balance of budget allocation between urban/ rural areas & preventive/ curative services inline with the general health polices.	• Financial policy development (investing in health) • Political commitment to raise funds and resources to health. • Building a system for health economics and national health accounts • Encourage investment in health and promote the concept of collaboration between public & other sectors. • improve revenue generating mechanisms through community financing, health insurance, "Wakf", "zakat" and solidarity funds, general taxes, public private partnership and investment in health • Community involvement and community empowerment (Sustainable development, CBI, BDN) • Human resources development (costing, budgeting, financial management,). • Researches.	• Actual percapita government expenditure/ locality/ year. • % of population covered with different types of insurance.

Goal 8:
Creation of an environment conducive to partnership building and promotion of the role the private sector.

Objectives	Strategies	Indicators

• To encourage private sector (for profit & not for profit) in contributing with 70% in providing HC. and promote its collaboration with the public sectors by 2027.
• To collaborate with partners in other sectors to achieve health related goals:
  • Provision of safe water and improved waste management
  • Prevention and reduction of environmental pollution
  • Raising income of the poor
  • Reducing tobacco consumption,
  • Preventing road traffic accidents.
	• Creating an environment conducive to private sector development supported by appropriate legislations
	• Contracting and outsourcing.
	• Advocacy
	• CBI
	• Healthy cities
	• Healthy public policies (tobacco consumption)
	• Community mobilization
		• Percapita expenditure on private health care

11. References

1. Sudan comprehensive National Strategy 1993-2002, health development strategy
2. world bank (2003) " Sudan stabilization and reconstruction-Country economic memorandum" available at http://www1.worldbank.org/wbiep/decentralization/africa/CEM%20Volume%20I.pdf
3. Health 21, Regional Health for All, policy and strategy for the 21st century. WHO regional office for the eastern Mediterranean region. EM/RC46/5, AUG 1999.
4. Sudan and UNICEF (2002) " Multiple Indicator Cluster Survey, 2000 Sudan – Final Report," Federal Ministry of Health and Central Bureau of statistics, Khartoum, available at http://www.childinfo.org/MICS2/newreport/sudan1/sudan1.htm
5. Sudan Central Bureau of Statistics (2001) "Sudan in Figures, 1988-2000," ministry of the Council of Ministers, Khartoum.
6. National Health Information Centre, (2003) "Annual Health statistical Report 2002," Federal Ministry of Health, Khartoum.
7. Sudan and UNFPA (2001) National Safe Motherhood Survey: Sudan, 1999, Khartoum.
8. Sudan Expanded Program on Immunization (2000) " Annual Report" Federal Ministry of Health, Khartoum
9. Sudan National AIDS Control Program (2002) "Situation Analysis: Behavioral & Epidemiological Surveys & Response Analysis, HIV/AIDS Strategic Planning Process." Federal Ministry of health, Khartoum.
10. Decaillet, F., Mullen, P. D., Guen, M., (2003) "Sudan Health Status Report – Draft Version 1," World Bank/AFTH3
11. Sudan National Malaria Control Programme (2001) "Short term Malaria control Strategic plan 200-2005," Federal Ministry of Health, Khartoum.
12. General programme of work 2002-2005, WHO, EB105/3
13. Promoting healthy lifestyles, WHO regional office for the eastern Mediterranean region. EM/RC50/5, August 2003
14. Health promotion department, Federal Ministry of health, Sudan (2002)" Vision and Strategic plan for health promotion- Sudan 2002-2007)
15. Omer, HS., et al., (2001) " PHC in-depth review in Sudan" Federal Ministry of health, Khartoum, available at www.sudanafia.org
16. Human resources Department, (2002) " Annual Report" Federal Ministry of Health, Khartoum
17. United Nations Statistics division- Millennium Indicators Database. Available at http://millenniumindicators.un.org/unsd/mi/mi_goals.asp.
18. Muhammad B.H. (2003) Review of millennium development goals for health, nutrition and population, July 2003, Sudan

Bibliography:

1. Ministry of Council of Ministers, the national council for strategic planning, Vision for the 25 years strategic plan 2003-2027, Sudan
2. Ministry of Council of Ministers, the national council for strategic planning, introduction to the 25 years strategic plan 2003-2027, Sudan
3. General outlines of the health development programmes of the sixth 5-year plan(2001-2005), Ministry of health, Sultanate of Oman
4. UAE, Health Policies and Strategies for the 21st century.

5. Bahrain Health Strategy, Framework for Action 2002-2010, Ministry of Health , Kingdom of Bahrain.
6. Department of health and children (2001) "Quality and fairness, A health system for you, health strategy"
7. United nations, common country assessment for the Sudan, final report, 1999.
8. Jeffrey D. Sacks, et al "Macro economics and health: investing in health for economic development -Report of the commission on macroeconomics and health" (2001)
9. Sudan National Malaria Control Programme (2003) "Progress Report 2002, Roll Back Malaria in Sudan: Achievment, Constraints and Challenges," , Federal Ministry of Health, Khartoum.
10. Programme on health systems and services organization and management, Pan American health organization (2000) "guidelines for the preparation of health system profiles for the countries of the region"
11. Health systems: improving performance, the world health report 200, WHO
12. Primary health care in-depth review- Sudan, 24 January- 24 February 1987, WHO regional office for the eastern Mediterranean region