بسم الله الرحمن الرحيم

The Republic of Sudan

National Health Sector Strategic Plan II (2012-16)

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Foreword

When I was approached by my colleagues to express inaugural notes for this strategy, I could not hide my feelings of great honor and gratitude as well as substantial challenge. This part of Sudan's quarter century (2007-2032) is critical and unique due to many reasons. It has been developed under serious global, regional and national issues. The epidemiology of diseases and health problems is dominated by Non-Communicable Diseases coupled by Communicable diseases and emerging diseases in most of the developing countries; the international cooperation is remarkably shifting towards efficient utilization of resources due to shrinkage in economic capacities, despite the continuously expanding initiatives; Sudan has experienced major changes in its political, geographical, demographic and economic landscape, most of the countries in the region are tracking through major political reforms. It is obvious that the development of this strategy was not an easy task; therefore, I would like to seize this opportunity to express my special appreciation and thanks for all participants from different institutions and organization.

Worth to be mentioned are the distinctive features of this strategy giving it more power and legitimacy as a unified framework through which all health programmes are expected to be executed. A wide participatory approach was adopted throughout the course of its development; to respond to its constitutional roles and responsibilities and guided by the global development framework; the Federal Ministry of Health involved all the stakeholders in the development process starting from situation analysis up to the endorsement workshop. The list included the line ministries, international development partners, states, localities, civil society organizations and academic institutions. More importantly is the joint assessment of the strategy undertaken by a multi-national international team of experts (JANS). The strategy has also been costed by using standard international tool to determine the resources needed, what is available from the variable potential sources and to identify the gaps which will need collaborative efforts to be addressed.

Challenged by the growing population needs and the pressing need to achieve the targets of the MDGs while depending on limited resources, the strategy has been guided by three directions. Horizontal and vertical expansion of primary health care services with focus on cost-effective interventions is globally recognized as effective and efficient approach to realize quick wins, thereby contributing to improvement of the health indicators. Enhancement of quality of services in the existing secondary and tertiary healthcare facilities boosted by good referral system will bridge the existing gap in the desired continuum of care. In view of the high vulnerability of the majority of Sudan's population segments, a crucial complementary element to these two directions is the financial risk protection.

Optimistically, I see the achievement of the objectives of this strategy is not impossible. The good partnerships should be strengthened at all levels to ensure sustainable ownership, alignment, harmonized implementation, management for results and mutual accountability. Being a signatory partner in IHP+, Sudan Federal Ministry of Health has been gearing partners' efforts towards these principles. A local compact which is expected to be signed in the near future will bring all health actors in Sudan to work under one framework; the Country Coordination Mechanism (CCM) and the National Council for Health Coordination will coordinate the efforts of international and national partners respectively.

Bahar Idriss Abugarda

The Federal Minister of Health

Sudan

Executive Summary

The Republic of Sudan's Health Sector Strategic Plan (HSSP) for 2012-2016 forms part of the national development plan and is the second five-year strategy in the current 25-year health plan period. This health strategy provides the overarching framework and direction for different players in the sector including programmes within the public health sector, the National Health Insurance Fund (NHIF), and state ministries of health (which have all developed their own five year strategies), as well as for other sectors and development partners.

The HSSP has been developed through a participative process involving national and state ministries, other key institutions and associations, national and international partners and civil society. It builds on extensive situation analysis and evidence from surveys and studies. It also included a comprehensive costing exercise to assess the feasibility of the plan.

The health context

The epidemiological profile of Sudan, typical of other Sub-Saharan African Countries, is dominated by malnutrition and communicable diseases, frequently aggravated by natural disasters (floods, heavy rains and droughts) as well as sustained internal conflicts. The main causes of morbidity and mortality are infectious and parasitic diseases, particularly malaria, tuberculosis, schistosomiasis, diarrheal diseases, acute respiratory infections and protein-energy malnutrition,

With changes in socio-economic and lifestyle conditions, non-communicable diseases (NCDs) are now emerging as a public health problem in Sudan. The priorities to address include hypertension, diabetes, heart disease, cancer, asthma, cataract and mental diseases.

Sudan has made progress towards the Millennium Development Goals (MDGs) with a reduction in child mortality by a third between 1990 and 2010, and reduction in the maternal mortality ratio by 60%. However recent trends suggest Sudan is unlikely to reach the MDG targets for child and maternal health by 2015. Another feature is the marked disparity between states in health status, for example, the infant mortality rate is 60 overall but ranges from 39 per 1,000 live births in Gezira state to 85 per 1,000 live births in Red Sea state[1]. The range is even wider for maternal mortality ratio, ranging from 106 per 100,000 Live births in Northern to 335 per 100,000 live births in South Darfur. These indicators demonstrate considerable inequity in health status across the country.

Overview of health system issues

This section summarizes some of the critical issues facing the health system. Further detail is available in the situation analysis and in the various programme and functional strategic plans.

The **health service delivery** system in Sudan includes a range of public providers and both not for profit and for profit private sector providers. The Federal Ministry of Health (FMOH) has a leading role in policy and stewardship while responsibility for delivery of public services is largely led by states and their localities and by other agencies including police and army health services and the National Health Insurance Fund (NHIF). In areas affected by conflict, Non-Governmental Organization (NGOs) have been playing a substantial role in service delivery. This has resulted in an uncoordinated patchwork of services, with gaps in some states and duplication in others. The high proportion of public funding and qualified health workers allocated to public hospitals and substantial costs of administration leaves less than 20% of public funds allocated to primary health care (PHC) services and public health programmes.

[1] Data from Sudan Household Health Survey 2010 (SHHS).

PHC services include community level, small family health units, larger family health centres and rural/locality hospitals, which report to the locality administration. Public health services (environmental, food safety, campaigns) are managed from the locality level as well. The distribution of PHC facilities is uneven across the country. The ratio of PHC facilities to population varies from 1:3,000 people in the Northern State to 1:21,000 people in South Darfur, compared to the planned 1:5,000 population. In six states i.e., five Darfur states and Red Sea, over 20% of the population lives more than 5 km from a health facility (HF). PHC services are variable, with only 24% of facilities offering services in all the main components of the PHC package (reproductive health, immunization, nutrition, prevention and treatment of common diseases and essential drugs).

Analysis of **health system financing** indicates that 65% of funding is from private sources, almost all out of pocket expenditure. Reliance on out of pocket spending for health care exposes individuals to financial risk and is likely to reduce access for the poor. Public funding has risen considerably in recent years and reached 9.8% of public expenditure in 2011. The allocation of public funding is very uneven across states once population is taken into account, ranging from below 10 SDG per person in South Darfur to almost 40 SDG per person in Red Sea state in 2008. The NHIF and other health insurance schemes (mainly for public sector staff) fund some 7% of all health spending while coverage of health insurance is around 37% of the population; this indicates that NHIF is only providing limited cover for the costs of health care. In addition payments are on a fee for service basis which does not encourage efficiency and cost control.

Health system governance is led by the Federal MOH with oversight from a multi-sectoral National Health Sector Coordination Council (NHSCC) chaired by the President and including state governors. This provides a mechanism for encouraging cross-sector coordination and addressing issues affecting the states. The FMOH leads on policy development and and oversees implementation of existing policies. Of critical importance for effective implementation of policies and strategic plans is the capacity of the states and lower levels. The country receives funding and other support for major health programmes and for specific geographic areas of the country. The Government is keen to move towards more alignment of external support and the use of government systems for channelling funds where possible, in line with the principle of aid effectiveness.

Health information in Sudan is primarily based on health facility reporting supplemented by surveys. The MOH hospitals generally report regularly but there are gaps in reporting from PHC facilities in many states and low coverage of other sectors including private providers. There are multiple systems and forms for data collection for different programmes. Data quality assurance is limited and systems for data management and analysis are largely manual. Annual statistical reports are produced at national and state levels but there is limited use of data at sub-national levels.

Human Resource for Health (HRH) is a critical component of service delivery. Issues facing Sudan include the relatively high number of medical doctors compared to nurses, midwives and paramedics, and the tendency of doctors to emigrate for better conditions or to work in urban areas and referral hospitals, leaving PHC and rural hospitals understaffed. States have established Academies of Health Sciences to redress this imbalance in the skill mix and further efforts are required to improve the distribution of health workers and to maintain their professional development. Community midwives have played an important role in Sudan in reaching remote populations and more recently programmes have established specialized community workers such as for malaria.

Medicines and technologies: basic equipment and services (including clean water and sanitation) are not available in a significant proportion of health facilities especially in poorer rural states. Medicines are a major share of the health expenditure by individuals (some 40%) and use of antibiotics is very high, at over 70% of prescribed medicines, which suggests serious over-use of these medicines. There is a single supply agency for the public sector but in practice there are multiple procurement and supply arrangements, including more than 15 different systems in the Federal MOH linked to different programmes.

Vision and Goals of the Sudan NHSSP

Vision: a nation with healthy individuals, families and communities where the health needs of the poor, underserved, disadvantaged and vulnerable populations are duly addressed, and that health is in all policies of the State.

Goal: Improved health status of the population of Sudan especially the poor, underserved, disadvantaged and vulnerable populations;

The key **health outcomes** for the NHSSP encompass the MDGs and beyond;

- Striving for the MDGs, particularly the goals for improving child and maternal health (MDG 4 & 5); improving nutritional status (MDG1); and reducing the impact of communicable diseases including HIV/AIDS, TB, malaria, (MDG6), and Neglected Tropical Diseases (NTD);
- Pursuing international commitments including polio and guinea worm eradication; and
- Initiating/scaling-up of prevention and control interventions for addressing NCDs.

To achieve the above health outcomes, the following **strategic objectives** have been identified:

1. Improved equity in access and utilization of health service;
2. Improved responsiveness and efficiency of the health system to the people's expectations and needs;

Strategic directions:

The strategic direction to achieve these goals is aligned to the directions in the 25 year health strategy and the 2007 health policy, and is aimed at achieving universal coverage with appropriate and affordable services. The strategic direction emphasizes:

a. **Strengthening PHC** by expanding the network and the range of services offered and reaching out to communities- with the aim of improving equity in access and adopting an integrated, high quality, people centreed approach;
b. **Strengthening referral care** by improving/ensuring the **quality and efficiency of hospital services**;
c. **Ensuring social protection** by increasing health insurance coverage, reducing reliance on out of pocket payments, and provision of universal minimum package.

a) Strengthening PHC coverage and quality

The uneven distribution of PHC services indicates the need for additional facilities and community level services in some poorly served states. In addition existing community and facility based PHC services will offer a fuller range of services in an integrated way. The minimum PHC package has been defined in greater detail for each level and will be adapted according to local health conditions and capacity. Quality of services will also be strengthened including through training and distribution of health workers, ensuring basic amenities at facilities and assuring reliable provision of medicines and supplies. Other public and environmental health programmes including promotion of sanitation and food safety will also be expanded.

b) Improving quality and efficiency of hospital services

For hospital care the focus is on improving quality and efficiency from the existing system. Key strategies include:

- Developing accreditation of public and private hospitals, continuing professional development of health workers and monitoring standards to assure quality of care
- Planning hospital provision across states and sectors to encourage sharing of specialist services between hospitals and states.

- Ensuring core services such as blood safety and laboratories are available to hospitals, while making the most of different providers in an area, whether private, MOH, police or others, rather than duplicating provision.
- Developing mechanisms that encourage efficient use of services such as strengthening referral arrangements, encouraging use of generic medicines, and avoiding unnecessary tests and treatments. This includes testing provider payment arrangements in health insurance that encourage appropriate referral and cost effective treatment.

c) Social protection with increased health insurance

During the strategic plan period the health insurance system and particularly the NHIF will develop and test new approaches and work towards an expanded role as a major funder of health care. The plans[2] include

- Increasing the numbers of people who are covered by health insurance, including reaching more poor and informal sector communities.
- Increasing the amount of funding that is channelled through health insurance, to ensure the financial viability of NHIF, increase the size of risk pools and give it more influence on service delivery and costs.
- Reducing the role of NHIF as a provider of health care so that it focuses in its role as a purchaser.

Achieving these outcomes will require the following **strategic interventions**;

i. **Improving equity** in resource allocation and service delivery: priority will be given in allocation of new facilities, funding and human resources to favour under-served states and PHC services
ii. **Improving efficiency**: including by integrating systems for drug supply, information and community services; by promoting rational use and cost effective procurement of medicines, and by improving aid effectiveness.
iii. **Strengthening the decentralized system** at all levels, including information systems, and building state and locality capacity for planning, management and accountability.

The strategic objectives and expected results are set out in the summary log-frame below (Box 1) which is aligned to the health system building blocks.

Box 1. NHSSP Log-frame summary

Goals and Strategic objectives	**Expected results**
Health goals	
Improve health status and outcomes, especially for poor, underserved, disadvantaged and vulnerable populations	Reduce infant mortality from 60 to 40 per 1,000 live births Reduce child mortality from 83 to 53 per 1,000 live births Reduce prevalence of moderate malnutrition (underweight) from 32% to 16%
	Reduce maternal mortality from 216 to 152 per 100,000 live births Increase skilled birth attendance from 73% to 90% of births
	Keep HIV prevalence among 16-24 year olds below 1%
	Reduce reliance on out of pocket spending for health from 64% to 50%.
Strategic objectives	
Governance: 1. To strengthen effective leadership, good governance and accountability of the health system in Sudan	(1.1) Policies, structures and regulatory framework enabling better health system performance developed
	(1.2) Improved harmonization and alignment of partners and other sectors' plans with national health priorities, vision and goals
	(1.3) Management, planning and accountability in the decentralized system strengthened

[2] See also NHIF Strategic Plan for 2012-2016

Information: 2. To develop a sustainable and integrated Health Information System (HIS), that provides comprehensive, quality health related information in support of evidence-based policy and planning at different system level	(2.1) Coordination of the HIS strengthened at national, States and local levels
	(2.2) Availability of integrated, accurate and complete health data from routine public and private facilities and other data sources increased
	(2.3) Data quality, management, dissemination and use of HIS products improved at all levels
	(2.4) Evidence generation and M&E capacity and system strengthened and institutionalized
Service delivery 3. To improve equitable coverage and accessibility of quality integrated primary health care.	(3.1) Management capacity of the decentralized system strengthened and efficiency improved
	(3.2) Equitable coverage with quality PHC package improved and health facilities infrastructure strengthened
4. To assure quality and improve efficiency of secondary and tertiary care	(4.1) Quality, safety and efficiency of secondary and tertiary referral services strengthened
	(4.2) Efficient referral, ambulance system and emergency medical care developed and implemented
Medicines and technologies 5. To improve equitable access to quality essential pharmaceuticals and health technologies.	(5.1) Quality and safe pharmaceuticals and health technologies were affordable, available and rationally used
	(5.2) Integrated and efficient supply and management system developed and implemented
Human Resources for Health 6. To develop a well-performing, stable and equitably distributed workforce with an appropriate mix of skills to meet agreed health sector needs	(6.1) HRH planning strengthened in support of providing health services required professions
	(6.2) Systems ensuring more equitable distribution of health workers - especially doctors and nurses are developed
	(6.3) HRH management systems, including individual performance systems, are improved
	(6.4) HRH production - education and training- improved in line with health service needs
	(6.5) HRH functions and capacities of the decentralized levels are strengthened
Health Financing 7. To ensure that the health system financing is sustainable, efficient and equitable and provides social protection to the people	(7.1) Adequate and equitable allocation of financial resources for health is assured
	(7.2) Reduced inefficiencies in resources utilizations and health system financing
	(7.3) Building a social protection system with risk sharing and cross subsidies mechanisms

Costing and financing

The costing of the strategy has focused on the expansion of coverage with primary health care and other key programmes for health improvement, and assumed these will largely be funded by the public sector, including by social health insurance mechanisms (mainly NHIF). Private expenditure is assumed to finance other care and services for people not reached by the public sector.

The costing is based on detailed estimates of the costs of delivering the planned services and health system strengthening activities, with expected staffing levels and realistic estimates of coverage. The preliminary estimate of costs is SDG 5.9 billion in 2012, rising to 9.1 billion in 2016. This estimate is in constant prices (no allowance for inflation); the rise in costs over the period reflects both increasing coverage and increasing population size, with a modest expansion in PHC infrastructure. These figures include an estimate for costs of other MOH services beyond the essential package. This comes to 230 SDG by 2016 (US$ 42 at current exchange rates) per capita – close to total per capita health expenditure in 2008 (which was 232 SDG). A smaller essential package, without secondary and tertiary curative care and with lower coverage for some NCD services, is estimated to cost 137 SDG ($25) per capita.

The estimated financing available for health is estimated based on Government of Sudan macro-economic projections as SDG 11.3 billion in 2012 rising to 13.1 billion by 2016. Of this some 2.9 billion SDG is estimated as public sector expenditure on health by 2016. Taking a more pessimistic view of funding by using IMF estimates for GDP growth provides a total potential health expenditure of SDG 10.9 bn by 2016 of which 2.3 bn SDG would come from public expenditure.

The costing of services is higher than the public funding available. This is to be expected as some of the costs will be borne from non-Government sources – including donor funding, households paying fees for public services, and households and employers funding private sector health services. Further analysis is planned on the costs and financing scenarios.

If growth is slower then there will need to be modification to the targets and activities. If funding is insufficient to implement the full package in PHC and other planned developments, then the priority will be to work towards universal coverage but with a smaller package of services. In addition, targets for other components of the plan will be reduced and implementation slowed down until funds become available.

Implementation arrangements

The existing structures for governance and management of the health sector will be used for implementation. These include the cross-sectoral National Health Coordination Council (NHCC), the Country Coordination Mechanism (CCM), and the Ministerial Health Council. At an operational level, health plans will be implemented by relevant FMOH departments and programmes, State MOHs and partners. Programmes will adjust to the same five year planning cycle as the rest of the national development plans.

The Federal MOH will establish a coordination structure to monitor and coordinate implementation, building on past experience of managing programmes. The "one plan-one budget-one report" mechanism will be introduced in an effort to enhance collaboration among programmes, ensure harmonization and alignment to national health priorities, and enhance efficiency of implementation of the strategy. To this effect, the Local Compact – adaptation of the Global IHP+ Initiatives, would serve as important tool to maximize collaboration among programmes and promote an integrated approach to attaining the desired strategic objectives. The Federal MOH will support and guide States to develop annual operational plans to guide implementation of the national strategy.

In the special context of the Darfur Region, an early recovery strategy has been designed which will gradually restore service provision and develop the capacity and plans for service expansion. The

private sector may be encouraged or contracted to deliver services in some contexts, including in post conflict areas where NGOs have the capacity to provide services.

In order to improve equity in resource allocation, a funding formula has been developed that takes into account the level of poverty and population size of states. Some funds and resources such as medicines and funds for PHC expansion can be allocated from central level, and can be allocated to the neediest states and to enable quality in PHC. The mechanism for influencing state expenditure on health is under development (as states currently decide how much to spend on health and within that on PHC).

Capacity development of the decentralized system is a key component of the strategic plan. This will include management training, support from national level, development of policies and systems that support sub-national levels. Technical assistance will be requested from multi-lateral partners, where necessary, for policy and capacity development.

The FMOH has wide experience in managing donor-funded programmes that provide financial support to states and that report performance and account for funds to international (World Bank) standards. This sort of project implementation arrangement will be developed for the HSSP with the objective of having an integrated programme implementation unit for this purpose.

Monitoring and evaluation of the strategy

Monitoring of the strategy will include quarterly monitoring of progress in implementation of annual operational plans and annual reviews, at state and national levels. Each component of the NHSSP (including each building block of the health system, and each disease programme) will have a detailed operational plan and indicators for monitoring progress against planned activities and outputs. Programmes, departments and state MOHs will collaborate in the monitoring process.

The annual reviews will be a joint exercise involving key partners and institutions as well as states. The purpose of the joint annual review will be to review progress against the strategic outcomes and to learn lessons from the past and use this to inform subsequent year's plans and resource allocation. A more comprehensive mid-term review will take place in 2015 both to review progress and to provide a basis for developing the next five year strategy. An evaluation of the NHSSP will be conducted at the end of the strategy period in 2017.

In preparation for the Joint Annual Review (JAR), an analytical report will be prepared that identifies progress and issues. A focal point will be appointed in the FMOH to plan for the JAR and will work with a multi-partner team that has strong analytic skills to plan for the JAR and prepare the Annual Performance Assessment Report.

A set of indicators (about 45 core indicators) have been selected for monitoring progress of the strategy as a whole. These indicators will be stratified by state and analyzed in order to look at progress and equity and identify needs for remedial action. When possible there will also be equity analysis by gender and socio-economic group (or other target groups). The data for the indicators will mostly come from routine health information systems, which are being strengthened as part of the strategy. Some of the evaluation indicators require household survey data and the priority survey will be the Sudan Household Health Survey (SHHS) in 2014.

Acronyms

ACT	Artemisinin-based Combination Therapy
ADB	African Development Bank
AFRO	Africa Regional Office (WHO)
AHS	Academy of Health Sciences
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal care
ANHP	Annual National Health Plan
ARI	Acute Respiratory Infection
ART	Antiretroviral Therapy
ARV	Anti-retroviral (drug)
CBS	Central Bureau of Statistics
CCM	Country Coordination Mechanism
CHW	Community Health Worker
CMAM	Community-based Management of Acute Malnutrition
CPA	Comprehensive Peace Agreement
CPD	Continuing Professional Development
CSO	Civil Society Organization
CSR	Communicable Disease Control and Response
DHSDP	Decentralized Health System Development Project
DOTS	Directly Observed Treatment (of TB) Short-course
DP	Development Partner
EHA	Emergency and Humanitarian Action
EmOC	Emergency Obstetrics Care
EmONC	Emergency Obstetrics and Neonatal Care
EMRO	Eastern Mediterranean Regional Office
EPI	Expanded Program on Immunization
FBO	Faith-Based Organization
FGM	Female Genital Mutilation
FHU	Family Health Unit
FMOH	Federal Ministry of Health
GAVI	Global Alliance for Vaccines and Immunizations
GAVI/HSS	Global Alliance for Vaccines and Immunizations/ Health Systems Strengthening
GDP/GNP	Gross Domestic/National Product
GF	Global Fund
GFATM	Global Fund to Fight AIDS, TB and Malaria
HCT	Humanitarian Country Team
HED	Health Economic Directorate
HbB	Hepatitis B
HF	Health Facility
HIC	Health Information Centre
HIS	Health Information System
HIV	Human Immune Deficiency virus
HMIS	Health Management Information System
HRH	Human Resources for Health
HSS	Health Systems Strengthening
ICT	Information and Communication Technology
IDB	International Development Bank
IHP+	International Health Partnership
IHR	International Health Regulations
IMCI	Integrated Management of Childhood Illnesses
INN	International Non-proprietary Name
IVM	Integrated Vector Management

JAR	Joint Annual Review
KAP	Knowledge, Attitude and Practice
LB	Live Birth
MARPs	Most-At-Risk Populations
MDGs	Millennium Development Goals
MDTF	Multi Donor Trust Fund
MDR	Maternal Death Review
M&E	Monitoring and Evaluation
MMR	Maternal Mortality Ratio
MOF	Ministry of Finance
NBHS	National Bureau of Health Statistics
NCD	Non Communicable Diseases
NCHS	National Center for Health Statistics
NGO	Non-Governmental Organization
NHA	National Health Accounts
NHIC	National Health information Centre
NHIF	National Health Insurance Fund
NHRHO	National Human Resources for Health Observatory
NHSCC	National Health Sector Coordination Council
NHSSP	National Health Sector Strategic Plan
NMPB	National Medicines and Poisons Board
NTP	National Tuberculosis Program
PETS	Performance Evaluation and Tracking System
PHC	Primary Health Care
PHCU	Primary Health Care Unit
PHEIC	Public Health Emergency with International Concern
PHI	Public Health Institute
PITC	Provider Initiated Testing and Counselling
PLWHA	People Living With AIDS
PMTCT	Prevention of Mother to Child Transmission
SDG	Sudanese Pounds (Geneh)
SDH	Social Determinants of Health
SHA	State Health Accounts
SHHS	Sudan Household Health Survey
SMOH	State Ministry of Health
SNAP	Sudan National AIDS Program
STEPS	Stepwise Surveillance (of NCD Risk Factors)
STI	Sexually Transmitted Infections
TB	Tuberculosis
TBMU	Tuberculosis Management Unit
TFR	Total Fertility Rate
U5MR	Under-Five Mortality Rate
UNFPA	United Nation Population Fund
UNICEF	United Nations Children's Fund
US$	United States Dollar
USD	US Dollar
VBD	Vector borne disease
VCT	Voluntary Counselling and Testing (for HIV)
VMW	Village Midwife
WB	World Bank
WHO	World Health Organization

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Part 1: Overview

The National Health Sector Strategic Plan (NHSSP 2012-16) has been developed as part of the government's national development plan, through a participatory approach involving different stakeholders.

The strategy builds on the gains of the preceding NHSSP 2007-11 and the country's progress towards achieving MDGs. Although many challenges remain, as would be seen in the relevant sections, considerable achievements and successes have been gained, for example:

- Improved orientation at the Federal Ministry of Health (FMOH) level towards its governing and policy development role and its transformation from service delivery at some levels to strategic development.
- Progress in reducing child and maternal mortality.
- Decreasing the burden of disease, especially measles, polio and malaria.
- Improvement in evidence g e.g. completion of two rounds of Sudan Household Health Survey (2006 and 2010), The National Health Accounts (2008) and The Health Facility Survey (The investment plan) (2010).
- Improvement of capacity at federal and state levels and progress in human resource development by the establishment of the Public Health Institute, Academy of Health Sciences, and training in Leadership and Management, among others.
- Enhanced responses to emergencies and disasters at federal and state levels in terms of formulating policy and guidelines, HR development, availability of buffer stocks, rapid response teams and improving disaster information systems.

The different tenets comprising this strategic plan are guided by the National Constitution (2005), the National Health Policy (2007), 25 Year National Strategic Plan for Health (2003-27) and relevant legislations related to health. The NHSSP shares the following values and principles:

1.1. Values and principles:

- **Universal coverage:** Access by the population to quality health services, with freedom to choose the best of the public and the private sector, protected by prepayment schemes from financial hardship.

- **Rights based:** As laid down in the National Constitution, health is the social right of every citizen, and the health system is responsive to the needs and rights of the population.

- **Solidarity:** As witnessed by everyone contributing to the health system according to their capacity

- **Equity** in the availability and access to health care by all citizens, irrespective of their age, gender, residence, race or religion.

- **Quality** in health care, assuring clinical governance, patient centred approach and client satisfaction.

- **Efficiency** in utilizing resources for improved health system performance.

- **Primary health care based**, with integrated health services and efficient first referral care support.

- **Inter-sectorial approach**, involving all the sectors allied to health, social affairs (e.g. health insurance), education, labour and other partners in addressing the social determinants of health.

- **Participation** is a fundamental tenet for sustainable health services required over the life span of men and women.

- **Evidence informed policy development, decision making and planning**

1.2. The vision

A nation with healthy individuals, families and communities where the health needs of the poor, underserved, disadvantaged and vulnerable populations receive due attention and that health is in all policies of the State.

1.3. Goal and Objectives:

Within this broad vision, the health goals emanate from the health challenges facing the country and Sudan's existing commitments. These include continued efforts to work towards the MDGs relating to health, that is;

- MDG 1: Eradicate extreme poverty and hunger focusing on target 2; Prevalence of underweight among children under five years of age
- MDG 4: Reduce child mortality (Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate)
- MDG 5: Improve maternal health – Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio)
- MDG 6: Combat HIV/AIDS, malaria and other diseases (Have halted by 2015, and begun to reverse, the incidence of malaria and other major diseases and the spread of HIV/AIDS)
- MDG 8: Develop a Global Partnership for Development

In addition, Sudan has committed to other international goals and will continue to pursue these, including polio eradication, roll back malaria, measles elimination and guinea worm eradication.

With the growing importance of non-communicable diseases (NCDs), the period covered by the new strategic plan will also be used to develop and implement affordable and sustainable approaches to reducing the burden of these diseases.

To fulfil the above commitments, the objectives of **t**his national health sector strategy for 2012-16 are set to move towards universal coverage of health care for the population. This will be achieved by:

- Prioritizing expansion and promoting equity in utilization of PHC services, with a minimum package designed to address the health goals above. This will involve making the PHC minimum package more widely available, affordable and ensuring the required skills and supplies are in place. Integration of services and support systems such as information and training will be required to make efficient use of resources.
- For hospital care the focus will be on improving quality and efficiency of the existing system.
- Health financing reforms are needed to reduce reliance on out of pocket payments.

In order to attain the priority health goals, the following objectives are set in line with each element of the health system are as follows;

1) To build effective leadership, good governance and accountability across the health system;
2) To develop an integrated and sustainable Health Information System, that provides comprehensive and quality health related information in support of evidence-based policy and planning at different levels;
3) To promote equitable coverage and accessibility of quality integrated primary health care;
4) To ensure provision of quality secondary and tertiary care services;
5) To improve equitable access to quality essential pharmaceuticals and health technologies;

6) To develop a motivated, stable and equitably distributed workforce with an appropriate mix of skills to meet agreed health sector needs; and
7) To establish effective health system financing that is sustainable, efficient and equitable, and provides social protection to the people

1.4. Planning process

The planning process, led by the FMOH, was inclusive and comprehensive. Stakeholders from different national and international partners in health development were brought together (including State Ministries of Health, Health Insurance, Army Medical Corporation, Police Medical Corporation, UN agencies, other donor agencies, and the Private Sector, national and international NGOs and civil society). These were organized into different committees and technical working groups to facilitate development of the plan. Numerous meetings were held to conduct the situation analysis by the Technical Working Groups, later consolidated by the Drafting Committee and overseen by the Steering Committee.

Alongside the situation analysis exercise, several other activities were implemented to feed into the national plan i.e. Federal Technical Supporting Teams were nominated to follow on the States strategic plans and assist in the planning exercise at state level and as a consequence the contents of the plan builds on the needs and priorities of the States. Other activities included: Evaluation of the previous National Health Sector Strategic Plan (NHSSP) 2007-2011 and a Partners Forum organized by the FMOH in collaboration with WHO Country Office, to share the process for the development of NHSSP, 2012-16 and invite health partners to engage in this exercise as well as contribute to the technical working groups. Several workshops were held for priority setting, development of hierarchy of objectives and log frame matrix as well as a Pre-JANS Mission to seek advice on the process and contents of the strategy. Technical Assistance was availed to assist with costing, developing the monitoring and evaluation component and finalization of the plan (*Detailed process in Annex 1).*

The planning process was also used as a platform for exploring additional sources of funding to the strategy by engaging non -traditional donors taking into consideration the political context of the country. Accordingly, equal emphasis will be given to the bilateral and multilaterals donors with the traditional donors. The draft compact for aid effectiveness has been developed by a joint FMOH/partners committee, shared and discussed with, DPs with more focus on Gulf states, China, Turkey, S. Korea and other friendly courtiers in addition to multilateral - GFATM, GAVI, ADB, IDB and UN agencies. In order to enhance domestic resources, Ministry of Finance (MOF) will sign the compact and will renew the government commitment to increase the contribution to 15% (Abuja declaration).

The private sector contributes significantly to the overall health of the population of Sudan. However, although their representative has participated partially, the private sector was poorly engaged in the development of the strategy. Hence, in cognizance of the limited participation of the private sector and some NGOs/CSOs (partly due to lack of organization, limited technical capacity etc.,.), the FMOH will take all the necessary actions to ensure the meaningful engagement of all stakeholders in the remaining steps towards the development of inclusive plan of action with shared responsibilities for the implementation of the strategy. FMOH will ensure their representation in different coordination forums.

As part of the evidence informed approach this document referred to many relevant studies such as Sudan household health survey (2010), national health accounts (2008), household health services utilization (2008), household knowledge attitude and practice (KAP) on health (2008), mapping of primary/secondary care health facilities (2010) etc. In addition, a host of national and international literature contributed to the development of this plan.

The strategy document was presented to the CCM- an important step- to align and assure Complementarity between NHSSP and GFATM and GAVI**.** The current approach is to ensure the harmonization and consistency between different strategies and plans e.g. implementation plan has been developed for TB/HSS GFATM to ensure consistency and links of different interventions with the NHSSP and disease specific strategies. This has been developed by CCM TB and HSS sub-committees and endorsed by CCM.

1.5. Document layout

This document explores the national priorities and identifies the challenges and opportunities available for health system development. Strategic directions are subsequently presented in a logical framework. The document outlines implementation arrangements, including the financing mechanisms and accountability framework. Mechanisms for monitoring and evaluation are also established based on clearly defined indicators.

Part 2: Country Context

Since the last strategic plan (2007-11), Sudan has seen many developments. A national census was conducted in 2008 to update the country's population data. The secession of South Sudan following the 2011 referendum has changed the geographical boundaries, population size and political landscape of Sudan. This section describes the country context in terms of geography, demography, economy, socio-cultural and political landscape.

2.1 Geography and ecology

With land area of 1.8 million square kilometers, traversed by the Nile and its tributaries, Sudan shares borders with Southern Sudan, Central African Republic, Chad, Libya, Egypt, Eritrea and Ethiopia. It has access to the Red Sea with 853 kilometers long coastline. Its terrain is generally flat, with mountains in northeast and west, while desert dominates the north.

Figure 1: Map of Sudan

Sudan's climate ranges between tropical in the south and arid desert to the north. The rainy season varies by region from April to November. With dust storms and periodic episodes of droughts and flooding, the country faces soil erosion and desertification, as well as inadequate supplies of potable water. Its geography and ecology contributes to the prevailing health, nutrition and population situation. Vast geographic areas, coupled with inadequate road and transport infrastructure affect coverage and accessibility of health services.

2.2 Demography

With an annual growth rate of 2.8% the total population as projected from 2008 census is about 33, 419,625 people. Of the total population 88% are settled, including 32.7% in urban areas, while 8% are nomads. Almost 6.9% of the population is internally displaced. Natural disasters, civil conflicts and poor conditions in rural areas, have been contributing to displacement of populations and increasing urbanization.

The average household size is 5–6 persons, while fertility rate is at 5.7 per woman. Crude birth rate is 31.2 and crude death rate is 16.7 per 1,000 people (17.2 males, 16.3 females). 45.6% of the population is younger than 15 years including 16.4% under 5 years. Over 50% is in the age group 15-64 years, and 3.9% are 60 years and above[3]. Life expectancy at birth is 59 years (58 years for males and 61 years for females). About 83 out of every 1000 children do not live to see their fifth birthday.[4]

2.3 Economic situation

Sudan is rich in natural resources, including oil, mineral, agriculture and animal resources. Its economy, with the export of crude oil in 1999, boomed due to increases in oil production, high oil prices, and significant inflows of foreign direct investment. Despite sanctions and additional safeguard policies of the west, it was one of the world's fastest growing economies until the second half of 2008 scoring an average annual growth rate in the range of 5-7% till 2010[5]. The gross domestic product (GDP) grew from US$ 9.9 billion in 1980 to US$ 66 billion in 2010. The Oil Sector has been the driving force behind growth while the services and utilities sector has come to play an increasingly important role. Agriculture remained important in the economy as it employs 80% of the work force and contributes one third of GDP.

The economic growth has however promoted mainly the urban and main cities, leading to the increasing disparities between rural and urban areas as well as between States. Poverty remains widespread with 46.5%[1] of the population living below the poverty line according to the national definition of poverty (3.8 SDG per person/a day). Those who are most affected by poverty are the rural dwellers, particularly women and internally displaced people.

The Human Development Index of Sudan is low and scored (0.408) in 2011 ranking 169 out of 179 countries on human development index[6] as compared to 0.403 and 0.406 in 2009 and 2010, respectively.

Sudan reached an oil production level of about 520,000 barrels per day (83,000 m3/d) in 2011. However, with the secession of the South from the mother country Sudan to form an independent state of South Sudan in July 2011, 75% of the oil production was taken by the new nation. Since 2011 Sudan is producing 115,000 barrels per day. This has significant impact on the government revenues

[3] Sudan Population Census, 2008, Central Bureau of Statistics Khartoum
[4] SHHS2
[5] World Bank and Ministry of Finance data
[6] Human Development Report, 2011, Human Development Index, United Nations Development Program, 2011

as oil was contributing to about 30% of the national budget. Further, this will impact the near future economic forecast and the fiscal space and the resources available for social services including health. The best scenario shows that the annual economic growth will decrease from 5-6% annual growth rate before 2011 to about 3% in 2013. The table below shows the projected economic scenario during the life time of the strategy (2012-2016)[7].

Table 1: Economic projections for Sudan, 2011-2016

Economic Indicators	2011	2012	2013	2014	2015	2016
Population	33.2	34.10	35.00	35.90	36.80	37.70
Population Growth Rate	2.65	2.64	2.57	2.51	2.45	2.40
GDP current prices Billion (SDG)		228.6	270.8	318.25	367.6	420.8
GDP growth rate %		2.00	3.00	4.00	5.00	6.00
Inflation Rate %		17	15	13	10	8
Average Exchange rate (USD/ SDG)		3.00	3.10	3.20	3.30	3.40
GDP (Billion USD)		76.20	87.40	99.50	111.40	123.80
Per capita GDP (Nominal) USD		2,233.50	2,497.30	2,772.60	3,029.30	3,282.90

2.4 Political landscape

Sudan comprises of 17 States each divided into localities, making up a total of 184[8]. Sudan with its multiparty system is a federated republic with powers devolved to States under Federal System Act (1999). Accordingly, legislative and organizational arrangements may vary from state to state.

The President is elected through a popular vote. A Council of Ministers appointed by the President runs the state business and are responsible to the elected National Assembly. The country has a bicameral National Legislature consisting of a 50-seat Council of States, indirectly elected by state legislatures to serve six-year term. Additional 450-seats' National Assembly, with 60% of members directly elected from geographic constituencies, 25% from women's list, and 15% from party lists serve six-year terms. Each state is headed by a Governor, elected through a popular vote. The Governor appoints the state cabinet, which is responsible to the directly elected state legislature. Likewise, each locality has an elected local council.

2.5 Emergency context

The main anticipated threats to public health in Sudan are natural disasters, conflicts and epidemics. Natural disasters like floods have adverse effects on many States. About 18% of the population is highly affected every year during the rainy season (June-September). Also, drought comprises a real hazard in certain States like West & South Darfur affecting about 10% of the population. Some parts of the country are affected by the heat waves while others are affected by dust storms (central part), earthquakes and landslides.

The armed conflict in Darfur started in 2003. It has severely affected the income of local communities and resulted in many deaths and injuries. Furthermore, the instability has led to huge displacement and refugee movement with total displacement of 2.7 million people (50% of which are children). The recent signature of DOHA Document for Peace in Darfur (DDPD) (2011) has helped the government

[7] - Ministry of Finance and Central Bureau of Statistics (Sudan Macroeconomic Framework), 2011.
[8] FMOH. Mapping of PHC services in Sudan 2010

and partners to shift efforts towards early recovery and development. Other areas of conflict in Sudan include Blue Nile and South Kordofan States.

Epidemics constitute another threat to health and wellbeing of the population. Meningitis is the most common epidemic in Sudan as the country is within the "meningitis belt". Haemorrhagic fevers, such as Yellow Fever and Dengue fever are becoming a real hazard especially in the eastern part of the country. Frequent outbreaks of diarrheal diseases and some vaccine preventable diseases like measles are occasionally observed in some parts of the country.

The FMOH is a member of a national civil defence council, which is composed of Ministries of interior, health, media, and other relevant ministries, and is cascaded to the level of states and localities. Accordingly, the Emergency and Humanitarian Action Department (EHA) was established late in 2003 within the FMOH to take on the responsibility for health emergency management (preparedness, risk reduction, mitigation & response). The department is responsible for managing health emergencies resulting from the different hazards in Sudan in coordination and collaboration with governmental and non-governmental partners. The emphasis of emergency work has been mainly limited to response activities with minimal attention to mitigation and risk reduction. Recently, however, more attention has been given to early preparedness especially for the emergencies anticipated during the rainy season.

The country has developed a policy on emergency and disaster prevention and mitigation. To this effect, the EHA has developed standards for intervention at state and locality levels, and guidelines for collaboration with relevant international centres within and outside the country. Systems for risk assessment, information and forecasting are in place. In this regard, the EHA has also conducted some vulnerability assessment studies and trained three batches of emergency managers at Masters level who are deployed to emergency prone states. Such training will continue with the aim of assigning emergency focal person to all emergency prone localities.

Despite the multiple disasters the country has encountered, the existing arrangements have helped to reduce the consequences of multiple man-made and natural disasters, such as on-going civil conflicts, floods, etc.

2.6 Socio- cultural scene

Sudan is a multicultural society with hundreds of ethnic and tribal groups and languages with Arabic being the official language in the country. A large majority of the population are Muslims. Overall, the adult literacy rate in Sudan is 69%, and 45.2% among women age 15-24 years. The primary education enrolment is 46%, and 82.2% of the cohort entering primary school completed primary school education. Sixty one percent of the population has access to improved drinking water source, while 27% enjoy improved sanitation.[9]

[9] SHHS2

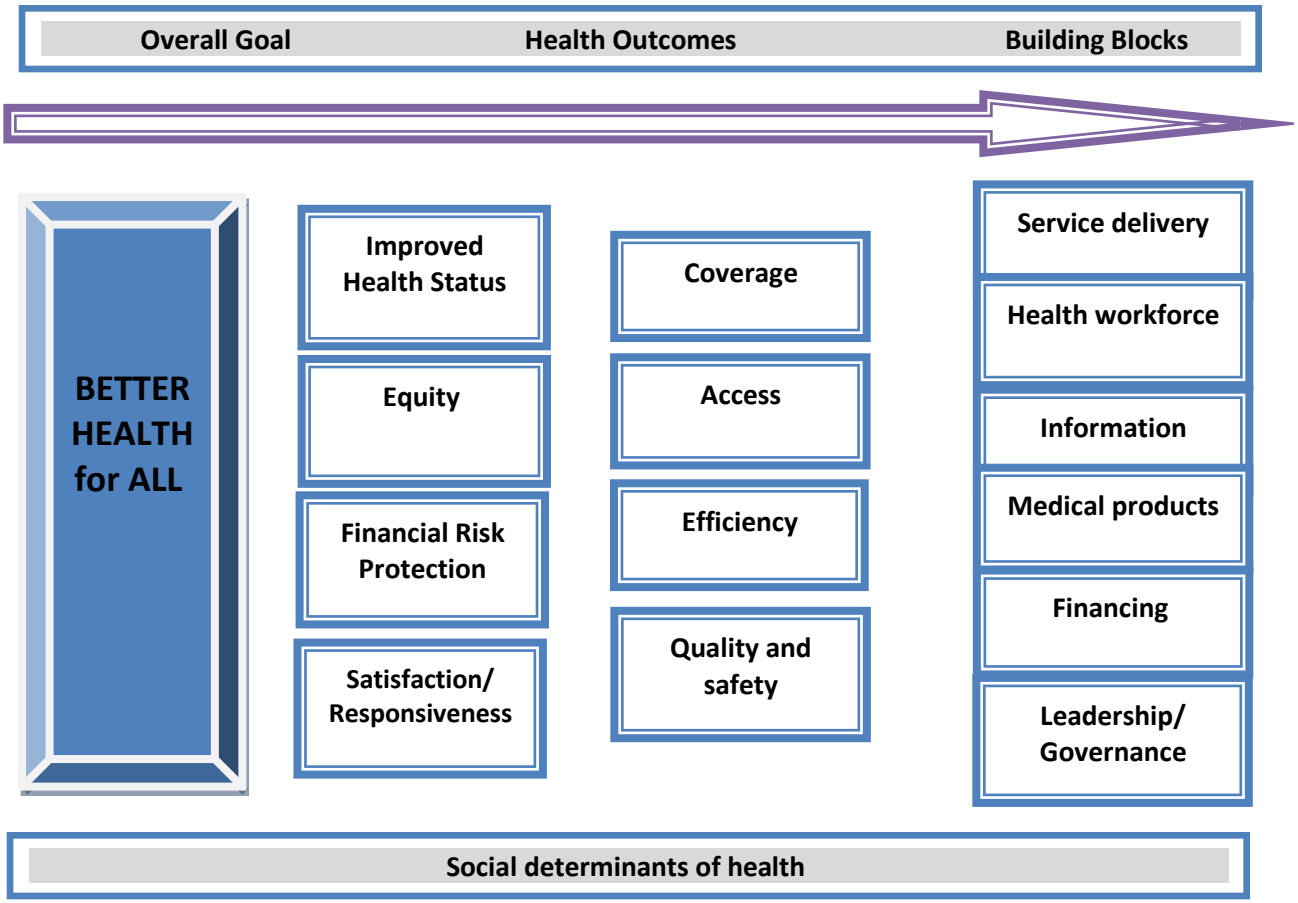
Part 3: Situation Analysis: Sudan Health System

This section presents an assessment of the current health situation in terms of the burden of major diseases, progress towards MDGs, as well as related challenges using a modified version of the WHO Building Blocks Framework.

The WHO framework describes health systems in terms of six core components or "building blocks": (i) service delivery, (ii) health workforce, (iii) health information systems, (iv) access to essential medicines, (v) financing, and (vi) leadership/governance (see Figure 2).

The SA elaborated on the cross cutting role of social determinants of health and equity across the health system building blocks and their interaction to the various health related outputs and health outcomes. Accordingly, the health system was explored from results perspectives including; health impact, health outcomes, desired outputs and system building blocks as depicted in the below diagram

Figure 2. Conceptual Framework for Situation Analysis (Adapted from WHO Health System Building Blocks)



3.1 Health Outcomes

3.1.1 Health status and progress towards MDGs

The epidemiological profile of Sudan, typical of other Sub-Saharan African Countries, is dominated by malnutrition and communicable diseases frequently aggravated by natural disasters (floods, heavy rains and droughts) as well as sustained internal conflicts. The main causes of morbidity and mortality

are infectious and parasitic diseases, particularly malaria, tuberculosis, Schistosomiasis, diarrheal diseases, acute respiratory infections (ARIs) and protein-energy malnutrition, all of which limit Sudan's efforts to attain the MDGs.

Life expectancy at birth in Sudan is 59 years (58 years for males and to 61 for females). With changes in socio-economic and lifestyle conditions, non-communicable diseases (hypertension, diabetes, heart disease, cancer, asthma, cataract and mental illnesses) are now emerging as a public health problem.

Even though some progress has been made, the Sudan Household Health Survey (SHHS, 2010) revealed that inequality in health outcomes, principally due to issues of access to health services is among the major challenges facing progress towards the MDGs as seen in the table below.

Table 2: Sudan's progress on selected MDGs

MDGs	Indicators	Baseline in 1990	Current status (2012)	Reference Year	MDGs 2015 Target
MDG 1	Proportion of the population below the national poverty line	90% (1992)	46.5%	2009	23.2%
	Prevalence of underweight in children under 5 years of age	NA	32.2%	2010	16%
MDG 4	Infant Mortality Rate	80	60	2010	40
	Under 5 mortality rate	123	83	2010	53
MDG 5	Maternal Mortality	537	216	2010	134
MDG 6	HIV prevalence among population aged 15-24 years	1.6 (2002)	0.67% (0.5%M, 1.2% F)	2009	< 1%
	Proportion of children under 5 sleeping under insecticide-treated bed nets	7.8% (2005)	16.1%	2009	90%
	Incidence, and death rates associated with tuberculosis	1.8% unknown	1.2% 2.2%	2007	1.2% Less than 3%

Source: Sudan Millennium Development Goals Progress Report 2010
Sudan Household Health Survey, 2010

Child Health:

Despite the improvements in child health, available estimates of childhood mortality in Sudan are relatively high when compared to other countries with similar socio-economic and cultural status. The infant mortality rate is estimated at 60 per 1000 live births and more than half of these are neonatal deaths (34/1000 live births) occurring during the first month of life (SHHS, 2010). Mortality rate in less than 5 years is estimated at 83 per 1,000 live births. Survey data for under-5 mortality, referring to time periods between 1975-99 and 1995-99, indicate that after declining from over 140 per 1,000 to around 100 in 1980s, progress was slower in the 1990s until it finally stood at 83 per 1,000 LB in 2010.

There are marked disparities in child health indicators between States, across the Sudan. This is reflected in the infant and under-5 mortality rates for the year 2010, in the tables below[10].

10 This and subsequent graphs only show 15 States because data was analysed before the creation of the latest 2 States (Central and middle Darfour)

Infant Mortality Rate:

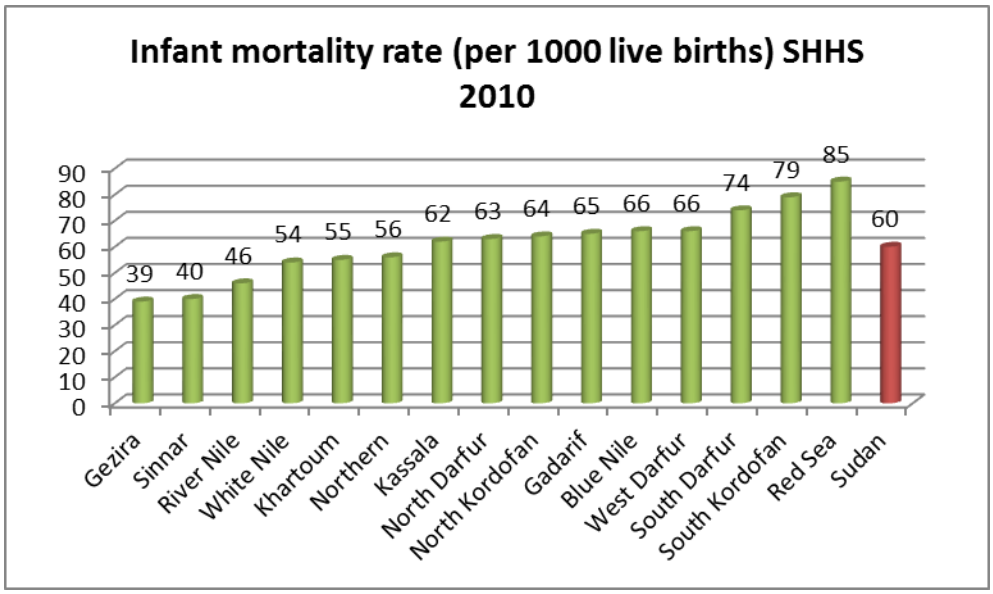


Figure 3. Infant Mortality Rate by State (Source: SHHS 2010)

The figure shows that nearly 85 and 79 children out of 1000 die before reaching the first year of life in Red Sea and South Kordofan States, respectively. In contrast, Al Gaziera, Sinnar and River Nile States show comparatively lower infant mortality rates (SHHS Report, 2010).

Under 5 mortality rate:

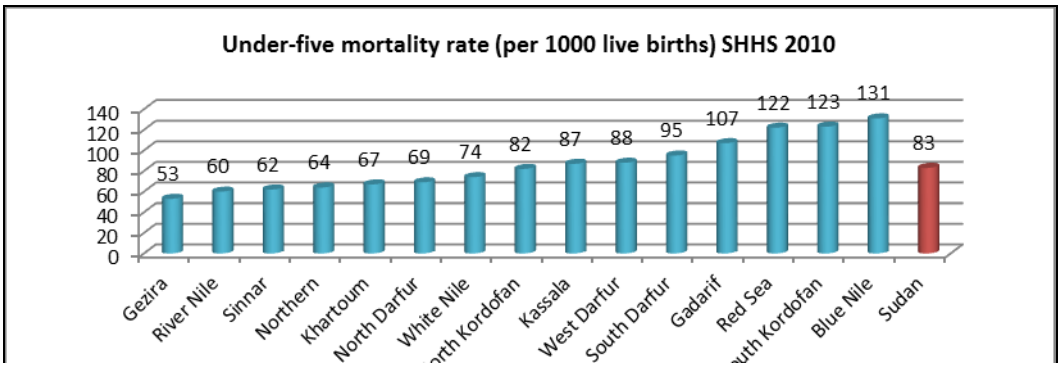
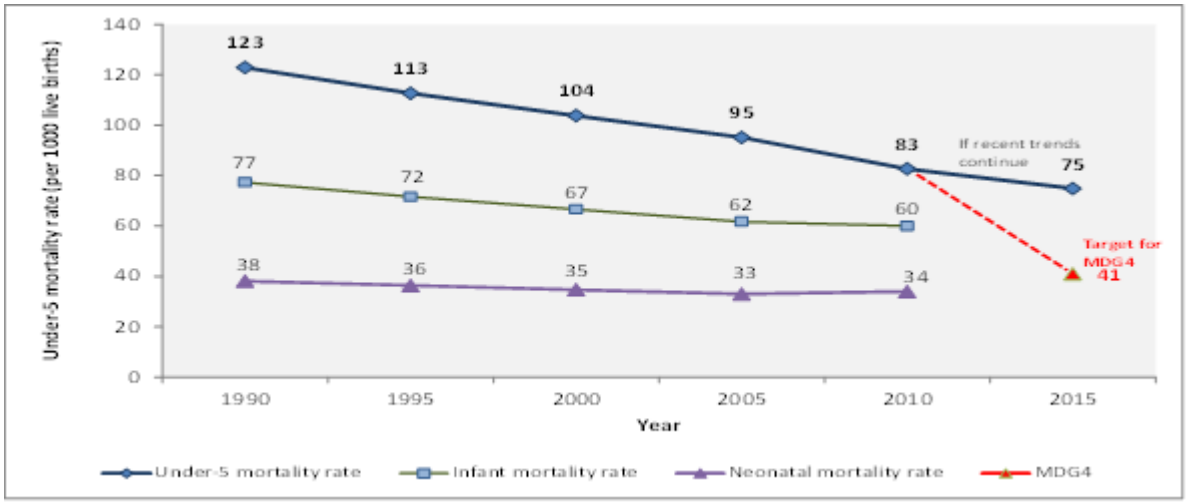


Figure 4. Under 5 mortality rate by state (Source, SHHS 2010)

The above figure shows that the highest rate of under-five mortality is observed in Blue Nile State, followed by South Kordofan and Red Sea, while Gaziera and River Nile States show the lowest rates (SHHS, 2010).

The proportion of child deaths that occurs in the neonatal period (38% in 2000) is increasing, and the Millennium Development Goal for child survival cannot be met without substantial reductions in

neonatal mortality. There has been a significant decrease in the under-5 mortality rate (U5MR) in Sudan over the years. U5MR declined by 33% between 1990 and 2010). The neonatal mortality rate has declined by only 11% in the same. .



Source: calculated based on data from UN Inter-agency group for child mortality estimation (IGME)- Levels & Trends in Child Mortality, Report 2012- WHO / UNICEF / World Bank/ UNPD and independent experts.
Data for 2010 values and trends up to 2015 are provisional and adjusted data from SHHS, Sudan 2010

Maternal Health:

The national figure for maternal mortality ratio (MMR) is estimated at 216 deaths per 100,000 live births reflecting an observed enormous decline from the 1990 estimates of 537 deaths per 100, 000 live births. Measuring trend in MMR in Sudan is constrained by the limited comparability of different data sources for MM estimates; surveys conducted since 1990 followed different methodologies and have diverse geographical coverage.

The current national figure, provided by the 2010 SHHS using the direct method of measuring MMR, reveals the wide disparities and inequalities that exist between states (Figure below).

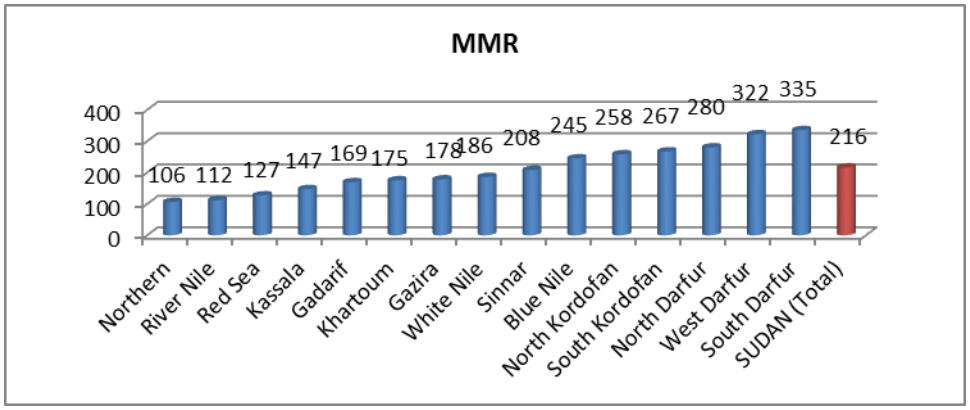


Figure 5. Maternal mortality ratio (Source: SHHS 2010)

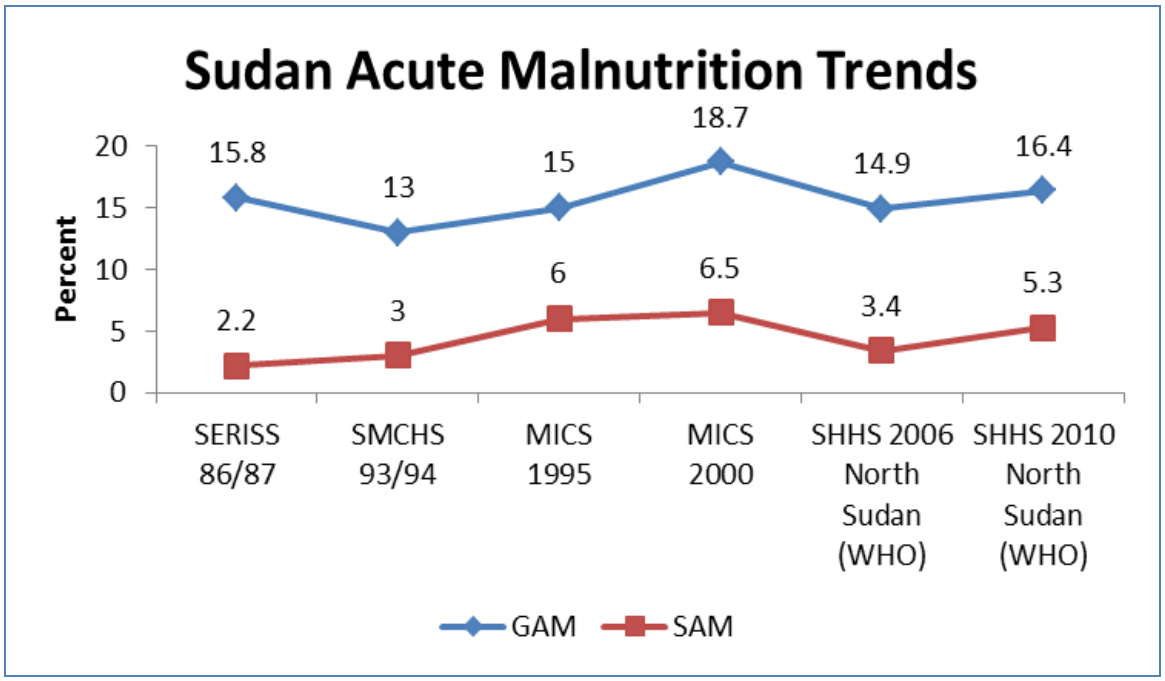
The MMR was higher in rural areas (225 per 100,000 live births) than in urban areas (194 per 100,000 live births). It is lowest in Northern State (106 per 100,000 live births) followed by River Nile (112 per 100,000 live births) and is highest in South Darfur State (335 per 100,000 live births). Six of the 15 States have MMR that is higher than the national average of 216 per 100,000 live births. With the exception of North Kordofan all of them are in conflict-affected areas.

3.1.2 Burden of Disease

According to the Annual Statistical Report 2010, the most frequent causes of outpatient visit are malaria (12%), diseases of respiratory system (8%), pneumonia (8%), diarrhea and gastroenteritis (5%), acute tonsillitis (4%), disorders of urinary tract (4%), essential hypertension (3%), injuries (3%), diabetes (3%), disorders of eye (2%). The current TB burden of 8-11% puts Sudan among most affected countries in the region with over 25,000 cases of all forms of TB.

Causes of morbidity and mortality in children under-five

According to FMOH annual statistical reports, pneumonia, malaria, diarrhea and malnutrition are the major causes of under-five illness and hospital admission. The SHHS 2010 showed that 25% of children aged 5 to 59 months had diarrhea, while 18% were sick due to suspected pneumonia in the last two weeks prior to the survey. The Annual Health Statistics for 2009 and 2010 reflect that malaria constitutes a major cause of deaths among children under five (17%), and accounts for 16% of all outpatient visits and 30% of all hospital admissions among this vulnerable group. Nutrition is an area of major concern in Sudan. Protein energy malnutrition and micronutrient deficiencies (the most common being iodine, iron and vitamin A) remain major problems among under-five children. According to SHHS, 2010, 32.2% of children under five were underweight with 12.6%, 15.7% and 5.3% suffering from severe underweight, stunting and wasting, respectively. Comparison of child malnutrition rates for Sudan and other African countries shows that Sudan has lagged behind over the last decade (FMOH and World Bank Development Indicators). The figure below demonstrates the trend of malnutrition over the last three decades.



GAM: Global Acute Malnutrition; SAM: Severe Acute Malnutrition;
MICS: Multiple Indicator Cluster Survey; SMCHS: Sudan Maternal and Child Health Survey

Figure 6. Acute malnutrition trends in Sudan 1986-2010.

Given the slow decline and marked disparities in basic indicators of child health, Sudan is unlikely to achieve its MDG targets unless major changes are made to bring down infant mortality to around 40

per 1000 live births, mortality of neonates to around 27 per 1000 and mortality of children age under 5-years to 50-60 per 1000 live births by the year 2015.

Regarding polio certification, endemic virus had been eradicated since 2001 but importation had occurred in 2004/5 and again in 2008 and 2009. The Certification document was accepted by the Regional Certification Commission (RCC) in October 2010.

Causes of neonatal mortality

In Sudan, while 42% of under-5 deaths occur in the neonatal period, most of these neonatal deaths (58%) occur in the post-neonatal period, Globally, the main direct causes of neonatal death are estimated to be preterm birth (28%), severe infections (26%), and asphyxia (23%). Neonatal tetanus accounts for a smaller proportion of deaths (7%), but is easily preventable. Low birth weight is an important indirect cause of death. Maternal complications in labour carry a high risk of neonatal death, and poverty is strongly associated with an increased risk.

Causes of maternal mortality

According to SHHS (2010), Sudan has demonstrated a 60% decrease in maternal mortality per 100,000 live births over the past two decades- from 537 in 1990 to 216 in 2010. The graph below demonstrates the main causes of maternal mortality in Sudan.

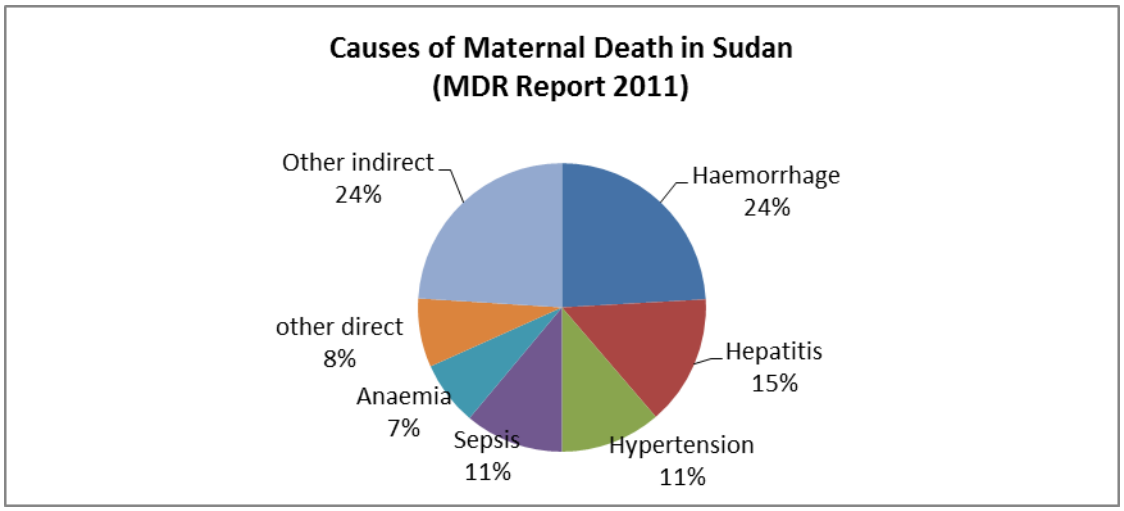


Figure 7. Causes of maternal death in Sudan (Source: Maternal Death Review Report 2011).

Complications of pregnancy and childbirth such as Obstetric fistula and other reproductive health issues like Female Genital Mutilation (FGM) and early marriage further contribute to the morbidity of many women in Sudan. Overall 65.5% women and girls in Sudan had undergone FGM, with an estimated 34.6% in under 10 year olds compared to 72% in adolescents age 10 to 14 year, and more than 80% among those 15 years and older. With 14% of women age 20 to 24 having live birth before the age of 18 years, early marriage puts young mothers at an increased risk of maternal mortality.

Communicable diseases:

Malaria

Malaria is the most challenging public health problem in Sudan. Based on climate and epidemiological models, it is estimated that 75% of the population (24 millions) are at risk of malaria,

while 25% are at risk of malaria epidemics. The annual incidence is 7,430 per 100,000 population and case fatality rate is 3.6 per 100,000 population.

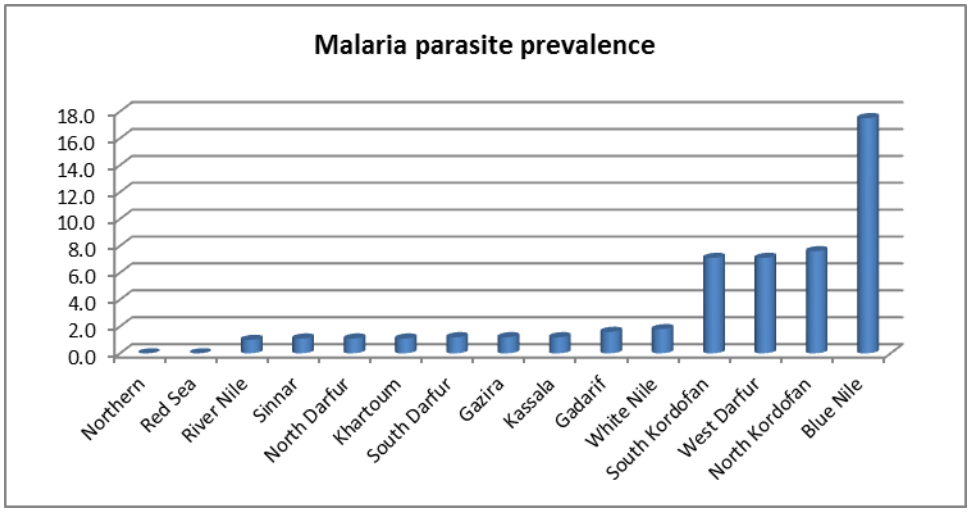


Fig 8: Malaria parasite prevalence (Source: Malaria indicator Survey 2009)

The malaria parasite prevalence is generally low in most States. It is highest in four of the 15 states- Blue Nile, North and South Kordofan and West Darfur States and lowest in Northern and Red Sea States reaching almost zero.

The malaria related MDG target is to halt by 2015 and begin to reverse the incidence of malaria. During the period 2005–2009 malaria prevalence dropped from 3.7% to 1.8%, while reported cases were reduced from 7.5 million (in 1990) to 2.3 million (in 2009). With focus on monitoring the outputs and outcomes, tuning plans for the National Malaria Program and continuity of donor support, there is every likelihood that the program would remain on track to meet the corresponding MDG target[11].

Tuberculosis

The current TB burden of puts Sudan among most affected countries with over 25,000 cases of all forms of TB among a population of 33.5 million. The annual incidence of all forms of TB is estimated at 120 per 100,000 population, with a case detection rate of 59.6%, and treatment success rate of 81.8 % among the detected cases. As indicated in the figure below, seven of Sudan's 15 States account for 80.6% of total TB case notification.

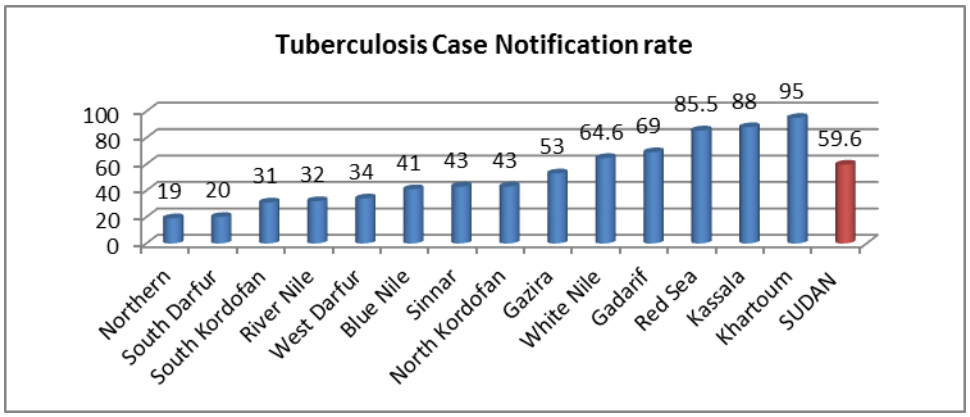


Fig 9. Tuberculosis Case Notification rate (Source: NTP annual report, 2010)

[11] Country Status Report

The annual risk of infection is estimated at 1.8%, one of the highest in Africa, with 46.8 percent smear-positive cases (43% new smear positive and 7% retreatment cases). Pulmonary cases represented 80.6% (55.4% smear positive, 36.8% smear negative) and extra pulmonary disease constituted 19.4% of total cases. Males accounted for the larger proportion of new smear-positive cases during 2008 and 2009 (62.5% and 63.2%) although it is not certain whether this was due to inaccessibility of available services to women. TB prevalence survey has been initiated towards the end of 2012 with the aim of determining the prevalence of bacteriologically confirmed pulmonary TB among the adult population which will help to generate more reliable data for Sudan.

HIV/ AIDS

HIV prevalence among the general population is estimated at 0.67%, while it is relatively higher among high risk groups or most at risk populations (female sex workers 4.4%, men having sex with men 9.3% and refugees 4%) with a considerable variation in prevalence rates across different states as indicated in the figure below. Around 5,107 children under the age of 14 years are living with HIV, out of which 2,981 are in need of Anti-retroviral drug (ARV). An estimated 22,609 children and adolescents under the age of 17 are orphaned by AIDS.

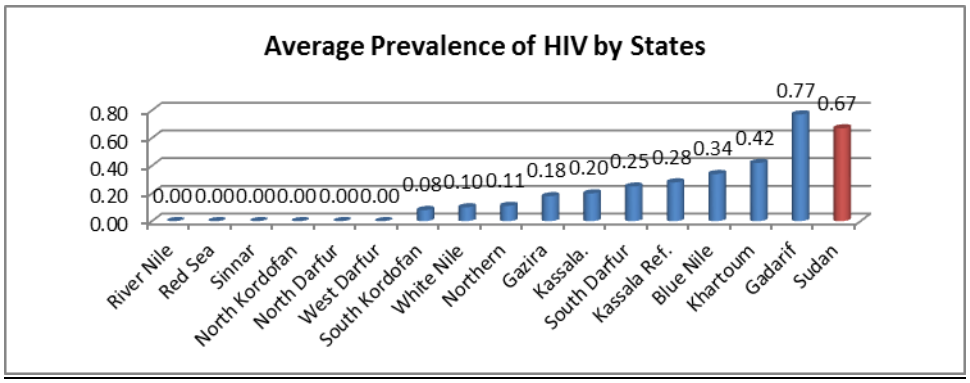


Figure 10. HIV prevalence in Sudan (Source: HIV National Sentinel Sero-surveillance Report, 2009)

The prevalence of HIV is higher in Eastern part of Sudan, namely; Kassala (Refugees) and Gadarif, as well as Khartoum and Blue Nile States. West and North Darfur, North Kordofan, Sinnar, Red sea and River Nile states have almost zero prevalence.

HIV is contributing to an increase in the TB epidemic 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% higher risk of becoming active TB patient every year and have a very high risk over lifetime.

Other Communicable Diseases

Visceral leishmaniasis (VL, kala-azar) is endemic in Sudan and has been reported since 1904. The main endemic area is in the eastern part of the country (Gadarif State). It has also been reported in other five States namely; Sinnar, White Nile, Blue Nile, North and South Darfur. The yearly disease burden in Sudan is estimated at 6,000 - 9,000.[12] Successive outbreaks occurred during the last few years leading to mortalities. Recent surveys reported Schistosomiasis prevalence ranging from 3.5%-70% in States, with foci of more than 90% prevalence rate.

Vector borne disease outbreaks that re-emerged in recent years, such as Yellow Fever and other haemorrhagic fevers, raise the importance of sufficient preparedness and response. There are frequent outbreaks of meningococcal meningitis, acute watery diarrhea and dengue fever, added to the whole range of endemic tropical diseases. Problems caused by inter-tribal, regional and cross-border

conflicts, drought, flood and infectious diseases (malaria, tuberculosis, schistosomaisis, diarrheal diseases, and acute respiratory infections) are the major causes of preventable morbidity and mortality, especially among the young and the poor segment of the population in Sudan.

With regards to Guinea worm, there are no new reported cases since 2010, and the program is in pre-certification phase for eradication.

Measles incidence in 2010 was 19/100,000 population with frequent outbreaks in most States. The escalating trend of measles among under-five children since 2010 was obviously associated with delayed implementation of follow-up campaigns.

Non Communicable Diseases

The transition of burden of disease from predominantly communicable diseases to non-communicable diseases has been remarkably noted worldwide and Sudan is not an exception. This is due to a variety of life style, socio-economic and behaviour related problems such as smoking, high sugar, salt and dietary fat intake, and a sedentary lifestyle. In 2010, non-communicable diseases and injuries accounted for 10% of the outpatient hospital visits and 19.2% of the total mortality. Cancer was the fourth leading cause of death in Sudan according to the annual statistical report of 2008 and is on the rise due to multiple factors. Breast and cervical cancers represent the main types contributing 34.5% and 14.3%, respectively.

Diabetes Mellitus represents the ninth leading cause of hospital admission in the Sudan, contributing by1.9%. The number of patients has doubled between 1997 and 2000, with a prevalence of 3.4% (men 3.5 %, women 3.4 %) and average attributed death of 5.9% in the same period. The prevalence of blindness in Sudan is estimated to be at 1.5% with cataracts being responsible for 60% of all blindness. Tobacco use, on its part, is contributing to the transition to NCD as showed in a recent assessment. In late 2001, 25% of Sudanese men, 2% of women and 20% of school students were using different types of tobacco products.

In 2005 Sudan conducted a population based survey of non-communicable disease risk factors in Khartoum State using the WHO Stepwise Surveillance methodology (WHO STEPS). The findings revealed widespread prevalence of risk factors among the adult population (age 20+) in Khartoum.

Table 3. Prevalence of NCD risk factors among adults (age 20+) in Khartoum 2005.

NCD risk factor	Male (%)	Female (%)	Both sexes (%)
Raised blood pressure: Systolic blood pressure ≥ 140 mmHg or diastolic blood pressure ≥ 90 mmHg or anti-hypertensive medication in adults 25-64 years	24.8	22.7	23.6
Overweight or obesity: Body-mass-index ≥ 25 kg/m²	41.4	62.5	53.9
Obesity: Body-mass-index ≥ 30 kg/m²	11.7	30.7	22.9
Raised fasting blood glucose: Blood glucose ≥ 7 mmo/L or on medication	8.6	8.1	8.3
Raised total cholesterol: Total Cholesterol ≥ 5.2 mmol/L	19.6	19.9	19.8
Current daily smoking (at the time of survey): Percentage who currently smoke tobacco daily	24.7	2.9	12.0
Low levels of physical activity: Physical activity less than 600 MET* minutes/week	75.9	94.8	86.8

* MET = Metabolic Energy Equivalent;

3.1.3 Financial risk protection

Analysis of health system financing indicates that 65% of funding is from private sources, almost all of which is out-of-pocket expenditure. About 42% of the per capita out-of-pocket health expenditure is spent at the primary health care level. Provided the fact that most PHC services are expected to be provided free of charge, this shows that financing PHC services constitutes a cause of family financial burden. The National Health Insurance Fund (NHIF) and other health insurance schemes (mainly for public sector employees) finance some 7% of all health spending while coverage of health insurance is around 37% of the population. This indicates that NHIF is only providing limited cover for the costs of health care. In addition, payments are on a "fee for service" basis which does not encourage efficiency and cost control.

Several measures are being implemented in order to improve access to health services by addressing financial barrier. These measures include risk pooling mechanisms, based on prepayment schemes, and "free-of-charge" health services initiative, for targeted groups and services. The insured people are mainly government employees, the uniformed forces and their families. The uninsured have to pay for the cost of their treatment. They may benefit from the free-of-charge health services initiatives or get support from the charitable funds such as Zakat Fund. However, these safety nets and measures are believed to be insufficient, inequitable and inefficient; either due to the limited type of services or the level or type of care covered. The lengthy bureaucratic procedures in the case of the charitable funds also contribute to this inefficiency of coverage.

3.1.4 Responsiveness to population needs

There are some indications that prescribing and treatment practices may not always be optimal. In a recent survey by Witter et al (2011), considerable variation was found in clinical and prescribing practices, with even the referral hospitals not following the national guidelines. Absenteeism at the facility level was found to be around 20%, and seems to be higher in rural than in urban facilities (Performance Evaluation and Tracking System-PETS 2011).

Overall, client satisfaction with quality of care received is considered worse at the primary health care level than at the hospital level. Evidence indicates that the perception of the general public regarding quality of care is more to the side of private institutions (FMOH, 2003). On the other hand, client satisfaction is considered better in higher level public facilities (hospitals) (Witter 2011).

3.1.5 Health services coverage, access and utilization

About one fifth of the population has no access to health facilities (defined as living within 5 Km from the nearest functioning health facility). Furthermore, there is a huge disparity between states as well as within the individual states in geographic/population coverage with PHC units as shown in the figure below.

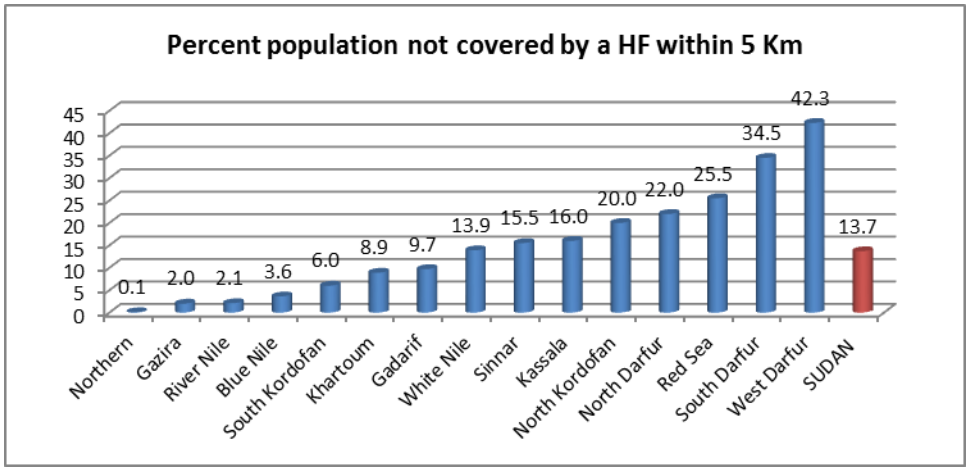


Figure 11. Distribution of populations (by state) not covered by health facilities within five kilo meters

About twelve percent of existing primary health care facilities are not fully functional mainly due to staff shortages or poor physical infrastructure.

Excluding Khartoum State, less than thirty percent of the PHC facilities provide the PHC essential service package; comprising of treatment of common diseases including IMCI, medication dispensing, immunization, reproductive health, and nutrition and growth monitoring (see figure below).

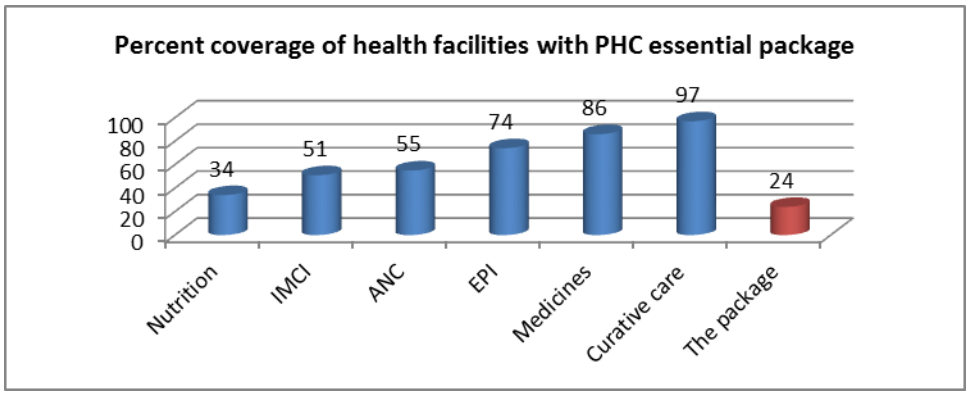


Figure 12. Coverage of health facilities with PHC essential package.

In terms of service provision, hospitals and urban health centres provide better services than rural health facilities. This fact represents one aspect of the inefficiency in utilization of the available facilities. On the other hand this low coverage by minimum package of PHC services compromises more the access to and utilization of services and ultimately slows down the progress towards achievement of MDG goals as illustrated above. Moreover the sustained problem of malnutrition could be understood clearly in light of very low coverage by nutrition services at PHC level.

Availability of immunization services (provided in 76% of facilities and with outreach and mobile services) plays a crucial role in improving child health across the States of Sudan. There has been a reported rise in immunization rate over the last decade which in turn has contributed to the reduction in preventable childhood diseases. EPI introduced *Hemophilus influenza type B (*Hib) and Rotavirus vaccines in 2008 and 2011, respectively. According to administrative data in 2010, the 3rd dose coverage by pentavalent vaccine and measles were 95% and 86%, respectively. Under polio eradication initiative, Sudan has been polio free since March 2009, and the Acute Flaccid Paralysis surveillance performance indicators reached certification standard in 2001, and remained above target since then.

Community-based Management of Acute Malnutrition (CMAM) program is active in the three Darfur States and in 2-7 localities/per state in six other states. A national food fortification law is expected to be endorsed soon, while four states (Sinnar, South Darfur, West Darfur and Kassala) have promulgated a law that prohibits use of non-iodized salt. Vitamin A is distributed regularly to children aged 6 to 59 months twice a year through the National Child Health Days. Fifty four percent of PHC facilities implemented IMCI strategy and all medical schools adopted IMCI strategy in basic training curricula.

Antenatal care visits rose from 71% in 2006 to 74% in 2010 and during the same period skilled delivery increased from 49% to 72.5% (SHHS, 2006 and 2010). However, the current provision of specific care provided as part of the antenatal care of facilities remains quite inadequate, as pertaining to blood pressure measurement (57.7%), and blood (57.7%) and urine (56.7%) testing. The three were performed together only in 51.6%.[13]

Mapping of Emergency Obstetric and Neonatal Care (EmONC) services was conducted, based on WHO standards. The results show that comprehensive EmONC is available in 79% of hospitals. Maternal Death Review system was established in 2009 covering all states. These efforts in maternal health services contributed to the remarkable reduction of maternal mortality ratio as reflected above. The Total Fertility Rate (TFR) has fallen from 5.9 in 1999 to 5.1 in 2006 (SHHS 2006) but showed significant difference in 2010 (5.7). Although the Sudan TFR is lower than the average for Sub Sahara Africa, it is much higher than that recorded for the MENA countries. Family planning is seen as one of the top priorities among reproductive health issues in Sudan. However, the trend in contraceptive prevalence is alarming as only 9% of married women in the age range of 15 to 49 use contraceptives, while the unmet need for family planning is estimated at 29%. This unmet need varies marginally by urban/rural areas, educational level of women and household wealth. Given the above challenges, reducing maternal mortality by 75% during the period 1990-2015 (MDG5) may therefore not be easy to attain.

School health interventions are implemented in few states with varying degree of coverage. National health policies for school health and adolescent health are under development. The percent of children less than five years treated with appropriate anti-malaria drugs showed observed improvement from 2006 to 2010 from 54.2% to 65%. Nevertheless, effective preventive and curative malaria control technologies are still underutilized in Sudan (CSR).

With government and donor support (GFATM), the coverage with anti-malaria interventions has improved substantially; 58.2% of households had at least one bed net, and fever treated with Artemisinin-based Combination Therapy (ACT) increased from 10% in 2005 to 40% in 2009. Despite these improvements however, timely access to effective treatment for malaria presents a great challenge.

Tuberculosis control program is following Stop TB Strategy (TB Strategic plan 2011-2015), with a total of 327 TB management units (TBMU) (2011 annual report). The target of one TBMU per 100,000 people has been achieved, and free sputum examination and drugs are provided. All 327 TBMUs cadres are trained for 'Provider Initiated Testing and Counseling' (PITC) for TB/HIV services. (TB Programme annual report 2011)

Though the TB-DOTS program has not yet reached its goal of 70% case detection and 85% treatment by 2005, the program has all the potentials to meet the MDG relating to TB. The defaulter rate is around 10%, and multi drug resistance to TB treatment has emerged as a challenge. Raising the level of NTP performance is critical given the HIV-TB linkage which threatens Sudan's efforts to meet the MDG in this area. More efforts are also needed to assist low performing states.

[13] SHHS2

The HIV/AIDS control program has 137 centres for voluntary counselling and testing (VCT). Thirty two centres offer free Anti-Retroviral Treatment (ART), and 150 Centres offer Prevention of Mother to Child transmission (PMTCT). Free treatment of Sexually Transmitted Infections (STI) and distribution of condoms are provided through 400 health facilities.

Out of the estimated number of people expected to be living with HIV and those in need for ART very few have been detected and enrolled for ART (almost 10%). This could be attributed to the fact that the poor and most vulnerable groups do not have access to hospital services and the massive stigma related to HIV/AIDS, might be contributing to lower case detection and thus lower uptake of the widely available HIV services in Sudan.

To reduce blindness prevalence, cataract surgical removal rate increased from 18,000 in 2002 to 80,000 in 2010 and the strategy has been shifted from control to elimination of River Blindness in some endemic areas.

In response to the growing challenge as discussed earlier, guidelines based on WHO NCDs package have been developed for introducing these services for most common diseases at primary health care level. To attain the community's active participation in health promotion, a number of approaches have been adopted. These include awareness raising at community level through training of promoters, mass media and health campaigns. On the other hand, the community based interventions focus mainly on the improvement of social determinants of health, gender equity and community empowerment.

3.1.6 Equity in access to and utilization of health services

In addition to the lack of uniform geographical coverage by essential health services, financial (see also section on health financing) and socioeconomic barriers hinder the access to health services. Among patients with acute ailments and chronic diseases, belonging to households in the lowest income quintile, 1% and 0.2% respectively sought treatment. The corresponding share among those belonging to the richest quintile is 2% and 1% respectively. In case of ambulatory care, those belonging to the richest quintile utilized health services nearly four-fold greater than those from poorest quintile (3.59% vs. 0.95%). No such differences were observed in the utilization of preventive care (most of them are free of charge) and in fact poorer households tended to use these services better than the rich. About 41% of the total visits were to public sector health facilities while private clinics contributed to about a quarter (26%). The utilization of private health providers among the richest quintile is four-fold higher compared to the poorest quintile. However, the rich still use public health providers at par with the poor. Greater use of inpatient services by the richer populations suggests that they tend to benefit more from public subsidy.

Annual per capita utilization rate is 0.475 for public and 0.099 (or 17% of total utilization disaggregated 13% for rural area against 26% for urban area) for private sector health services, possibly due to cost difference and the relatively rare existence of private facilities in rural area. The average yearly outpatient visits are 1.926 visits per capita, although an urban dweller uses outpatient services 60% more than a person who lives in rural area. The average usage of preventive health care service is 0.166 per year, and this service is used more by rural (0.177) than by urban (0.142) dwellers. In addition, use of primary care is 30% more than secondary-tertiary services, which are on average 1.278 and 0.979, respectively. Women use both primary and secondary-tertiary health care more than men. Insured/non-insured ratio is 1.45 for primary health care use but as high as 2.36 for non-primary health care services. About 55% chose a health facility because of its proximity, followed in 16% cases due to good reputation.

3.1.7 Quality of care

Quality of care and patient safety is a cross cutting issue. In this regard, a program was launched in 2001 with the setting up of a higher council of quality in healthcare, instituting quality departments in 13 federal hospitals, and appointment of a quality coordinator for each state. In addition to training healthcare providers, standards have been defined for hospitals and health centres. In addition, standard operating procedures have been developed for more than 20 hospital departments. Furthermore, patient safety and infection control manuals have been developed. Efforts have been made for setting up an accreditation system, and in this regard the National Council of Accreditation of Healthcare Organization and Technical Committee for Hospital Accreditation was established. An organized effort was made in 2008 through the establishment of 21 consultative councils for developing therapeutic protocols for various specialties. However these standards are not widely available, and thus it seems unlikely that they were widely used in service delivery.

3.2 Building blocks of the health system

3.2.1 Governance and leadership

The Interim Constitution of 2005 and Local Government Act (2003) provide the framework for a three tired federal system of governance. However, inadequate capacity of the decentralized levels remains a real challenge.

A national health sector coordination council (NHSCC) was set up, with the President of the Republic as its Head and the FMOH as Secretariat. Following the establishment of the NHSCC, most States have also established similar structures. In 2011 Sudan signed the global compact for the International Health Partnership, which aims to accelerate the implementation of Paris Declaration principles on aid effectiveness. In addition, a number of inter-sectoral coordination mechanisms exist including those for coordination of global initiatives and humanitarian aid. Detail in the section. However, these coordination mechanisms are partially functioning, and there is a need for better coordination mechanisms for external aid effectiveness.

The existing system of funds flow to States and localities, in the form of “bulk grants” from the Ministry of Finance, is an important example of decentralization. Nevertheless, this is not supplemented by accountability frames to deliver results based on principles of efficiency, value for money and equity.

A recent study to determine management and organization capacity of the health system found that 86.9% of managerial posts at state level were occupied compared to only 53.7% in case of localities. This clearly highlights the serious managerial capacity limitations at the locality levels and the situation is worse in conflict affected areas. Most important hindrance to leadership functions especially at the States and locality levels are the limited budget for management and development, lack of control over financial resources and their fragmentation. Low motivation among managerial staff due to the above constraints, as well as low remuneration at the public sector contribute to the high turnover and vacancies in management positions.

Policy gap analysis study took place and policies that are of national priority have been identified. A Guide on policy development has been adopted and published. However, weak organizational as well as individual capacity in policy analysis, implementation, monitoring and evaluation, and lack of capacity to undertake robust policy processes across the state planning directorates were prominent challenges. Furthermore, most of the policies are not endorsed by the National Assembly and the States’ legislative Councils, hence lacking the communal support.

3.2.2 Health Information

The Health Information System (HIS) in Sudan is largely fragmented, due to parallel reporting structures and information sub-systems implemented by vertical disease-specific programs, which seldom get consolidated due to the poor coordination mechanisms. The information system is characterized by poor quality of data with no proper mechanism for data quality assurance and audit (completeness, timeliness, accuracy, etc.). The system is predominantly paper-based with limited use of information and communication technology (ICT) innovations, with fragmented, unsystematic & un-scalable efforts in the introduction of ICT. The data storage and retrieval capacity across the health system is manual. As a result, data from different sources remain not integrated or synthesized. The e-health project is still in its preparatory phases.

In recent years some improvement has been witnessed in the area of population based data collection and processing and analysis. The National Census, The Second round of SHHS, and the National Health Accounts study, to understand the pattern of health care utilization and expenditure, were implemented during the last three years. A sentinel-site based surveillance of communicable disease of public health concern is underway by the Directorate of Epidemiology. However, some limitations and weaknesses are seen in data processing and dissemination of population-based surveys. Only small percentage of vital events is registered (58% births & less than 10% deaths) with poorly functioning civil registration system;

Inadequate institutional and technical capacity, especially at the state and local levels- in data management, analysis and evidence generation represents a major challenge in Sudan's Health Information. Regular reporting of health information from health facilities, especially at PHC level, is very limited, with only 30- 40% coverage. The coverage and quality of reporting from these PHC facilities also varies significantly across States. Data from other public sectors and private sectors is not captured (health insurance, police, army, etc.)

3.2.3 Service delivery

Service delivery is defined "as the way inputs are combined to allow the delivery of a series of interventions or health actions", and it is one of the key functions of the health system. Health services in Sudan are provided by the public sector, private sector both for profit and not-for-profit, sectors allied to health e.g. army, police, ministry of higher education etc. and traditional sector.

Within the public sector, service delivery is organized at primary, secondary and tertiary levels. Primary care is provided by Community Health Workers (CHW) and Village Midwives (VMWs) at the community level. At facility level, PHC units and health centres provide PHC services. The rural hospitals are first referral care with in-patient and diagnostic facilities. A number of health programs are also organized parallel to the mainstream healthcare delivery network for combating specific health problems/ diseases. These programs are managed vertically in terms of human resource, supply chain, information, monitoring and supervision. Most of them are donor funded and some are valued for their perceived success.

This fragmentation in service delivery system negatively affects the efficiency and undermines the achievement of targets. Although there has been increasing realization for integration with the mainstream health care delivery, previous proposals designed to achieve greater integration have prompted concerns, both from the donors and States.

The disease prevention, health promotion and public health emergency services are organized at national and state levels with varying capacity. Emergency and disaster management is the responsibility of the EHA department which was established in late 2003 within the FMOH. Due to staff shortages, only 53% of the state's units have a complete structure. Emergency information and

early warning system are inadequate. All States and localities have trained rapid response teams (RRT) with a total number of 167 RRTs. Frequent epidemics with limited preparedness system; especially inadequate risk mapping and surveillance systems are obvious problems of the current health system. The health surveillance system works through sentinel sites covering 40% of health facilities. Disease specific guidelines are available for all notifyiable communicable diseases; however their wider distribution to the States and Localities and the compliance of the different professionals at the different levels is inadequate. The national public health laboratory, with its branches in 15 States, is responsible for investigating outbreaks. Never the less, these have varying capacities in terms of logistic and human resources and consequently the quality of services offered.

Water surveillance and waste management, medical waste and sanitation need more efforts to catch up with MDGs. The responsibility of food safety is shared between different bodies, leading thereby to duplication, lack of proper surveillance and poor coordination.

To promote Integrated Vectors Management (IVM) initiative in the country, vector control needs assessment has been conducted, and relevant constraints, gaps, opportunities and needs were identified.

Occupational health that aims at protecting and promoting workers' health against occupational hazards has not received due attention, and is limited to Medical Reference Clinic, Work Environment, and Ergonomic in six States only.

Non Communicable Diseases (NCDs) are managed through a Federal Directorate under the General Directorate of Public Health, with programmes for NCD prevention and control at State level. However, only eight of the 17 States have a well-established programme. All program components face implementation constraints. Information on NCDS is deficient both in coverage and completeness. Moreover Sudan does not have a surveillance system for NCDs and their risk factors, but has only a few scattered studies. This means health system is not addressing the NCDs especially at PHC level, which contributed to the current picture of double burden of the disease and the escalating morbidities and mortalities due to NCDs.

Generally, the private for-profit as well as not-for-profit health care, including traditional and contemporary practices, are weakly regulated, and a policy for the private sector, though developed, has not been implemented. The private for-profit sector (allopathic) that expanded following the promulgation of 'Investment Encouragement Act, 1992' focuses mainly on curative care and is concentrated in urban areas, especially Khartoum and Gezira States. On the whole, the private health sector owns 38% of total hospitals, 6% of bed capacity and 31% of X-ray units. According to a survey conducted in Khartoum and Gezira States, out of all patients seeking health care, 22% consulted the private sector.

The not-for-profit sector, i.e. Non-Governmental Organizations (NGO) and Faith Based Organizations (FBO), is mainly concentrated in Darfur, the war affected areas of Red Sea, Kassala, Blue Nile and South Kordofan States. While these services make a tremendous contribution to both nutrition and health care for the displaced populations, there are no effective coordination mechanisms to assure the aligning of their input to the national strategy, and harmonization for aid effectiveness. Traditional, modern and alterative medicines are widely practiced in Sudan but remain unregulated. A directorate has been set up recently in Sudan Medical Council to help in regulating the traditional, contemporary and alternate medicine.

Within the public sector, the number of hospitals has increased to 416 hospitals (out of which 60% are rural providing first referral care), contributing to about 27.5 beds or 8.4 beds per 10,000 population, while the overall hospital/population ratio is 1: 80 000. The overall bed occupancy rate was 43.6% reflecting underutilization of hospitals. 80% of state hospitals had a bed occupancy rate of less than 50% and this should be considered when establishing new hospitals.

Emergency hospitals were established in 11 of the 15 States. Also, a number of national centres for the specialized care and training of specialists have been established.

The laboratory services are categorized into: primary care labs supervised by lab technologists; and secondary and tertiary hospital labs for providing specialized services and conducting advance tests. Most of these labs are equipped by automated equipment procured through the (Taw teen) project. However in many States, some equipment remains underutilized because of the lack of trained personnel. Specialized training courses are needed especially in subspecialties like neuropathology, renal pathology besides building technical skills such as molecular and biological techniques. To cope with the increasing demand, under a Diagnostic Centres Project, 9 diagnostic centres were established. These centres are underutilized due to the shortage of specialists coupled with absence of a sustainable cost effective system of laboratory supplies and consumables. Therefore, at present most rare and expensive investigations are done at the National Health Laboratory questioning equity and accessibility.

Blood transfusion is a facility based service available at all levels of the health system. 70% of the blood is collected from family members and voluntary blood donors for fresh whole blood transfusion. In 2010 a National Blood Transfusion Policy was adopted by FMOH to assure safe, adequate and sustainable blood supply system accessible to all patients when indicated. This policy emphasizes centrally coordinated national blood transfusion services through establishment of a network of state blood transfusion centres. Supported by the Global Fund, blood transfusion centres have been established in 7 States to harness community based blood collection and central screening and processing of blood. However this program needs to be strengthened in the States through community mobilization programs.

Some standard guidelines and protocols have been developed but are not yet implemented or monitored at service delivery level. There is also no functioning accreditation system of services– (promotional, preventive, and curative including diagnostic and emergency, and rehabilitation services). This is compromising the quality of care and patient safety.

3.2.4. Medicine and Health Technologies

A well-functioning health system ensures equitable access by all individuals to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost-effectiveness.

Currently the health system in Sudan suffers from fragmented procurement and distribution systems and funding arrangements leading to inefficiencies and stock outs of some essential medicines. Besides, there is no efficient coordination mechanism between different key players at the pharmaceutical sector.

Studies showed that only 86.9% of Emergency Medicines (EMs) are available in public health facilities. Moreover, there is no surveillance unit to monitor the availability of EM at both national and state levels.

Less than 50% of health facilities have the minimally required equipment, which is additionally ill-maintained, rendering services offered at health facilities inefficient and of poor quality. Only 44% of health centres happen to have sterilizing equipment. The situation is worsened by Inadequate distribution and quality of human resources in health technologies particularly the scarcity of biomedical technologists and clinical engineers. Availability of functional infrastructure (water and electricity) ranges from 100% in Khartoum to only 20% in peripheral States. A policy on health technology is still under discussion, the regulations related to health technologies- specifically medical devices and related standards and registration- are in their preliminary stages.

The rational use of medicines including very high use of antibiotics represents one of the major challenges facing the health system. Despite that generic medicines prescription is an important method of reducing drug prices and improving affordability and accessibility to medical care, studies have shown that only 40.6% of medicines are prescribed by generic /International Non-proprietary Name (INN) in the public sector. The issue of herbal and traditional medicines has been addressed clearly in the new National Medicine Policy. It aims at expanding the role of herbal medicines as an integral component of the health care system.

Regarding the pharmaceutical human resources, the number of Pharmacists registered at the Sudan medical council exceeds 10,000, while the active workforce for pharmacist in 2009 was found to be 4710 with more than 67% concentrated in the private sector.

The National Medicine and Poison Board (NMPB) is governed by Medicines and Poisons Act 2009. This act provides the legal requirements regulating licensing of pharmaceutical facilities, registration of pharmaceutical products, distribution and promotion practices and the conduct of clinical trials. However, legal requirements for inspection are missing in the Medicines and Poisons Act 2009 except for the inspection of the foreign manufacturing plants. This has resulted in weak inspection at the state and locality levels making the quality of medical products in the market not fully assured. A national quality control laboratory (NQCL) exists in Sudan for Quality Control testing but it is not pre-qualified by the WHO. It conducts post marketing surveillance.

3.2.5 Human Resources for Health

The health workforce represents the most important input into the provision of health care as well as the largest proportion of health care expenditure. The National Human Resources for Health Observatory (NHRHO) was established in 2007. The career structure, incentive regimen, and mechanism for retention and equitable deployment in rural, underserved and conflict and emergency prone areas are not well developed. Health workers tend to move to the capital or major cities in the States resulting in nearly 70% of health workforce living in urban settings of which 38% are in Khartoum state, serving only 30% of the population. This urban bias is more acute for specialized cadres as 65% of specialist doctors and 58% of technicians are in the capital.

The mal-distribution of health workers extends also to other levels of care, i.e. 67% of staff is employed in secondary and tertiary care units as compared to only 33% in PHC settings. This resulted in considerable per cent of non-functioning PHC facilities especially in rural areas, besides it compromises availability and quality of PHC services. The great majority of health staff works in the public sector and 9.3% work exclusively in the private sector. However, dual practice is quite common among public sector employees. HRH management system is not well functioning in improving the performance, motivation and retention of health workforce. Moreover, there is

The national HRH strategic plan is currently being finalized while a national HRH policy is still in draft form. However, HRH policies and strategies are not fully based on evidence-based data and information. The Sudan medical council has developed and endorsed specialists' Continuing Professional Development (CPD) regulations in an attempt to link CPD activities to licensing and relicensing of health cadres. There is only insufficient linkage between education and training (pre-service and in-service including postgraduate) and health services/needs.

The total spending on HRH is estimated at 49% of the general government health expenditure. This is comparable to EMRO average of 50.8% and higher than AFRO figure of 29.5%. The gradient difference in salary between public and private sector for health workers is widely in favour of those employed by private sector institutions. Many health workers are pushed to the private sector from rural to urban areas and migration to other countries in search of better job opportunities, education, salaries and incentive packages. The continuing brain drain is such that over 60% of the 21 000 doctors registered with Sudan Medical Council have migrated to work outside the country. Although there are some scattered attempts for retention at State level, no National comprehensive policy for

retaining workforce has been developed yet. Currently, an operational research is being conducted at the PHI on HRH retention, gender and migration to inform the above mentioned policy.

The aggregate number of health workers, estimated to be 101,453 (NHRHO, 2008) which is large in comparison to Sub Saharan African countries, although density is much lower. Indeed, with a ratio of medical doctors, nurses and midwives of 1.23 per 1000 population, Sudan is still within the critical shortage zone according to the WHO benchmark of 2.28 health care professionals per 1000 population (WHO, 2006). Whereas doctor population ratio is close to international benchmarks, this is not the case with other cadres. Based on 2006 HRH survey doctors to nurses ratio was 1,7:1, and was estimated to reach 6:1 in 2010 taking into account those in the education pipeline. On the other hand, the administrative and support staff represent 26% of the total number of health workforce which is consistent with recommended EMRO-WHO figure (25%). Furthermore, female health workers represent almost an equal share of total health workforce in Sudan. The Academy of Health Sciences (AHS) was established as a degree awarding body for nurses, medical assistants, midwifes and other allied health professions in order to correct the skill mix imbalance. There is one AHS branch in each state with its headquarters located in Khartoum. Following the signing of Sudan Declaration for Safe Motherhood that aims at providing a midwife for each village, midwifery schools were reopened and the number of midwifes increased to 16,078 in 2010. However the available number of VMWs is far from the actual need and efforts to increase production must be accelerated. Sudan Medical Specialization Board was established with the aim of expanding postgraduate training for doctors, and as a result the medical specialist cadre has grown. Recently, the Health System Development Council granted Public Health Institute recognition as an accredited body for training of health management cadres.

The HRH national survey (2006) had shown that three quarters of the country's health workforce (74%) did not receive any form of in-service structured training during the 5 years period prior to the survey. This could be attributed to deficient institutionalization and decentralization of CPDs. In Sudan, given the sparsely distributed and nomadic population, experience of CHWs has been revived in some States with a new curriculum of nine months training delivered in the AHS.

Although there are different coordination and stakeholders forums; partnership has been a weak element in the health sector with overall poor coordination between different stakeholders.

In each State Ministry of Health there is a directorate of human resources. Though, the capacity of Human Resource Development (HRD) directors/managers in human resource development is inadequate affecting the discharge of HRH functions at decentralized levels.

3.2.6 Health financing

The health financing function is concerned with revenues collection, pooling of resources and using funds to purchase the needed services.

The health system is financed through different prepayment mechanisms (tax-based and health insurances) and user fees. The fragmented puzzle of health financing system evolved due to lack of coordination and even contradiction between multiple financing sources (Health insurance, free of charge services and out-of-pocket) leading to inefficiencies in the system.

Public funding has risen considerably in recent years and reached 9.8% of public expenditure in 2011. However, it did not reach the 15% agreed by African Ministers of Health in the Abuja Declaration. In 2008 the country has spent an equivalent of 6% of GDP out of which 64.3 % was out-of-pocket[14]. Per capita public spending reached USD 32, which is better than the average public health spending in countries in sub-Saharan Africa and closer to some EMRO countries. Ministry of Finance (Federal

[14]Sudan NHA, 2008

and State levels) is the main source of funds contributing to 75% of the public health spending. External funds account for 14.4% and the remaining 10.6% from other public funds, including health insurance.

The allocation of public funding is very uneven across states once population size is taken into account, ranging from below 10 SDG per person in South Darfur to almost 40 SDG per person in Red Sea state in 2008. User fee is charged at all health facilities, and is paid either out of pocket or through insurance if covered or exempted/waived, although the mechanisms and eligibility criteria are not well defined. This disparity extends also to how expenditure is incurred i.e. only 15% of the public health expenditure was on PHC and public health programs against 48% on curative care (inpatient and outpatient) and 24% on administration, while capital formation absorbed 8% and other functions 5%. That is, allocation of resources is skewed towards curative care and is not pro poor as the lowest quintile, poorest 20% of the population receives 13% as compared to 26% public expenditure on curative care which goes to the richest group. As a consequence, primary and first-referral care, particularly in the poorer States, suffer from lack of resources. This creates barriers to good quality health services.

Drugs constitute a major proportion of total health expenditure with 25% of the out of pocket and 5% of the public expenditure on health. User fees for those not covered by insurance are also likely to limit access to services and cause financial hardship. Reliance on user-fees as the main provider payment mechanism in insurance schemes is likely to encourage over-provision of services rather than encourage control of health care costs.

3.3 Social determinants of health

The health status of populations is known to follow a social gradient- better health with increasing socioeconomic status. The wider Social Determinants of Health (SDH): water and sanitation, agriculture and food, access to health and social care services, unemployment and welfare, working conditions, housing and living environment, education, and transport, therefore, contribute to health inequities - the unfair and avoidable differences in health status.

Factors that contribute to good health at low cost include a commitment to equity, effective governance systems, and context-specific programmes that address the wider social and environmental determinants of health.

The ten leading causes of morbidity which account for over 60% of reported attendances to health facilities in Sudan are related to SDH. Since 2006, sizable successful efforts were exerted by the government, UN agencies and NGOs to increase access to safe drinking water, and by the end of 2009, access to safe drinking water has increased to 62% and access to improved sanitation has increased to 42% (*Public Water Corporation, 7 year Strategic plan for north Sudan 2010-2016*).

Solid waste collection and disposal, food sanitation and inspection, drainage of rain water and sewage systems are very weak in all states. 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 programs as well are very weak.

Concerning water safety, in addition to providing supplies and equipment to the public health laboratories, training is given on the surveillance and contaminants as well as kits are provided for testing water quality in the field. The responsibility of food safety is shared between different bodies, leading thereby to duplication, lack of proper surveillance and coordination. Occupational health that aims at protecting and promoting workers' health against occupational hazards has not received due attention, and is limited to Medical Reference Clinic, Work Environment, and Ergonomic in six states only.

According to the 2009 Sudan National Baseline Household Survey (CBS/NBHS 2009), 59% of all households had access to improved drinking water. The proportion of households with access to improved drinking water source varied from 87 % in the Northern State to 33 % in Red Sea State. Private pit latrines were the most common toilet facility used by 51% of all private households in Sudan. 37% of all private households have no toilet facility, of which 12% were in urban areas and 48 percent in rural areas.

In 2009, 62% of the population 15 years old or more in Sudan were literate (CBS/NBHS 2009). About 79% of the urban population in this age group was literate compared to 51% of the rural population. The literacy gender gap ratio for the population 15 years and above was 0.71 with 73% of the male population literate compared to 52% of the females. The literacy rate ranged from 81% in Khartoum State to 44% and 46% in Western Darfur and Kassala States, respectively.

The un-employment rate for persons 15 years and above in the 15 Northern States was 13%, with 9% for males and 23% for females. The un-employment rate was 10% in urban and 13% in rural settings. The female population un-employment rate was higher than the male for all age groups.

Part 4: Priorities and strategic directions (NHSSP, 2012-16)

This section outlines the priorities that the national health sector strategy should address in the coming five years. Although ambitions run high for the government to serve its people, this exercise was conducted on the backdrop of limited availability of resources to the health sector, compared to the health needs. This was the most critical and most difficult planning stage. Given that the Sudan is a federal state and the real action is at the state level, in order to allow for local variations as a result of differing needs, the priorities are broad defined at the outcome/ impact level. The outputs that will contribute to achieving the outcome/ impact are included in the log frame that follows this section on priorities.

4.1 Methodology for defining priorities

Since setting priorities is essentially value-laden, the exercise was rigorous and comprehensive. Six technical working groups drawn from broader stakeholders undertook situation analysis that defined the major issues in each of the building blocks of the health system. During a two-day workshop held on 27-28 July 2011, the wider stakeholders including those representing States, development partners and NGOs identified priorities, giving due consideration to the issues from public perspective, in addition to the magnitude, severity/acuteness, and feasibility of addressing them. The priority list was further refined by the drafting committee, expert opinions, and finally by the high level forum. The following is a list of priorities presented in line with the building block of the health system.

4.2 Vision and Priorities for national health sector strategy, 2012-16

The vision for the five year NHSSP is taken from the 25 year health strategy:

Vision

A nation with healthy individuals, families and communities where the health needs of the poor, underserved, disadvantaged and vulnerable populations are given due consideration and that health is in all policies of the State.

Within this broad vision, **Priorities** of the NHSSP are based on the health challenges facing the country and Sudan's existing commitments. These include;

a) Continuing working towards the MDGs relating to health;
- MDG 1; Eradicate extreme poverty and hunger focusing on target 2; Prevalence of underweight among children under five years of age
- MDG 4; Reduce child mortality (Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate)
- MDG 5; Improve maternal health – Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio)
- MDG 6; Combat HIV/AIDS, malaria and other diseases (Have halted by 2015, and begun to reverse, the incidence of malaria and other major diseases and the spread of HIV/AIDS)
- MDG 8; Develop a Global Partnership for Development

b) Sudan is committed to other international goals and will continue to give priority to these, including Polio Eradication, Roll Back Malaria, Measles Elimination and Guinea Worm Eradication.

c) With the growing importance of non-communicable diseases, this strategic plan period will also be used to develop and implement affordable and sustainable approaches to reducing the burden of NCDs.

Within the remits of the overall vision and health outcomes, the goal, strategic directions and priorities of the NHSSP 2012-16 are articulated as follows:

Goal:

Improved health status of the population of Sudan, especially for the poor, underserved, disadvantaged and vulnerable populations.

Strategic Objectives/Outcomes

1) Improved equity in access and utilization of health service;
2) Improved responsiveness and efficiency of the health system to the people's expectations and needs;

4.2.1 Strategic direction:

The strategic direction follows the directions in the 25 year health strategy and the 2007 health policy in terms of:

a. Expanding and strengthening primary health care (horizontally expanding the network and vertically by improving quality and package of care), with the aim of improving equity in access and providing an integrated, people-centred approach;
b. Improving quality and efficiency of health service delivery by strengthening referral network between PHC level and hospitals,
c. Ensure social/household protection from financial risk by reducing out-of-pocket payment, expanding health insurance coverage and provision of universal minimum package.

Achieving these outcomes will require the following **strategic interventions;**

a. Improving equity in resource allocation and service delivery,
b. Improving cost-effectiveness by rationalizing the usage and cost of drugs;
c. Improving HRH skill mix and distribution;
d. Reducing multiple systems for information and for logistics;
e. Improving aid effectiveness
f. Strengthening the decentralized system at all levels to realize the above objectives.

Rationale for the strategic directions:

Expansion of PHC

Primary health care (PHC) offers a cost effective approach to improve health and make progress towards the MDGs especially if access is increased for poor and vulnerable groups and if it offers services that will address common causes of child and maternal mortality and addresses the major causes of morbidity in Sudan.

As shown in the situation analysis, while the majority of the population lives within reach of PHC facilities, the range of available services is widely variable. A key priority therefore is to ensure that people have access to (at least) the minimum package of PHC services through the community level and health facilities that they access. In addition, in some parts of the country there is a need for additional facilities and community service provision.

The minimum PHC package has been defined based on experience in Sudan and international evidence giving priority to interventions that will help to achieve the MDGs.

Table 4. The PHC minimum package for Sudan:

Type of services	Core//Minimum Elements of PHC package at FHU and community level	Core//Minimum Elements of PHC package at FHC	Core//Minimum Elements of package at RH	Extra elements if funding allows
Reproductive health	Antenatal, delivery and Post natal care Family planning, Basic EMOC	- PMTCT - Basic EMOC	Comprehensive EMOC Post abortion care using Manual Vacuum Aspiration (MVA) at RH PMTCT	-
Common diseases including NCDs	- IMCI - Malaria prevention, diagnosis and treatment with ACT - TB DOTS - Basic eye care - Promotion of healthy lifestyles - Promotion of improved sanitation, hygiene and safe water - VCT - STIs	- TB diagnosis - WHO Package of Essential NCD interventions (PEN) - Basic ENT care - Basic Eye care - Dermatology - Basic Dental care - STIs	Management of emergencies+ Emergency Triage Assessment and Treatment (ETAT) - ARV - Integrated management of Adult Illness (IMAI)	- NCDs screening and early detection measures[15] according to the level specific - Comp. Promotion of healthy lifestyles - Mass campaigns e.g. for Schistosomiasis - School health - Guinea Worm - Leishmaniasis, - Filariasis

15 See details on the NCD strategic plan

Immunization	BCG Polio Penta Rotavirus Meningitis A YF Pneu (PCV) Measles Tetanus Toxoid for women	Same	- Same	Addition of new vaccines for children, Rubella , Malaria, typhoid, Dengue vaccines, etc Extending the programme to include Hepatitis B For adults and Rubella, HPV for adult females, Booster dose DT& measles
Nutrition	Growth monitoring Distribution of Vit A, iron and folic acid Heath education	Same	Severe Acute Malnutrition (SAM)	- School nutrition programmes - Food for patients with TB, HIV & Lieshmaniasis - CMAM
Drugs	Essential Drug list for Family Health Unit (FHU)	Essential Drug list for Family Health centre(FHC)	Essential Drug list for Reproductive Health (RH)	Include drugs for common NCDs at FHC and drugs for pre referral management of common child and maternal health problems at both FHU and FHC

States and localities will have flexibility to adapt the package to their local conditions and priorities e.g. to the type of malnutrition or prevalence of leishmaniasis.

A plan for expansion of PHC has been developed[16] which intends to increase the availability of PHC facilities in under-served localities and to broaden the range of services and facilities in existing facilities so that all offer the minimum package and have basic amenities of safe water, sanitation and waste disposal.

In addition to these community and facility based services, the locality level is responsible for public health aspects of PHC including sanitation and safe water in public places, vector control and food safety. The same services should also be made available at the community level by relevant sectors. State and national levels have responsibility for promoting public health through measures such as food regulation and tobacco taxation.

Improving quality and efficiency of hospital services

Improving quality and efficiency of hospital care will ensure the country gets better value from its investment in secondary and tertiary care, and allow allocation of more financial and human resources to strengthen primary care. Whilst there is always pressure to expand the hospital network, the strategic plan aims to encourage a focus on making better use of existing resources and meeting the expectations of the population through;

- Developing accreditation of public and private hospitals and monitoring standards to assure quality of care,
- Planning of hospital provision across states and sectors to encourage sharing of specialist services between hospitals and states, (as international evidence has shown that having fewer, larger specialist units delivers better quality of care as well as requiring less investment),
- Ensuring that core services such as blood safety and laboratories are available to hospitals, while making the most of different providers in an area, whether private, MOH, police or others, rather than duplicating provision,
- Developing funding mechanisms that encourage efficiency through strengthening referral arrangements and improving payment mechanisms. For example, the Community Support Fund to facilitate transportation of patients to health facilities, including the next level of referral care,
- Scaling up the family physician project would facilitate early detection of health problems and timely management including referral to next level of care.

Social protection with increased health insurance

Risk protection requires reducing reliance on out of pocket payments at the time of illness. The main approaches for this are:

- Health insurance or pre-payment where people pay in advance (when they are not ill),
- Pooling of funds across well and ill people to fund services for those who need them,
- Increasing the share of services funded from insurance, tax and donor resources,
- Controlling the costs of health care (e.g. by use of generic medicines, avoiding unnecessary tests and treatments, using lower cost services where possible, (such as family health units rather than hospitals),

During the strategic plan period the health insurance system and particularly the NHIF will develop and test new approaches and work towards an expanded role as a major funder of health care. The plans[17] includes;

- Increasing the numbers of people who are covered by health insurance
- Increasing the amount of funding that is channelled through health insurance, to ensure the financial viability of NHIF and that its funding has more influence on service delivery and costs.

[16] FMOH. PHCD. PHC expansion project 2012

[17] See also NHIF Strategic Plan for 2012-2016

- Reducing NHIF's role as a provider of health care so it focuses in its role as a purchaser
- Developing mechanisms that control costs and encourage efficient use of services. This includes testing different provider payment mechanisms.

Improving equity

The national vision for health emphasizes equity especially in terms of improving the health of the poor, underserved, disadvantaged and vulnerable populations. The situation analysis has shown marked differences between States and by income groups. The strategic plan will improve equity in access to services related to needs, through:

- Giving priority to the under-served populations by adding new facilities and support for PHC to States and localities where people lack access to PHC. The least well served States; Red Sea and Darfur States, will get priority to PHC funding.
- Developing a poverty and health related funding formula, resource allocation formula and working with Ministry of Finance and state agencies to move towards more equitable and transparent allocation of funds between and within States,
- Developing HR policies to encourage transfer of qualified staff to less well staffed and low performing States; this includes testing incentive schemes for working in under-served areas and increasing numbers of midwives, medical assistants and nurses trained in States,
- Increasing coverage of the poorest by including them in the NHIF, with funding from Zakat and other sources,
- Continuing to rely on the humanitarian agencies in conflict areas and for displaced people while the locality develops its health system for the longer term,
- Targeted services to vulnerable groups, especially MARPs for HIV; (see HIV strategic plan 2010-2014 for further details) and DOTS for TB,

Improving cost-effectiveness

The situation analysis has identified fragmentation of the current system including multiple procurement agencies in the public sector; 17 separate supply chains, multiple training and information systems across programmes; several health insurance schemes and hospital networks. This is wasteful and unlikely to be sustainable. Integration is emphasized in the strategy in order to improve efficiency and sustainability of the health system. The priorities for integration in the next five years are Supply Chains, Monitoring and Supervision Systems and Training.

Efficiency will also be encouraged by;

- Increasing the proportion of resources to PHC by allocating additional budget; over time this will reduce the share spent on administration and tertiary care
- Improving the skill-mix by reducing reliance on doctors and making more use of nurses, medical assistants and midwives,
- Developing the health insurance system to make it more efficient e.g. by including more people, separating service provision from funding, changing provider payment to encourage cost effective treatment and ensuring contributions are collected.
- Increasing aid effectiveness through the national compact and improving donor coordination.

Risk protection

Risk protection requires reducing reliance on out of pocket payments at the time of illness. The main approaches for this are:

- Health insurance/pre-payment where people pay in advance (when they are not ill)
- Increasing the share of services funded from tax and donor sources.
- Encouraging people to use lower cost services where possible, (such as family health units rather than hospitals), and keep prices at affordable levels (e.g. by use of generic medicines, avoiding unnecessary tests and treatments).

Strengthening the decentralized system

The strengthening of States and localities will underpin the changes, including better planning and management of services, based on better data and analysis; better coordination of different providers and programmes; and increased capacity to provide and retain health workers. Investment would focus on enhanced capacity at all levels to implement the various frameworks required for efficient and effective decentralization; Train government health care workers and civil servants in planning and managerial skills at the decentralized level and whole system stewardship at the central level; and recruit and train health workers to meet shortfalls compromising efficient health service delivery.

Such intervention is presumed to increase local authority to implement results-based management and to enforce local accountability for obtaining better service quality and responsiveness, towards ensuring greater equity and improved health outcomes.

4.3 Log frame: NHSSP 2012-16

The national priorities, and directions identified in the section on situation analysis, and challenges facing the health system are translated into the strategic plan presented as log frame. It uses impact/ outcome framework for monitoring and evaluation and accordingly the activities and indicators identified.

The log frame links the strategic objectives to the hierarchy of expected results articulated for the strategy. That is, the vision defined for the national strategy 2012-16 constitutes the goals or long term vision, while the strategic objectives outlined for the strategy and the expected results from the medium term objectives. Annex 2 sets out key milestones and progress indicators in more detail. Drawing on these objectives the outputs and activities/inputs have been identified and will be used to guide operational planning.

Box 1. Overall Health Goal

Improved health status and outcomes, especially for poor, underserved, disadvantaged and vulnerable populations.		
Indicator	**Baseline 2011**	**Target by 2016**
Infant Mortality Rate (By States and SEG)	57 per 1000 live births	43 per 1000 live births
Under-5 Mortality rate (By States and SEG)	80 per 1000 live births	58 per 1000 live births
Neonatal mortality rate (By States and SEG)	33 per 10000	27 per 1000
Maternal Mortality Ratio (By States and SEG)	214 per 100,000 live births	196 per 100,000 live births
HIV prevalence among population aged 15-49 years (by state)	0.67% (2009)	< 1% (2014)
Prevalence of underweight children under 5 years of age (By States and Socio Economic Group	32.2%	16%

Table 5: Log Frame for each Strategic Objective of NHSP

Table 5.1 Governance

Strategic objective	Strategic interventions	Expected results	Products
(1) : **To strengthen effective leadership, good governance and accountability of the health system in Sudan** **Indicator**: % of localities received at least 50% of planned budget (by state) **Baseline**: NA **Target (2016):** 90% or more	1.1 Reinforce timely endorsement and implementation of existing/new policies at all levels of governance; 1.2 Undertaking evidence based policy review to ensure responsiveness; 1.3 Establish national and state level coordination mechanisms and joint planning arrangements; 1.4 Establish accountability frames at state and locality levels to deliver results based on principles of efficiency, value for money and equity,	(1.1) Policies, structures and regulatory framework enabling better health system performance developed;	(1.1.1) Evidence-based sectoral and sub-sectoral policies developed
			(1.1.2) Capacity to develop, implement and monitor policies strengthened, including in the decentralized health system
			(1.1.3) Regulatory framework developed/strengthened
			(1.2.1) Evidence based planning system involved stakeholders and other sectors.
		(1.2) Improved harmonization and alignment of partners and other sectors' plans with national health priorities, vision and goals;	(1.2.2) Effective coordination mechanisms strengthened/developed
			(1.2.3) Accountability framework developed/institutionalized for private sector and international partners
		(1.3) Management, planning and accountability in the decentralized system strengthened	(1.3.1) Effective management structures and capacity built at States and locality levels
			(1.3.2) Accountability framework institutionalized at each level of the health system

Table 5.2 Information System

Strategic objective	Strategic interventions	Expected results	Products
(2): **To develop a sustainable and integrated Health Information System, that provides comprehensive, quality health related information in support of evidence-based policy and planning at different system level** **Indicator**: An integrated functional HIS providing needed information on health system performance **Baseline**: Fragmented, under-developed HIS **Target (2016)**: Integrated HIS functional	(1) Development of an integrated HIS at the national level covering the private sector and NGO health services in addition to government health institutions; (2) Development of a National Monitoring and Evaluation Framework as part of the National HIS Strategy; (3) Development of a Community Health Information System (4) Development of capacity at national, state and locality levels to generate quality data, as well as analyse and use data;	(2.1) Coordination of the HIS strengthened at national, States and local levels	(2.1.1) Effective coordination mechanism with different partners established
			(2.1.2) HIS policy and legal framework and procedures developed/reformed
		(2.2) Availability of integrated, accurate and complete health data from routine public and private facilities and other data sources increased	(2.2.1) Systems, tools and procedures for integrated data reporting designed and implemented
			(2.2.2) HIS integrated data repository/ warehouse designed
			(2.2.3) Increased reporting rate of different services providers from the public and private sectors especially PHC level
			(2.2.4) Efficient Health surveillance system strengthened
			(2.2.5) Community Health Information system established
			(2.2.6) Vital registration system strengthened
		(2.3) Data quality, management, dissemination and use of HIS products improved at all levels	(2.3.1) System for data quality audit established and functioning
			(2.3.2) Capacity on data management, analysis and use strengthened including through increased access to ICT
		(2.4) Evidence generation and M&E capacity and system strengthened and institutionalized	(2.4.1) Health System Observatory established and functional
			(2.4.2) M&E capacity and system strengthened and institutionalized
			(2.4.3) Health Research system strengthened/established

Table 5.3 Health Services Delivery

Strategic objective	Strategic interventions	Expected results	Products
(3): **To improve equitable coverage and accessibility of quality integrated primary health care.** **Indicator**: % infants who received Pentavalent vaccine (PVV) 3rd dose (national, by state, by gender) **Baseline:** 95% **Target (2016):** Sustained at 95%	(1) Expand PHC coverage by allocating extra investment in underserved States; (2) Enhance the integration of PHC services and related systems to make more efficient use of resources, and free up resources for increased coverage; (3) Formulate a package of PHC services including NCDs and promotes maternal and child health; (4) Reduce reliance on out of pocket spending;	(3.1) Management capacity of the decentralized system strengthened and efficiency improved	(3.1.1) State and locality health management teams capacity strengthened
			(3.1.2) Vertical programs and support systems (e.g. logistics and training) are integrated in line with the PHC principles
		(3.2) Equitable coverage with quality PHC package improved and health facilities infrastructure strengthened	(3.2.1) Improved Coverage with the core package of essential PHC (as appropriate to local health needs)
			(3.2.2) PHC Infrastructures improved and developed according to the standards including for water supply, sanitation, equipment etc….
			(3.2.3) Equitable resources allocation improves access for under-served areas and populations
(4): To assure quality secondary and tertiary care **Indicator**: Bed Occupancy rate (national, by state and level of hospital) **Baseline**: 34% **Targets (2016)**: 70%	(1) Enforce use of guidelines, national standards and accreditation in service delivery and monitor their use; (2) Promote partnership, networking and referral in service delivery and reporting across government, private and NGO providers.	(4.1) Quality, safety and efficiency of secondary and tertiary referral services strengthened	(4.1.1) Quality and safety of secondary and tertiary referral services (public and private) improved through accreditation and standards
			(4.1.2) Efficient use of resources for hospitals through regional settings especially for specialist services
		(4.2) Efficient referral, ambulance system and emergency medical care developed and implemented	(4.2.1) Referral system and guidelines developed
			(4.2.1) Emergency care and triage system strengthened

Table 5.4 Medicines and Health technology

Strategic objective	Strategic interventions	Expected results	Products
(5**): To improve equitable access to quality essential pharmaceuticals and health technologies.** **Indicator**: % population with access to essential medicines **Baseline**: 50% **Target (2016)**: 80%	1) Establishment of a National unified system for health technology management (procurement, distribution and financing of pharmaceutical and healthcare equipment) 2) Development and implementation of Pharmaceutical and healthcare equipment repair and maintenance plan. 3) Promotion of the rational use of medicines. 4) Foster human resources capacity building for management of pharmaceuticals and health products	(5.1) Quality and safe pharmaceuticals and health technologies are affordable, and rationally used	(5.1.1) Regulatory authority strengthened
			(5.1.2) National and state Health Technology policies and Management system developed and implemented
			(5.1.3) National essential medicine programme and technology protocols Updated and endorsed for different health care level
			(5.1.4) Rational use of drugs is improved, including encouraging use of generics and reducing over-use of antibiotics.
			(5.1.5) Regulatory mechanism for herbal prescriptions (by traditional healers and allopathic medical practitioners) is developed/institutionalized)
		(5.2) Availability of pharmaceuticals and commodities ensured	(5.2.1) procurement and supplies management systems strengthened with integration of multiple different supply chains and procurement mechanisms
			(5.2.2) Local production of generic pharmaceuticals and diagnostics promoted with effective quality control measures

Table 5.5 Human resources for health

Strategic objective	Strategic interventions	Expected results	Products
(6) : **To develop a well-performing, stable and equitably distributed workforce with an appropriate mix of skills to meet agreed health sector needs** **Indicator**: Ratio of health workforce per 100000 population (disaggregated by doctors, nurses and midwives, public/private, Rural/urban level and state **Baseline**: 1.23 per 100,000 population **Target (2016)**: > 2.3 per 100,000 population	(1) Harmonize HRH production with the needed numbers and the skill mix with the involvement of stakeholder (specially ministry of higher education); (2) Institutionalize capacity building focusing on States' HRH, and addressing both accredited programmes and CPD and linking the latter to licensing and relicensing; (3) Conduct HRH projections exercise to guide planning for education and training based on needs and affordability; (4) Foster the evidence-based HRH policies and strategies including establishing the norms, standards and comprehensive accreditation systems for all cadres; (5) Strengthen HRH management system;	**6.1** HRH planning strengthened in support of providing health services required professions	6.1.1 HRH planning is based on HRH projection and evidence
			6.1.2 Involvement of different HRH stakeholders in informing HRH policy, planning, and M&E Strengthened
		6.2 Systems ensuring more equitable distribution of health workers - especially doctors and nurses are developed	6.2.1 Measures for retention of health workforce in the remote and rural areas instituted
			6.2.2 HRH skill mix imbalance restored
		6.3 HRH management systems, including individual performance systems; are improved	6.3.1 HRH performance management systems strengthened
			6.3.2 Staff productivity at workplace improved
		6.4 HRH production - education and training- improved in line with health service needs	6.4.1 Production of different HRH cadres of health workforce enhanced including increased output of allied health professionals
			6.4.2 Quality of health workforce promoted through robust continuous professional development
			6.4.3 Inter and Intra-sectoral coordination for quality production of health workforce Strengthened
		6.5 HRH functions and capacities of the decentralized levels are strengthened	(6.5.1) Build up the leadership and HR management capacity at the decentralized levels
			(6.5.2) Develop appropriate organizational structure (OS) for HRH functions

Table 5.6 Health financing

Strategic objective	Strategic interventions	Expected results	Products
(7): **To ensure that the health system financing is sustainable, efficient and equitable and provides social protection to the people** **Indicator**: % of total government expenditure on health **Baseline**: 9.8% **Target (2016):** 15%	(1) Generating additional public sector financial resources for health to increase access for the poor and to meet international commitments, such as the Abuja Declaration; (2) Promoting harmonization and coordination of donors support; (3) Developing a health financing system that is pro poor, assures financial risk protection and reduces the O-o-P expenditure; by increasing the coverage of health insurance and larger scale resource pooling; (4) Developing standard criteria (epidemiological, demographic, socioeconomic, etc.) and methodology for allocation of financial resources that addresses equity and efficiency;	(7.1) Adequate and equitable allocation of financial resources for health is assured	(7.1.1) Increase public sector allocation on health at all levels of the system
			(7.1.2) Allocate resources equitably amongst geographical regions and health programs/services
		(7.2) Reduced inefficiencies in resources utilizations and the health system financing	(7.2.1) Available resources aligned with national health strategy priorities
			(7.2.2) Unified health financing system established that reduce reliance on fee for service and out of pocket
			(7.2.3) Reduced inefficiencies in receiving, disbursing and tracking resources generated for health
		(7.3) Building a social protection system with risk sharing and cross subsidies mechanisms	(7.3.1) Progress towards universal coverage with health insurance made

Part 5: Costing and Financing

This section sets out preliminary estimates for the costs of the health services and health system reforms planned in the HSSP. A reduced package has been costed to demonstrate how costs can be curtailed if resources are insufficient. It also presents estimates for the funding available and how it can be allocated.

5.1 Costing of the HSSP

An extensive exercise to estimate the costs of the HSSP was conducted between July and October 2012. The costing estimates used the OneHealth costing tool, developed through collaboration of United Nations agencies, World Bank and other partners. This tool requires estimates of the inputs required for each condition or service and for health system costs, and the coverage levels for each service. The tool then estimates the costs of the system and the health impacts it will achieve.

A team from the Federal MOH and from WHO and UNFPA in-country developed the projections for Sudan HSSP, with training and back-up from WHO Geneva and international consultants. The in-country team worked closely with the programmes and departments responsible for different disease programmes, services and health system functions to produce the estimates. The estimates include the planned PHC package with increased coverage; expansion of service coverage for key NCDs that are dealt with at hospital level (notably cancers, diabetes and heart disease); planned activities to develop health systems (including information, governance and human resources reforms in line with HSSP logframe); and the human resources in the health system. Other costs of the health system, particularly for secondary and tertiary services, were estimated as a lump sum.

These estimates are still under review so the figures presented here should be seen as preliminary. Two cost estimates were prepared: the baseline scenario, which included the package of services costed by the team plus an estimate of other costs to give an overall estimate of health system costs; and then a reduced scenario, which allowed for a slower growth in coverage for some NCDs, some reductions in the package of services delivered in PHC and no allowance for secondary and tertiary care. Note all figures are in constant prices, i.e. they do not allow for inflation.

Table 6. Summary costs of the Sudan NHSSP 2012-2016 (baseline estimate) preliminary estimates, in constant SDG millions

Total costs (SDG, millions)	**2012**	**2013**	**2014**	**2015**	**2016**
Total Programme Costs	132.9	165.1	169.9	169.2	171.4
Total Human Resources	942.6	990.7	1,039.5	1,087.5	1,138.1
Total Infrastructure	520.2	573.6	631.9	632.0	613.6
Total Logistics	49.8	51.7	49.7	49.7	49.8
Total Medicines, commodities & supplies	2,511.8	3,181.0	3,859.8	4,583.2	5,352.5
Total Health Financing	5.2	5.8	5.8	5.8	5.8
Total Health Information Systems	8.5	5.7	6.2	14.7	7.4
Total Governance	10.5	12.2	12.1	12.0	12.2
Lump sum estimate for secondary and tertiary care	1,700.0	1,700.0	1,700.0	1,700.0	1,700.0
Grand Total	**5,881.5**	**6,685.8**	**7,475.0**	**8,254.0**	**9,050.8**

Source: OneHealth model estimates, November 5 2012

This estimate suggests that health system costs account for 23% of costs, commodities for 52% and programme management for 2 % of costs. In addition a lump sum amount added for secondary and

tertiary care accounts for 23% of costs 2012-2016. The figures increase each year largely due to the planned increasing coverage rates and the increase in population size.

The most costly interventions in the current estimates are management of cancer, management of moderate acute malnutrition, distribution of rapid response kits and management of diabetes, these four account for 40%, 12%, 9% and 9% of commodity costs respectively. These figures will be reviewed as the estimates are refined.

The breakdown between recurrent and capital costs shows that the vast majority of HSSP is allocated for recurrent costs (over 94% of expenditure each year), with up to 6% for capital – most for buildings and equipment for expansion of PHC. It is to be expected in the health sector that the majority of expenditure will be for recurrent costs, while the figures indicate modest expansion plans for infrastructure.

The lower scenario for expenditure is set out in table 1.2. Note that this excludes additional secondary and tertiary curative costs and focuses on PHC plus public sector staff costs and selected disease programmes. The coverage with more costly NCD interventions such as cancer treatment is set to grow more slowly. The costs increase each year due mainly to increasing coverage and growing population.

Table 7. Summary costs of the Sudan HSSP (with a truncated PHC package) **preliminary estimates**, **in constant 2011 SDG millions**

Total costs(SDG, millions)	**2012**	**2013**	**2014**	**2015**	**2016**
Total Programme Costs	131.0	161.8	166.4	166.1	168.2
Total Human Resources	942.6	990.7	1,039.5	1,087.5	1,138.1
Total Infrastructure	520.2	573.6	631.9	632.0	613.6
Total Logistics	49.8	51.7	49.7	49.7	49.8
Total medicines, commodities & supplies	2,075.7	2,422.9	2,735.7	3,061.6	3,400.7
Total Health Financing	5.2	5.8	5.8	5.8	5.8
Total Health Information Systems	8.5	5.7	6.2	14.7	7.4
Total Governance	10.5	12.2	12.1	12.0	12.2
Grand Total	**3,743.5**	**4,224.4**	**4,647.3**	**5,029.3**	**5,395.9**

Source: OneHealth model estimates, November 5 2012

The per capita expenditure figures for the scenarios are shown in Table 7 below, using an exchange rate of 5.5 SDG = $1.

Table 8. Summary of per capita expenditure estimates for the HSSP

Scenario	**2012**	**2013**	**2014**	**2015**	**2016**
Baseline scenario cost per capita in SDG *(US$)*	169 *($31)*	186 *($34)*	202 *($37)*	216 *($39)*	230 *($42)*
Reduced scenario cost per capita in SDG *(US$)*	107 *($19)*	118 *($21)*	126 *($23)*	132 *($24)*	137 *($25)*

Source: OneHealth model estimates, November 5 2012

These figures per capita allow for partial coverage with some interventions in line with estimates of what is feasible during the NHSSP period – as a result they are lower than the cost of providing the full essential PHC package to 100% of the population, which is a figure sometimes quoted.

5.2 Financing available for the HSSP

The estimates of the funding potentially available for health are based on projections of economic growth and the share of the GDP that are allocated to health, by both public and private sectors. Three estimates were made

Using Government of Sudan macro-economic projections for GDP and public expenditure growth and constant share of public spending for health.

1. An IMF offset projection which used IMF projections for economic growth and public spending and assumed the share of public spending allocated for health rises to 10% by 2016.
2. Using IMF projections for growth in the economy and public spending, and assuming a constant share of public expenditure for health

All three assumed private funding (which here includes donor funding) make up a constant share of GDP for health. Table 4 shows the resulting figures for 2016. The figures do not allow for inflation.

Table 9. Sources of funding for health in year 2016 (**in SDG billions in constant 2011 prices)**

Source	**Scenario 1-Baseline**	**Scenario 2-IMF offset**	**Scenario 3-IMF pure**
Government	2.9	2.6	2.3
Private	10.1	8.6	8.6
Total	13.0	11.2	10.9

Comparing these figures with the costing of the HSSP indicates that the HSSP cannot be fully funded from public expenditure alone. If some of the private spending is included, then the HSSP can be fully funded. Some of NHSSP will in practice be funded from non-Government sources as:

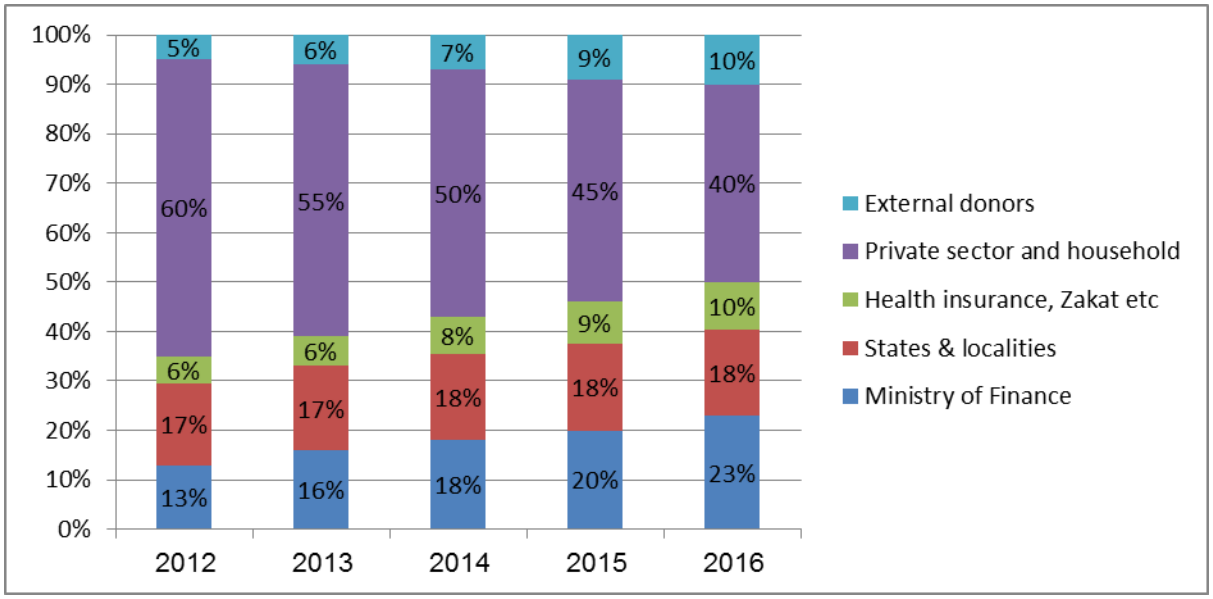
- Households contribute to some services under HSSP (fees for some services)
- Some services will be provided by the private sector and fully funded from private expenditure (e.g. in areas where there are no public services available, services funded by employers, in cities)
- Donor support will cover some costs, particularly for programmes. There is also substantial donor support for humanitarian services and emergencies in parts of Sudan.

Further analysis is required to consider the contribution from donors and the share of the HSSP services that are delivered by the private sector.

5.3 Resource generation and allocation

The priority given in NHSSP to risk protection requires a shift away from out of pocket spending and towards more spending through social health insurance and public sector funding and from donor sources. The Federal MOH has estimated how the relative shares of different funding sources could change over the NHSSP period.

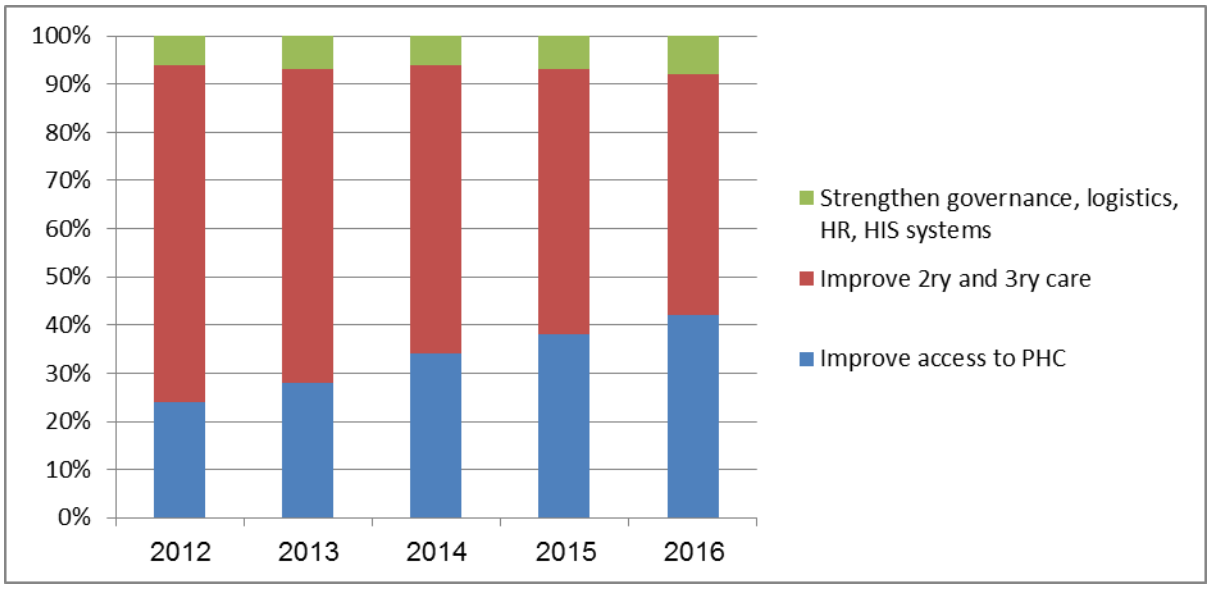
Figure 13. Projected funding sources for NHSSP



Source: FMOH estimates. These funding estimates are based on Government of Sudan estimates of economic growth and health expenditure reaching 6% of GDP. They are on a different basis from the projections above.

The NHSSP gives priority to improving access to PHC, while also improving quality of secondary and tertiary care. The strategy for resource allocation has been developed to maintain public funding for hospitals, and to allocate growth in budgets to PHC, which will gradually increase its share of total funding. Figure 16 gives an indication of the planned allocation of resources for NHSSP over time.

Figure 14. Allocation of resources by type of service and system components



Source: FMOH estimates. These estimates are on a different basis from the cost and financing projections presented above.

Part 6: Implementation Arrangements

6.1 Governance structure and implementation modalities of the strategy

Currently there are several structures with different membership and oversight functions. These include the National Health Coordination Council (NHCC), the CCM, and the Ministerial Health Council. The NHCC is headed by HE the president of the republic and its membership includes key actors in the public and private health sector, the ministers of health, related line ministries including finance, ministers of health from the states and civil society organizations. The major role of the NHCC is to oversee, direct and coordinate the effort of the stakeholders and players in the health arena. The council focuses mainly in overall policy issues and coordination of efforts. The FMOH will work with NHIF and other national institutions provide the technical and policy support to enable the NHCC to play this role effectively.

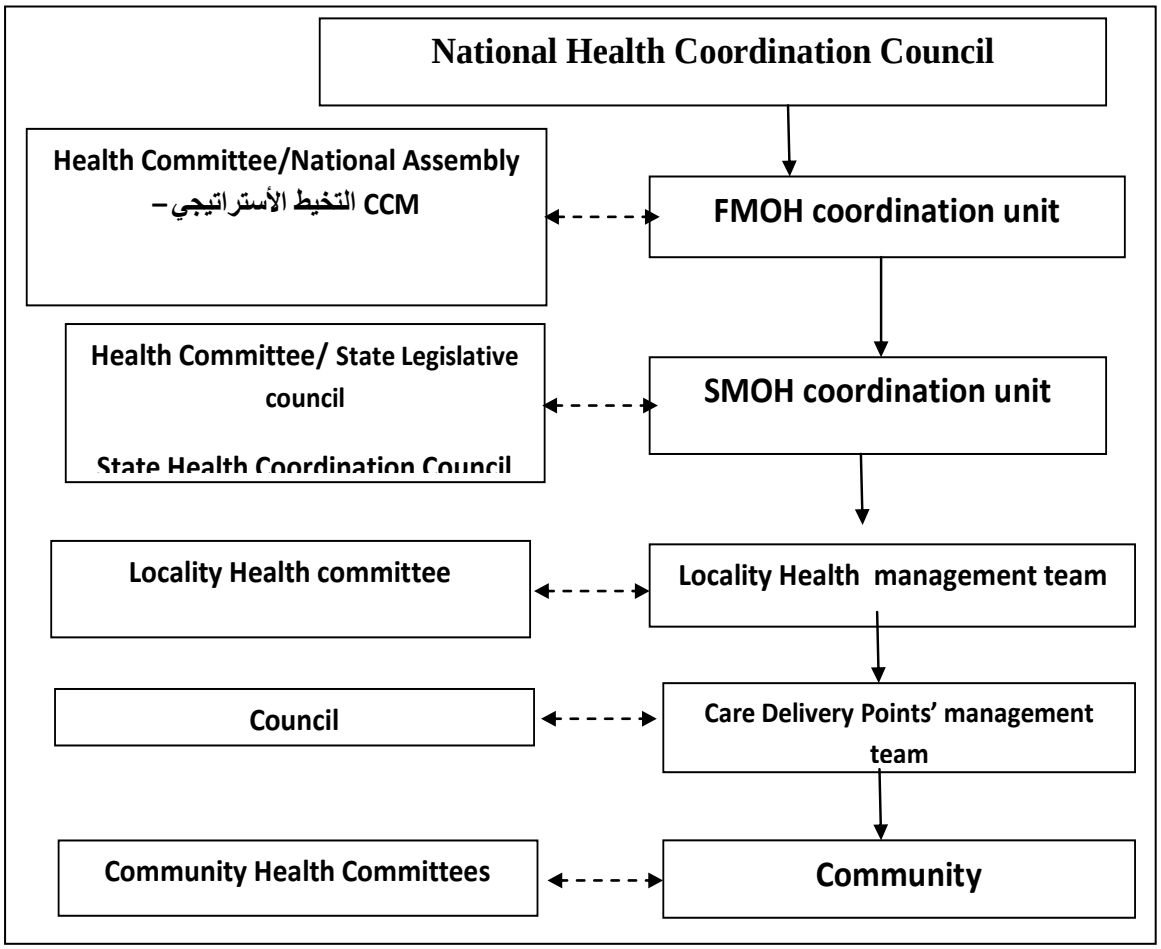
The annual health plans will be implemented by relevant FMOH departments/programs, SMOH and partners. A dedicated body to manage the day-to-day work and coordinate the implementation of the strategy will be established building on the experience of the implementation of the Decentralized Health System Development Project (DHSDP), GAVI and Global Fund Health System Strengthening projects. Possible options will include establishment of a Project Implementation Unit or similar structure as deemed necessary.

Different implementation modalities will be used for the different contexts and scenarios. For instance states and areas where there is conflict the modalities will be to focus on emergency and humanitarian aid. In such scenarios NGOs often play an important role in service delivery and the State MOHs will take account of this in their health plans. As set out in the national health policy, they may consider contracting NGOs to reach vulnerable populations and underserved groups. Where appropriate, plans will be developed for the transition from emergency to development support:. This includes a health recovery strategy for the Darfur states that is being developed to address their needs for the plan period.

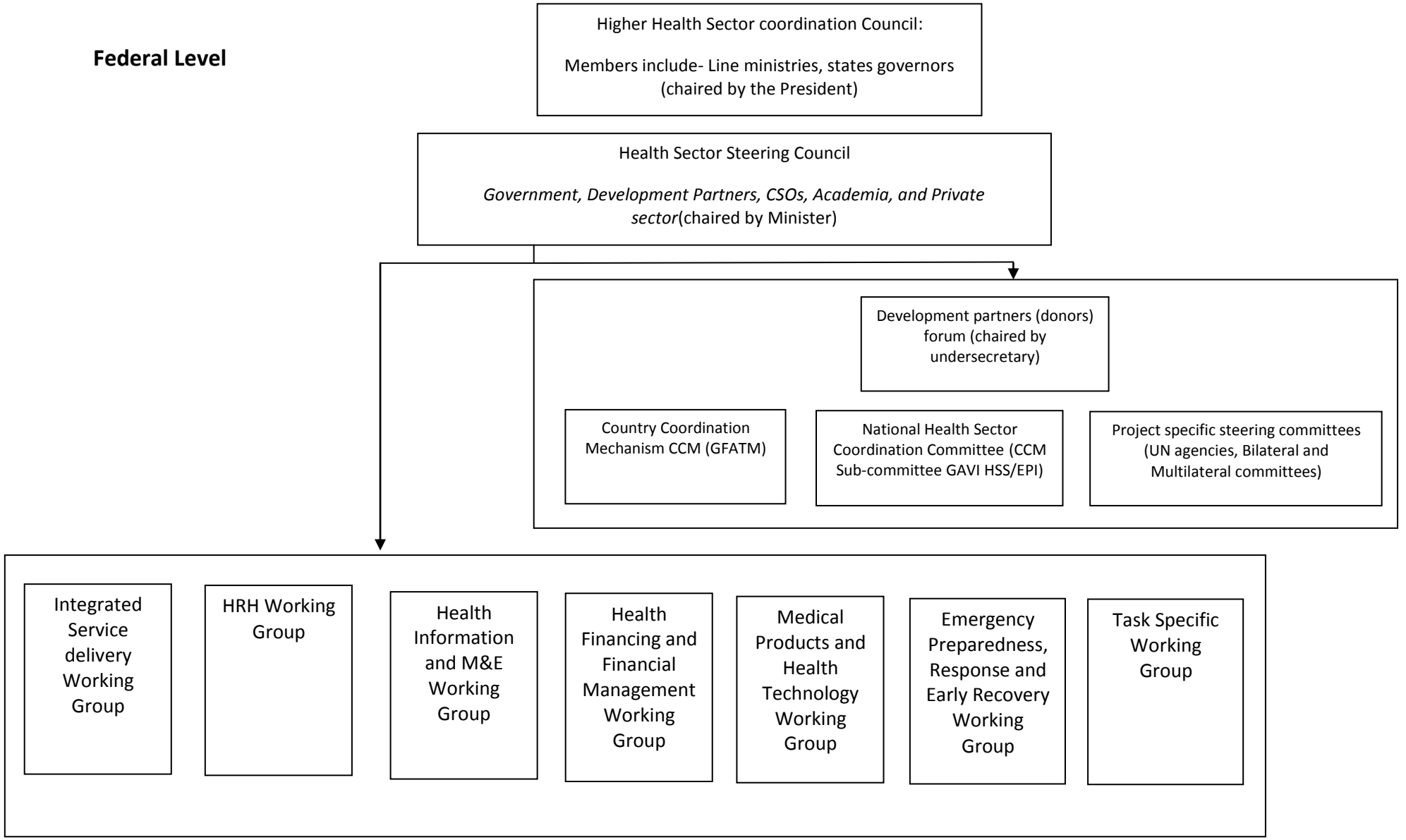
Likewise, the private sector both for profit and philanthropic will be contracted to provide services in geographical areas that are underserved or unreached by the public system. This also includes providing incentives to the private sector to provide tertiary care services that the government cannot afford to provide at the present time. The public sector will enter in public-private partnership and contracting-in and contracting-out certain services in certain circumstances.

The governing framework that will be applied at different levels to provide overall leadership in gearing the NHSSP machinery is shown in the figure below. The framework constituted the Sector partnership, governance, and stewardship processes.

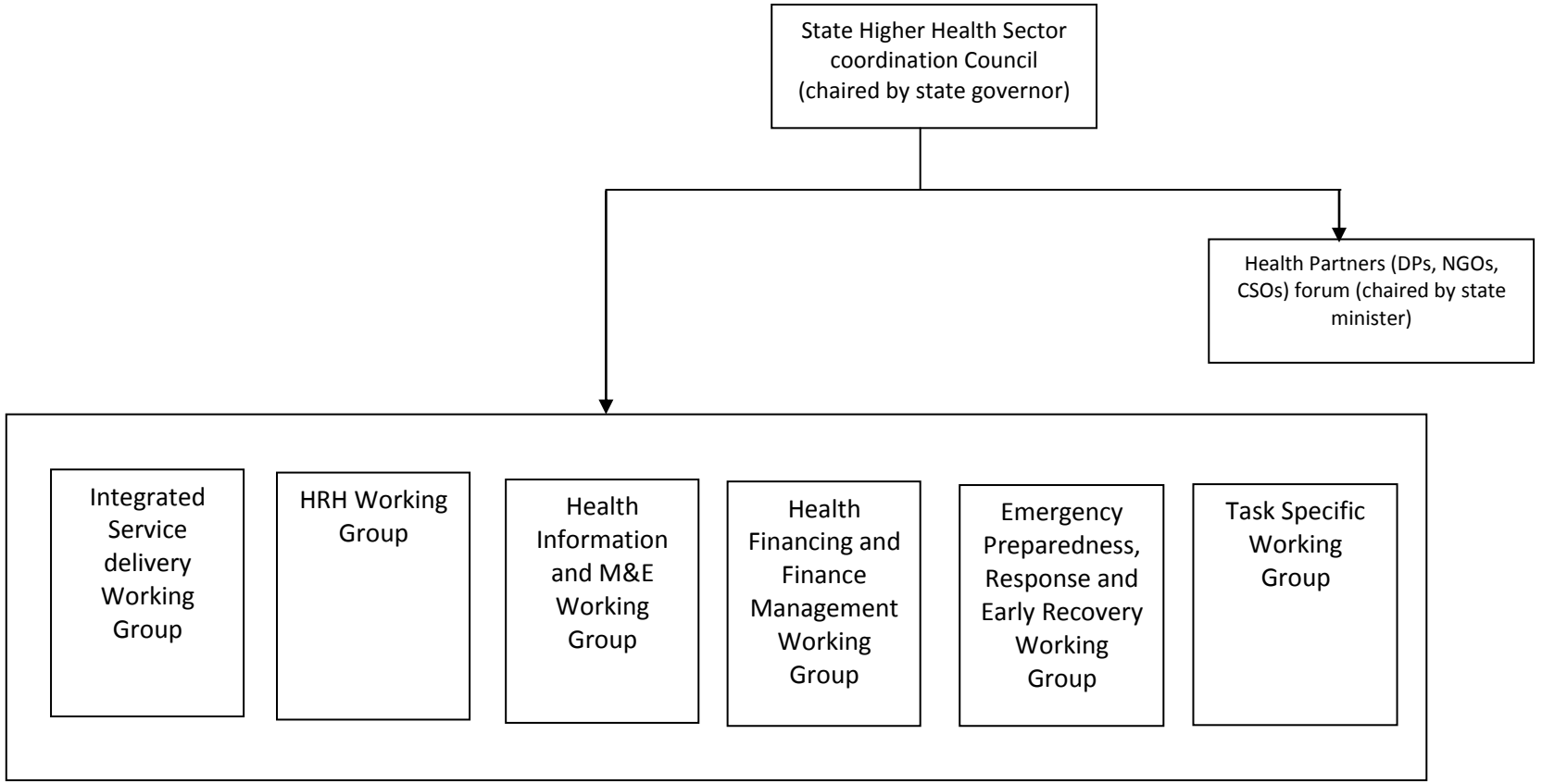
Figure 15. Governance Structure for overseeing strategy implementation:



Federal Level



Coordination Structure at State level



Locality Level

Locality Health Sector coordination Council (chaired by commissioner)

Task Specific Working Groups

6.2 Operational Planning:

To ensure effective implementation of the strategy, the MOH will develop Annual National Health Plan (ANHP) using participatory approach. The annual operational planning process will involve stakeholders from the public sector, the private sector, representation of national and international NGO, and development partners. This process will be led by the Directorate of planning and policy. Mechanisms to ensure alignment of the ANHP and disease programs plans and partners' plans to the strategy will be installed.

Planning guidelines and manuals will be updated and disseminated in order to facilitate integrated annual (operational) planning exercise at federal, state and locality levels. To this effect, the PHI is currently updating the guideline for annual planning exercise and providing capacity building to states and localities through training in leadership. The annual planning exercise will be harmonized so that the federal level planning will incorporate the plans developed at locality and state levels. It is also envisaged that FMOH will consider introducing zonal structures that will provide direct technical support to states and localities in planning and operationalizing the NHSSP.

Using standardized format/outlines and log-frame the operational plans will include the following;

1) Succinct situation analysis,
2) Key achievements during the previous year,
3) Financial resources spent and variance in budget allocation and utilization,
4) Challenges faced during the previous year,
5) Lessons learned and success stories,
6) Any further recommendations for next years,
7) Description of the annual plan objectives, expected results and detailed activities with responsibilities, resources required and due date.

The details of the planning process and contents will be described in the planning manual.

Harmonization and coordination of partners' inputs and support will be assured using existing forums and structures to debate in how this can best be achieved. For this purpose, the currently existing structures such as the CCM, the NHCC and the National Council of Strategic planning will be used. Necessary reforms to the structure, membership and mandates of the NHCC and CCM will be initiated and implemented. Partners will be expected to share information on their funding and proposed activities for coordination purposes and inclusion in operational plans.

On the occasion of the 64th World Health Assembly, Sudan signed the Global Compact to become a member of the International Health Partnership (IHP+). Subsequently, a local compact was signed in July 2013, with the aim to develop effective partnership at the country level, essentially involving the signatories of the global compact as well as non-traditional actors.

Since the country has a federal political system and there are 17 states which are composed of varying number of localities, each state will develop their own operational plan reflecting the local context and the priorities. The state plans will be aligned to the national annual health plan. The FMOH and development partners will provide the required technical support to ensure that states' priorities are developed, aligned and contributing to the NHSSP with realistic objectives and resources needed.

In this regard, development partners will be expected to share information on their funding and proposed activities for coordination purposes and inclusion in operational plans. Efforts are made to explore additional sources of funding to the strategy by engaging with non-traditional donors taking into consideration the political context of the country. The local Compact has been developed, shared and discussed with development partners with more focus on Gulf states, China, Turkey, S. Korea and other friendly courtiers in addition to multilateral - GFATM, GAVI, ADB, IDB and UN agencies.

Program collaboration and service integration

Implementation of the NHSSP would give due emphasis to Program collaboration and service integration approach - a mechanism for organizing and blending interrelated health issues, activities, and prevention strategies to facilitate comprehensive delivery of services. The FMOH and development partners at national level would promote a systemic approach to prevention by fostering better collaboration between programs and supporting appropriate service integration at point of access. FMOH will look broadly across its programs, and work with partners both at national and states' levels, to discover new and innovative ways to collaborate and use resources wisely and efficiently, taking advantage of multiple disciplines and shared knowledge and promoting holistic approaches to health protection. Existing and emerging global and national coordination machineries such as the Local compact, CCM and others would be adhered to, in order to realize the agreed upon ground rules of ensuring aid effectiveness through enhanced government leadership, alignment of programmes to national priorities, harmonizing resources and reporting.

With regards to PHC services delivery, the ministry will address key investment areas to ensure an integrated programmatic and services delivery. As part of its efforts to fostering integration throughout the health system, the FMOH will promote the delivery of PHC Essential Service Package and adopt a unified approach to monitoring and supervision of service delivery through developing and disseminating; guidelines on programme collaboration and integrated services delivery; essential integrated services packages for different levels of care; training of health workers on the manuals and guidelines, integration of the health information system at large, and availing the necessary logistics for sustained provision of the required services in an integrated manner. To this effect, the PHI is currently taking practical measures through an integrated in-service training of medical assistants and training of health mangers in integrated health service management.

6.3 Resource allocation and flow of funds

Equity and efficiency are major concerns in this strategy as evident in the situational analysis. Measures for redressing inequities in resource allocation will be taken and the first step thereafter will be the implementation of revised formula for equitable distribution/allocation of financial resources for health in Sudan, pending government approval. The formula used indicators such as the burden of disease, the health outcomes and the poverty index of each state[18]. Its implementation through a legislative action could have positive impact on equity of financial resource distribution for health. It concentrates on allocation of public financial resources of the federal and state budgets, which comprise little over 50% of financial resources, spent on a provider level in Sudan and creates a pool of resources that can be subjected to regulations and equitably redistributed among states and between localities. The revised equity formula does not address the issues related to funds flow occurring through National Health Insurance Fund (NHIF) as these funds follow the patient and are not subject for geographical allocation or the private payments occurring in the system.

The NHCC and CCM will oversee the implementation of such measures, and the necessary reporting systems and accountability measures will be implemented. Studies such as Public Health Expenditure Reviews and Public Expenditure Tracking Surveys will be undertaken on periodic intervals to monitor how the allocation of funding is changing across States and levels of care.

Available evidence from the National Health Accounts 2008 revealed that the current pattern of resources utilization is inefficient. More than 80% of the resources are spent on hospital care while PHC services are receiving less than 20% of total health expenditure. Redressing inefficiencies - both technical and allocative - will be one of the main directions during the course of the health strategy. The MOH will work to assure efficiency by allocating a higher share of resources to PHC and cost-effective interventions. The strategic vision is to move from the current level of spending less than

[18] Formula for equitable distribution of financial resource for health in Sudan. George Gotsadze, Report No. 2 Nov 2012)

20% of the Total Health Expenditure (THE) on PHC and public health programs to reach about 40% investment in PHC by the end of the 5 year health strategy. Allocation of human resources is also critical to ensure the states with the worst health status can attract and retain trained health workers.

The mechanisms for achieving this rebalancing of resource allocation are being developed and are expected to include:

- Maintaining the level of public funding to hospital services and allocating any increase in funding levels to PHC and public health programmes;
- Earmarking funds (or providing guidance) to states on allocation to PHC;
- Allocation of newly trained staff to PHC and to states with the lowest numbers of qualified health workers
- Increasing the share of drugs expenditure that is allocated for the PHC essential medicines and commodities;
- Making efficient use of specialist services by sharing them across states
- Allocation of resources for maintenance and rehabilitation of health facilities and medical equipment based on national guidelines

6.4 Institutional Capacity and Management

Institutional and organizational capacity building is at the heart of the national strategy. The first Strategic objective is aiming at strengthening the governance and leadership role of the MOH. Further, the strategy envisages developing policies, structures and regulatory framework enabling better health system performance as one of the key expected results. The interventions will build on the current achievements supported through the GF Health Systems Strengthening (HSS) and GAVI HSS projects. These will target technical areas such as leadership and planning, health financing and budgeting, M&E and information. The training needs of each government level will be identified and addressed accordingly in order to bring about the change in management capacity and working methods needed to deliver the strategy.

Technical support from partners such as WHO, WB and other relevant UN agencies will be requested based on the needs identified in annual planning. This might include using their system to procure technical services as needed.

In the new FMOH structure there is a dedicated department with clear mandate to ensure building the capacities of the states and ensure their meaningful involvement and participation. The states will be more engaged particularly during the implementation and periodic review of the strategy. To this effect, strengthening the capacity of state and locality level managers is a key issue to enable strategy implementation. Initiatives are already underway including: DHSDP has supported state capacity building in 4 states and continues into 2013; GAVI HSS funding supports state management and planning; Global Fund HSS support. The FMOH will provide support to the states that are not otherwise supported E.g. to help them with planning and monitor implementation, as part of the PHC expansion project.

6.5 Fiduciary and Procurement Systems

The strategy implementation will draw on the experience of implementing donor supported projects such as the DHSDP which is co-financed by the government and the Multi-donors Trust Fund (MDTF). The MDTF was established as part of the Comprehensive Peace Agreement (CPA) and the DHSDP was designed to establish the basis and fostering the health system reform in Sudan. It developed mechanisms for channeling funds to state level, and for accountability and reporting, at federal MOH level and in 4 states, that met the standards of World Bank,. Implementation will also draw on the experience of the GF and GAVI HSS projects.

Measures will be taken to ensure that the financial management system meets national and international standards, and produces reports appropriate for decision-making, oversight and analysis. These will include assessment of the financial management systems, capacity, and practices in the sector to identify strengths, weaknesses and gaps in the system. Accordingly, plans to strengthen financial management system will be developed and implemented.

Fund flow will be overseen by the relevant governing bodies such as NHCC according to their mandates. This will be achieved through establishing and institutionalizing efficient funds disbursement system. Regular audits and reviews will be conducted and necessary corrective measure will be taken.

6.6 Advocacy and Communication for Implementation of the NHSSP

Advocacy is act or process that supports a cause or an issue. It intends winning the support of key constituencies in order to influence policies, spending and brings about social change. The advocacy is highly needed if the implementation of certain issue or a change is requested, especially if the issue is of political interest or/and an area of concern for various actors. The review of the previous health strategic plans reflected that it has been the preserve of the MOH and even this has not been uniform with the national level being more privy to the process and content of those plans. There is a need to not only create a greater connection between the national strategic level and the operational levels, but to also communicate the current strategy to all stakeholders, including other government sectors.

The NSSHP 2012-2016 aims to provide an agreed national framework addressing the health priorities and actions for the next five years. As Sudan has joined IHP+, the plan will act as the basis of coordination among all partners and government sectors addressing health in the country. This is to be achieved through the common understanding and conceptualization of the plan by all. There is therefore a need to develop a communication and advocacy strategy to achieve, strengthen and preserve a favourable opinion of the NHSSP.

The NHSSP 2012-2016 carries a main issue which represents a real challenge for the health sector. This is a paradigm shift of priority from tertiary urban cantered curative care to the expansion of PHC services to peripheral, rural and under-served population. This implies a drastic policy change that requires political, financial, technical, professional and social will; without which the NHSSP will remain ineffective. The advocacy and communication for such a change needs a proper strategy that identifies whole range of influential actors at three levels of the health sector and even beyond. The main purpose of such advocacy and communication strategy is to build greater support and buy in of the NHSSP among key stakeholders and the public.

The plan should be based on proper analysis of the position of stakeholders and identify the most appropriate and compelling advocacy and communication messages for each stakeholder or group of stakeholders; it aims to reach to a greater audience than traditionally sort and demonstrate relevance and key benefits to target audiences and reflecting relevant binding values and commitments.

In the case of NHSSP, the target audiences includes high level politicians, government officials, non-government partners including the private sector, health providers, financing agencies reaching down to grass root consumers, communities and households. Here comes the importance of the appropriate communication channel that the advocacy plan should consider. The communication channels are diverse and each stakeholder or audience should be targeted with most specific effective one, such as policy briefs and policy dialogue and forums, one to one discussion, parliamentary sessions, open public debates and mass media tools. The timely and accurate advocacy and communication of carefully chosen messages to specific individuals and groups, through appropriate and effective channels, is a key enabling factor for any change process.

As with any strategy development and planning exercise, this is not a one-off, static process; the analysis should be regularly monitored, and the plan kept live and updated. The advocacy plan should be part of the implementation plan of the NHSSP and are subject to planned monitoring and evaluation and review processes.

The Advocacy and communication strategy will focus on:

1. Ensuring that all stakeholders are fully informed, understand their roles and responsibilities in the implementation of the NHSSP and convinced to act and/or support doing them.
2. Enhancing consultation with agencies in achieving set outcomes;
3. Ensuring that all stakeholders understand the NHSSP and on-going health reform process and willing to contribute positively according to their respective roles and responsibilities to it.

A detailed advocacy and communication plan with intended actions, their timing and responsibility should be completed on the basis of the stakeholder assessment. This will be guided by assessment of stakeholders' perceptions and needs and the environmental (internal and external) implementation of the NHSSP.

The advocacy plan will seek exploring networking and coalition building as a tool and outlines the key and secondary target audiences of the NHSSP and clearly spell out the communication goals and objectives for each stakeholder. The plan will, among others, identify:

- Key messages to be communicated to the key stakeholders;
- Methods by which the key messages are communicated to key stakeholders;
- Actions required for implementation of the strategy and the advocacy and communication roles;
- Resources needed to undertake the advocacy and communication tasks;
- Advocacy and communication risks; and
- Methodology and time-frame for evaluating the effectiveness of advocacy and communications.

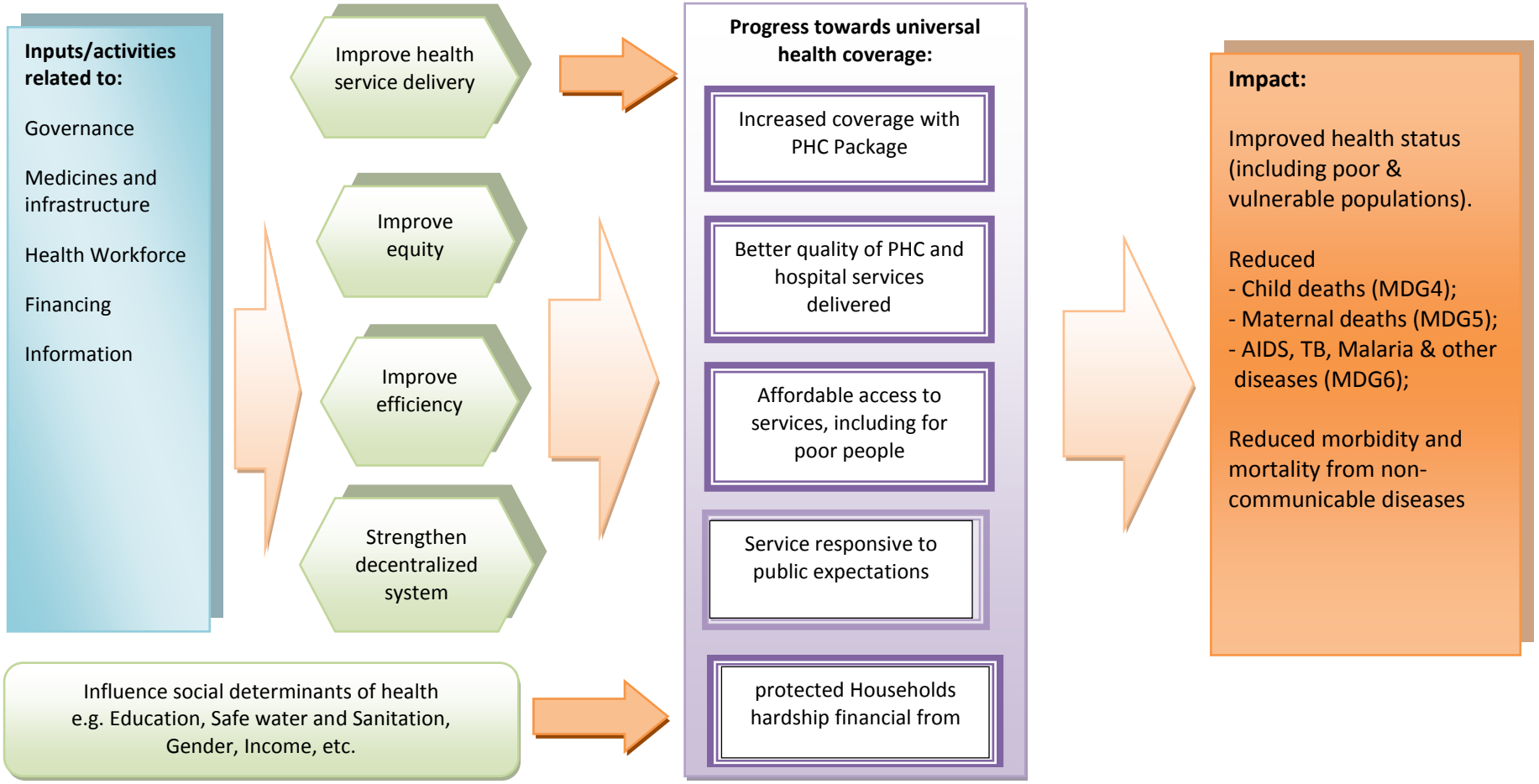
Part 7: Monitoring and Evaluation of NHSSP

This chapter discusses the process for monitoring and evaluation (M&E) and review of the NHSSP. It sets out the M&E Framework with a core set of indicators that will be used for monitoring progress against the strategy. These core indicators are complemented by additional indicators set out in the log frames for each component of the strategy (See Annex 2). The chapter then goes on to discuss the process for review of progress and how the findings will be used to influence performance. Further details on the plans for M&E are set out in the NHSSP M&E plan (MOH, 2012).

7.1 M&E Framework

The M&E framework of the NHSSP, based on the WHO Health System Building Blocks, is set out in the diagram below. The framework summarizes how the different components of the strategy work together to achieve the goals of improved health status and outcomes, especially for poor, underserved, disadvantaged and vulnerable populations; improved equity and efficiency of the system; responding to people's expectations; and financial risk protection. See the Sudan NHSSP – M&E Framework below:

Figure 16: Sudan NHSSP Monitoring and Evaluation Framework (Logic Model)



7.2 Core indicators

The core indicators are a sub-set of the indicators developed for the strategy. They are proposed as a way to give an overview of progress against the strategy. They address each stage of the results chain as set out in the framework above. There are more indicators available that look at specific activities, outputs and impact of the strategy, including those in the log frame in Annex 2 and in each programme and department's respective operational plans. The full range of indicators can be used for in depth analysis and for performance management.

The selected indicators are set out below.

Table 10: Core indicators (M&E Plan)

Table 1: Core indicators

Purpose of indicator	Indicator definition	Baseline 2011	Target	Data Source	Frequency of Data Collection	Responsible Unit	Means of verification
Inputs and process							
Government financial commitment to health	% of government expenditure on health	9.8%	15%	NHA / SHA	Annual	HE	Expenditure reports
Financial commitment to PHC within health	% of public health expenditures used for PHC services	15%	40%	FMOH Annual report	Annual	HMIS	Expenditure reports
Equity in public expenditure allocation	Ratio between top 3 and bottom 3 states for per capita public sector health expenditure	2.7 (2008 NHA)	1	SHA	Annual	HE	Expenditure Reports
Skilled human resources	Ratio of health workforce per 1000 population (disaggregated by doctors, nurses and midwives, public/private, level and state	1.23	2.45	Annual health statistic report & NHRHO	Annual	HMIS & NHRHO	Survey
Governance /efficiency	Proportion of state and locality health resources that reach facility level according to facility records.	27% (source: 2011 Public Expenditure Tracking Survey).	50%	PETS	Every 4 years	HE	PETS & Facility Surveys
Decentralized system capacity	Number of states (and localities) with annual operational plans linked to the strategy % of localities with functioning health management teams	13 56	17 100%	State Annual report	Annual	Planning and Policy Dept	Supervision and review reports

Purpose of indicator	Indicator definition	Baseline 2011	Target	Data Source	Frequency of Data Collection	Responsible Unit	Means of verification
Outputs							
Availability of the full essential package in PHC	% of PHC facilities providing all 5 elements of the integrated PHC package (by state) % of PHC facilities providing the essential package for NCDs	24% (2011) 0%	90% 25%	Annual Health Statistics Report	Annual	NCHS	Annual Health Statistics Report
Availability of essential medicines and commodities	% of health facilities that have no stock out of essential medicines and technology services during past 12 months (by state, level of facility)	66%	80%	Annual report Central Medical Supply (CMS)	Annual	Central Medical Supply (CMS)	CMS report
integrated health information system	% of health facilities submitting monthly reports every month (by PHC, MOH, NHIF, police, private) -Percent coverage with vital registration system	30% (PHC) 85% (Hospitals) -Birth reg. 32% Death reg. <10%	> 90 each 80% 50%	Annual Health Statistics NCHS	Annual	NCHS	**AHS** **Report**
Emergency preparedness and response capacity	% of diseases outbreaks responded to within 72 hours	**NA**	100%	States epidemiology Departs.	quarterly	Epidemiology program	Mission reports
Efficient use of hospital services	Bed Occupancy rate (national, by state and level of hospital)	34	70%	Annual Health Statistical report	Annual	NCHS	AHS report
HRH performance	Percentage of Public health	NA	Not less than	NHRHO	Annual	NCHS	AHS report

Purpose of indicator	Indicator definition	Baseline 2011	Target	Data Source	Frequency of Data Collection	Responsible Unit	Means of verification
	facilities applying the updated HRH performance systems		60%				
Outcomes							
Quality of TB services	TB treatment success rate (number of TB smear positive cases who completed treatment and were cured) (national, by state)	82%	87%	TB programme report	Annual	TB programme	Report
Quality of hospital care services	Percentage of hospitals accredited (private and public)	0	2ry + 3ry : 25 % PHC : 50 %	Quality committee	Annual	Quality Department	Report
Financial risk protection	% of the population covered by health insurance	37%	52%	NHIF survey	Annual	Health Insurance	NHI report
Immunization coverage	% infants who received Pentavalent vaccine (PVV) 3rd dose (national, by state, by gender) Measles vaccination	95% 86%	Sustain at 95% 95	MOH Annual Report	Annual	MCH	Annual Report
ARV coverage	% of adults and children with advanced HIV infection receiving antiretroviral therapy (by state)	9.3% (2012)	30% (2014)	SNAP Annual Report	Annual	SNAP	Report
MARPS receiving HIV counseling and testing	Number of MARPS who received counseling and testing services for HIV and received their results	1300 (2012)	50,000	SNAP Annual Report	Annual	SNAP	Report
Malaria prevention and treatment coverage	% of targeted population in high risk areas sleeping under bed nets (by socio-economic group (SEG)	16%	80%	SHHS 2014	Every five years	Communicable Disease and NCD Department	Survey Report

Purpose of indicator	Indicator definition	Baseline 2011	Target	Data Source	Frequency of Data Collection	Responsible Unit	Means of verification
	% of children and pregnant women in high risk areas sleeping under insecticide treated nets (by socio-economic group (SEG) % of patients with malaria/fever who have access to ACTs	Children-7.8% (2005) Pregnant women 16% (2009) 40% (2009)	90% 80% 80%				
Coverage with Ante natal care	% of pregnant women who received 1+ antenatal visits prior to delivery	76.3%	90%	SHHS	Every five years	MCH	Survey Report
Coverage with skilled birth attendance	% deliveries attended by skilled personnel (by state, by SEG)	72.5%	90%	SHHS	Every Five Years	MCH	Survey Report
Coverage with essential medicines	% population with access to essential medicines	50%	80%	CMS	Annual	CMS Authority	Report
Improved financial risk protection	Out of pocket expenditure as % of total health expenditure	64% (2008)	50%	NHA	Every 3 years	HE	Survey Reports
MCH/FP Acceleration core indicators	Contraceptive prevalence rate (CPR)	9%	15%	SHHS	2014	MCH	Survey Report
MCH/FP Acceleration core indicators	Unmet needs for family planning	28%	20%	SHHS	2014	MCH	Survey Report
PHC coverage	% of people living within five Km of PHC facility	86%	100%	Annual Health Statistics Report	Annual	NCHS National Center for Health Statistics	Annual Report

Purpose of indicator	Indicator definition	Baseline 2011	Target	Data Source	Frequency of Data Collection	Responsible Unit	Means of verification
Availability of PHC essential service package	% of facilities providing full package of essential PHC services	24%	100%	Annual Health Statistics Report	Annual	NCHS	Annual Health Statistics Report
Safe water supply	Percent of population with access to improved water supply	55% (Urban 66%, Rural 50%)	82%	SHHS	four years	Planning department	Survey
Sanitation	Percent of population with access to improved sanitation	24% (Urban 44%, Rural 13%	67%	SHHS	four years	Planning department	Survey
NCD risk factors: Behavioral indicator	Prevalence of current tobacco use among adults	12%	Halted at baseline level	STEPS Survey	Five Years	Communicable and NCD Dept	Survey Report
NCD risk factors: Biological indicator	Prevalence of overweight or obesity in persons aged 18+	54% (2005)	Halted at baseline level	STEPS Survey	Five Years	Communicable and NCD Dept	Survey Report
NCD risk factors: Biological indicator	Prevalence of raised blood pressure among persons aged 18+ years	27% (2005)	Halted at baseline level	STEPS Survey	Five Years	Communicable and NCD Dept	Survey Report
NCD risk factors: Biological indicator	Prevalence of raised blood glucose/diabetes among adults aged 18+ years	8.3%	Halted at baseline level	STEPS Survey	Five Years	Communicable and NCD Dept	Survey Report
NCD risk factors: Biological indicator	Prevalence of raised total cholesterol and mean total	19.8%	Halted at baseline	STEPS	Five Years	Communicable	Survey

Purpose of indicator	Indicator definition	Baseline 2011	Target	Data Source	Frequency of Data Collection	Responsible Unit	Means of verification
	cholesterol in persons aged 18+ years		level	Survey		and NCD Dept	Report
Impact							
Health status (MDG4)	Infant Mortality Rate	57 per 1000 live births	43 per 1000 live births	SHHS	2014	MCH	Survey Report
Health status (MDG4)	Under-5 Mortality rate	80 per 1000 live births	58 per 1000 live births	SHHS	2014	MCH	Survey Report
Health status (MDG4)	Neonatal mortality rate	33 per 10000	27 per 1000	SHHS	2014	MCH	Survey Report
Health status (MDG5)	Maternal Mortality Ratio	214 per 100,000 live births (2010 SHHS)	196 per 100,000 live births	SHHS	2014	MCH	Survey Report
Health status (MDG6)	HIV prevalence among population aged 15-49 years (by state)	0.67% (2009)	< 1% (2014)	SHHS	2014	MCH	Survey Report
HIV among MARPS	HIV prevalence among MARPS	Less than 5%	Under 5%	Special Study on MARPS	Every Two Years	SNAP	Survey Peer Review
Health status (nutrition)	Prevalence of underweight children under 5 years of age (moderate)	32.2%	16%	SHHS	2014	MCH	Survey report
NCD Mortality	Proportion of deaths in persons between ages 30 and 70 years due to cardiovascular diseases (CVD), cancer, diabetes or chronic respiratory diseases	Male 37%; Female 42% (WHO 2004)	Halt at baseline level	Annual Health Statistics Report	Annual	NCHS	Annual Health Statistics Report

7.3 Data collection and analysis

The data sources for the indicators and further details on the indicator definitions are set out in the M&E plan. The selection of indicators has taken into account existing and planned data collection exercises and has avoided introducing additional data sources. The major sources are:

- Routine health information system (HIS) based on health facility reporting. As set out in the Information log frame and the HIS Strategic Plan, the HIS is being revised to integrate programme reporting. Training and quality assurance are planned to increase the coverage and quality of data.
- Other administrative sources, particularly government budgets financial reports and human resources data.
- Household surveys including the Sudan Household Health Survey (SHHS) which is conducted every 4 years (next due in 2014). These surveys usually allow analysis by socio-economic group and for other target groups.
- Birth and death registration systems.
- Specific analytical exercises including the development of National Health Accounts, planned every 2 years (due 2012, 2014, 2016). Also data quality assessment through surveys of facility readiness and data quality. And research studies on various topics.

The collation of data and its analysis culminated in a new product called the Health Sector Performance Assessment. This is an analytical report of the progress against targets outlined in the NHSSP. It includes analysis and synthesis of data from multiple sources, data quality assessment, and information on equity, efficiency and contextual changes. It presents performance by state and nationally against the core NHSSP indicators. The report will serve as a baseline for future reviews.

7.4 Review processes

The Ministry of Health already has various processes for progress review and feedback to monitor implementation, including integrated programme monitoring and planned quarterly meetings of states to review progress. Monitoring of NHSSP will build on these processes. The quarterly meetings will continue to monitor progress against operational plans and strategic objectives. There will also be follow up visits to all Sates; at least once and additional ones to states which are identified as needing additional support.

The NHSSP will in addition hold a **Joint Annual Review** (JAR) meeting once a year. The purpose of this review will be:

- To provide a tool for accountability between partners on their performance in the previous year, with opportunities for comparing performance between states and to look at development partners' and other funders' performance against their commitments,
- As well as a tool for developing consensus on priorities going forward.

The scope of the JAR meeting is likely to include:

- Review of the previous year's progress against the NHSSP, based on the findings in the Health Sector Performance Assessment report and any pre-JAR missions or studies.
- Discussion of key issues including barriers to implementation and emerging threats and opportunities that might require a response, and how to address them.
- Highlight issues for inclusion in the next round of operational plans and in the current year's implementation.
- Share lessons and successful stories between States
- Draw attention to the least performing States and plan for support needed (Financial, technical…)

The review will be Joint in terms of including various stakeholders in the sector: national institutions including Health, Finance, NHIF and Planning Secretariat; State ministries of health and finance; international

organizations; national and international NGOs and civil society organizations that are active on health issues; and representatives of key sector bodies including private providers and professional bodies.

The meeting will be held around June each year for about two days. This timing is in order to allow time for submission of service delivery and financial data for the previous year and its cleaning and analysis; completion of any pre-review assessment missions; and completion of the Performance Assessment Report. It is also timed before the planning and budget cycle for the following year starts – as the annual planning meeting where states are brought together and briefed on the preparation of the next operational plan is usually held in July or August, and others will be planning and preparing budgets around this time. The key findings and conclusions will be summarised in a report of the Joint Annual Review that can be shared widely within and beyond the health system.

In 2015 the Joint Annual Review will be replaced by a Mid-Term Review (MTR) of the strategy that looks at whether the strategy needs to be adjusted in view of contextual changes. It will also provide the basis for the situation analysis that feeds into development of the next NHSSP for 2017 onwards. The evaluation of NHSSP will be conducted in the first part of 2017 and feeds into the JAR in 2017.

This effort will be led by the Directorate General, Health Planning and International Relations at National Ministry of Health level. Within the Directorate General, Health Planning and International Relations, a national focal person will be appointed /recruited to coordinate and organize this review process. The national focal person will work with a multisectoral/partners team that should have strong analytic skills to plan for the JAR and prepare for the Annual Performance Assessment Report.

At the level of States the Directorate General of Health Planning will be responsible for conducting a similar annual review within the state with relevant partners and all localities represented. Performance by individual localities can be presented (perhaps in 'league tables') and reasons for strong or weak performance can be discussed and follow up actions identified[19]. Timing is expected to be at least one month before the National JAR to feed into the later process.

Box 2. Summary of review timetable

	2012	2013	2014	2015	2016	2017
Reviews (National and States)		JAR on 2012	JAR on 2013	MTR in 2012-14	JAR in 2015	Evaluation of 2012-16
New strategy 2017-2021				Start NHSSP development	Complete NHSSP development	Start new NHSSP

Follow up

The timing of the JAR and the participation of relevant stakeholders is intended to influence both the current year's implementation and the following year's budgeting and planning, at both national and state levels.

[19] This type of performance review approach has been used to good effect in other countries (e.g. Ghana and Uganda) and Sudan will learn from their experience.

Annex 1: Planning process of the NHSSP

Annex 2: Log frames for each component of the strategy

Strategic objective and Expected results	Indicator	Baseline	2012	2013	2014	2015	2016
1. To strengthen effective leadership, good governance and accountability of the health system	% of localities received at least 50% of planned budget (by state)	NA	-	30%	-	-	Not less than 90%
(1.1) Policies, structures and regulatory framework enabling better health system performance developed	Targeted tools/framework in place	NA	50	60	70	80	More than 80%
(1.2) Improved harmonization and alignment of partners and other sectors' plans with national health priorities, vision and goals	Proportion of partners who signed up the Local COMPACT Proportion of sectors/partners plans in line with national health priorities, vision and goals	0 NA	0 50	30% 60	60% 70	75% 80	100% Sustain at 80%
(1.3) Management, planning and accountability in the decentralized system strengthened	Number of states (and localities) with annual operational plans linked to the strategy	13	13	17	17	17	17

Strategic objective and Expected results	Indicator	Baseline	2012	2013	2014	2015	2016
(2): To develop a sustainable and integrated Health Information System, that provides comprehensive, quality health related information in support of evidence-based policy and planning at different system level	Presence of an integrated HIS that provide needed information on health system performance	HIS fragmented	Outlines of the integrated system developed	system developed and implemented	System evaluated	System improved and functional	System functional
(2.1) Coordination of the HIS strengthened at national, States and local	Coordination mechanism and setup in place	No effective coordination	Coordination mechanism proposed	Coordination mechanism	Coordination mechanism evaluated	Mechanism functional and	Mechanism functional and

levels		mechanism	and shared between different partners	functional	and improved	effective	effective
(2.2) Availability of integrated, accurate and complete health data from routine public and private facilities and other data sources increased	% of health facilities submitting monthly reports every month (by PHC, MOH, NHIF, police, private)	NA	20	30	40	60	Not less than 80%
	% of births registered	32	40	50	60	70	80
	% of deaths registered	< 10	15	25	30	40	50
(2.3) Data quality, management, dissemination and use of HIS product improved at all levels	% of periodic and annual statistical reports produced and disseminated according to the standards	TBD	15	25	30	40	Not less than 50% of periodic and annual statistical reports
	Data quality assurance system in place	Under development	system finalized and tested	system implemented	System evaluated	System improved and functional	System functional
	% HF, Localities and States produce, analyze and use periodic reports	TBD	10	20	30	40	Not less than 50%
(2.4) Evidence generation and M&E capacity and system strengthened and institutionalized	Number of dashboards, summaries and briefs produced and disseminated to relevant decision makers and stakeholders	TBD	Guidelines and formats suggested and endorsed	Annual analytical report on health sector performance produced by June Summaries/	Annual analytical report on health sector performance produced by June Summaries/	Annual analytical report on health sector performanc e produced by June	Annual analytical report on health sector performance produced by June

				Briefs produced according to needs	Briefs produced according to needs	Summaries/ Briefs produced according to needs	Summaries/ Briefs produced according to needs

Strategic objective and Expected results	Indicator	Baseline	2012	2013	2014	2015	2016
(3): To improve equitable coverage and accessibility of quality integrated primary health care.	% infants who received Pentavalent vaccine (PVV) 3rd dose (national, by state, by gender)	95% (Routine)	Sustain at 95%	Sustain at 95%	Sustain at 95%	Sustain at 95%	Sustain at 95%
	% infants who received Measles vaccination	86%	87%	89%	92%	95%	Sustain at 95%
	Number of Polio and Guinea worm cases reported (Eradication achieved)	0	0	0	0	0	0
	% of children in high risk areas sleeping under insecticide treated nets (by socio-economic group (SEG)	7.8% (2005)	16.1% (2009)	-	65%	-	90%
	% of pregnant women who received 1+ antenatal visits prior to delivery	76.3%	78%	82%	84.4%	87.2%	90%
	Percent of HF providing Family planning services	51%	60%	67.5%	75%	82.5%	90%
	TB treatment success rate (number of TB smear positive cases who completed treatment and were cured) (national, by state)	82%	83%	84%	85%	86%	87%
(3.1) Management capacity of the decentralized system strengthened and efficiency improved	Proportion of Localities meeting standards for functional management	15%	28%	52%	65%	80%	90%

	structure						
(3.2) Equitable coverage with quality PHC package improved and health facilities infrastructure strengthened	Percent population covered by functioning health services delivery points providing services according to the standards	National average PHC facility 1/ 6,816	1/6500	1/6300	1/6000	1/5500	All states meet at least National target of PHC facility 1/ 5000
	% of PHC facilities providing all 5 elements of the integrated PHC package (by state)	24%	32%	50%	65%	80%	90%
	% of PHC facilities providing the essential package for NCDs	0%	2%	12%	15%	20%	25%

Strategic objective and Expected results	Indicator	Baseline	2012	2013	2014	2015	2016
(4): To assure quality secondary and tertiary care services	Accreditation system in place	No system	Accreditation system developed	Accreditation system institutionalized	Sustain implementation	Sustain implementation	Sustain implementation
	Percentage of accredited health facilities (Public and private) (2ry +3ry / PHC)	-	-	-	% of accredited facilities: 2ry + 3ry : 10 % PHC: 25 %	% of accredited facilities: 2ry + 3ry : 15 % PHC: 35 %	% of accredited facilities: 2ry + 3ry : 25 % PHC: 50%
	% of adults and children with advanced HIV infection receiving antiretroviral therapy (by state)	(NA)	9.3%	15%	21%	27%	30%
(4.1) Quality, safety and efficiency of secondary and tertiary Referral services strengthened	Bed Occupancy rate (national, by state and level of hospital)	34%	43.6%	49%	56%	63%	70%
	Number of health facilities implementing specified patient safety standards and guidelines	5.7%	12.7%	19%	30%	43%	50%
(4.2) Efficient referral, ambulance system and emergency medical care developed and implemented	Percent of PHC, secondary and tertiary facilities with functioning referral system	0	System defined	System piloted	20% PHC, 30% in	30% PHC, 50% in	Not less than 50% in PHC, 80% in secondary

					secondary and tertiary	secondary and tertiary	and tertiary
(4.3) Increased coverage by environmental health services (sanitation, vector control, water and food safety)	% of population served by environmental health services	40%	45%	50%	55%	60%	70%
	% of population served by Improved sanitation	26%	30.8	35.6%	40.4	45.2	50%
	% of population served by Improved water supply	58%	63.8	69.6	75%-	75.4	87%
(4.4) Ensured early preparedness and response to emergencies and epidemics	Proportion of ministry of health facilities covered by the surveillance system.	15%	35%	55%	75%	90	95%

Strategic objective and Expected results	Indicator	Baseline	2012	2013	2014	2015	2016
(5): To improve equitable access to quality essential pharmaceuticals and health technologies.	% population with access to essential medicines	50	-	65	-		80%
(5.1) Quality and safe pharmaceuticals and health technologies affordable and rationally used	% of patients prescribed antibiotics at public and private health facilities	65%	-	55%	-	-	30%
	National median lowest price paid by patients for a basket of medicines in public and private sector.	2.02 times the international reference price in the public sector and 3.3 in the private sector	-	1.9	-	-	1.6 times the international reference price
	Percent of sample passing the post marketing surveillance test	**68%**	75%	80%	85%	90%	95%
	% of medical devices/ technology services (TS) with clear lifecycle plan	NA	10	20	30	40	50%
(5.2) Availability of pharmaceuticals and commodities ensured	% Public health facilities provide the appropriate drugs and technology services for the level	86% for medicines (NA for TS)	87% for medicines	88%	89%	90%	92%

			30%	35%	40%	45%	50%
	% of health facilities that have no stock out of essential medicines during past 3 months (by state, level of facility)	66	68	72	76	78	80%

Strategic objective and Expected results	Indicator	Baseline	2012	2013	21014	2015	2016
6 To develop a well-performing, stable and equitably distributed workforce with an appropriate mix of skills to meet agreed health sector needs	Ratio of health workforce per 100000 population (disaggregated by doctors, nurses and midwives, public/private, Rural/urban level and state	1.23 per 100000 population	1.45	1.67	1.89	2.11	> 2.3
6.1 HRH planning strengthened in support of providing health services required professions	Presence of an Updated HRH plan based on HRH projections	HRH national strategic plan developed and awaiting for projections	Workforce projections developed/ updated	Workforce projections used to inform current policy review	Workforce projections used to inform policy making and yearly federal plans	Workforce projections used to inform state yearly plans	Workforce projections used to inform stakeholders yearly plans
6.2 Systems ensuring more equitable distribution of health workers - especially doctors and nurses are developed	The ratio of doctors to nurse	1:1.7	1:2	1:2.5	1:3	1:35	1: 4
	Proportion of HRH in urban Vs rural	70 in urban /30 in rural	65/35	60/40	55/45	50/50	Stabilize 50/50
6.3 HRH management systems , including individual performance systems; improved	Percentage of Public health facilities applying the updated HRH performance systems	HRH performance systems are Not updated nor functional	HRH performance systems updated	5 % of the public health facilities applied the updated HRH performance systems	15 % of the public health facilities applied the updated HRH performance systems	25% of the public health facilities applied the updated HRH performan	35% of the public health facilities applied the updated HRH performance systems

						ce systems	
6.4 HRH production - education and training- improved in line with health service needs	Percentage of HRH who received certified CPD	25 % of health workforce received a minimum of 1 week CPD training	34 %	43 %	52 %	61 %	70%
	Number of allied health professionals graduating from the Academy of health sciences and its branches per year and category	Around 3000 graduates per year	3600	4200	4800	5400	6000
6.5 HRH functions and capacities of the decentralized levels are strengthened	Number of States having a functioning HRH management system	0	3	6	10	14	17

Strategic objective and Expected results	Indicator	Baseline	2012	2013	2014	2015	2016
(7): To ensure that the health system financing is sustainable, efficient and equitable and provides social protection to the people	% of government expenditure on health as percentage of total government expenditure % of health sector aid disbursement released according to agreed schedules in an annual or Multi year frameworks	9.8% NA	10.3 NA	12	13	14	15% 50%
(7.1) Adequate and equitable allocation of financial resources for health is assured	Ratio between top 3 and bottom 3 states for per capita public sector health expenditure	2.7	2.4	2	1.7	1.3	1
(7.2) Reduced inefficiencies in resources utilizations and the health system financing	% of public health expenditures used for PHC services	<20%	20%	25%	30%	35%	40%
(7.3) Building a social protection system with risk sharing and cross subsidies mechanisms	% of the population covered by health insurance	37% (NHIF)	40%	43%	46%	49%	52%
	Out of pocket expenditure as % of total health expenditure	64	61.2	58.4	555.6	52.8	50