Sudan National Sanitation and Hygiene Strategic Framework

26 August 2016

Foreword

The Republic of Sudan remains one of the most poorly performing countries in terms of access to sanitation facilities. According to the Sudan Multiple Indicator Cluster Survey (MICS 2014), only 33% of its population use improved sanitation facilities while 29% have no sanitation facilities at all and continue to defecate in the open. The remaining use shared or unimproved sanitation facilities which do not guarantee safe and hygienic conditions for a healthy environment. The MICS 2014 also shows significant disparities in access to improved sanitation between the different states and between urban and rural settlements. Access to improved sanitation falls between about 10% in Gadaref State and about 79% as in Northern State and between 22% for rural and 57% for urban areas.

Sudan is a signatory to key global actions and commitments on sanitation and hygiene such as the AfricaSan and Sanitation and Water for All; the eThekwini and Ngor Declarations. But there has been a wide gap between political commitment to and the provision of sanitation coverage. One of the reasons has been that sanitation has received low prioritization in the WASH strategies so far, with most of the funding and resources being allocated towards provision of water resources. Second, on the whole, the sector funding for sanitation has been low, both among donor funding and investments made by the government. Thirdly, there are several bottlenecks at the institutional level with inadequate capacity to roll out and implement community led sanitation approaches, weak coordination and lack of harmonization among different actors engaged in sanitation. Another reason has been the greater attention given to humanitarian contexts than development, with most of the donor funding being directed towards addressing emergency situations which is a growing concern in Sudan.

The Sudan National Sanitation and Hygiene Strategic Framework (SNSHSF) has been developed to provide strategic direction for scaling up sanitation and hygiene across Sudan. The document also a guide for different approaches such as capacity development; promotion of improved technology options through sanitation marketing; provision of sanitation facilities in public places; Community-Led Total Sanitation; promotional and media campaigns; creating enabling environment and coordination mechanism.

In this strategy document an indicative investment required for achieving different action plan is estimated with proposed financing options from government at all levels, the private sector, especially for construction of sanitation facilities in public places and the cost by households for construction of household sanitation facilities.

I am glad to stress the importance of safe sanitation and hygienic practices for improving human health, dignity and economic development cannot be stressed enough and there is considerable evidence globally to support this. Sanitation and hygiene is also directly related to the status of child, maternal and neonatal health and nutrition. To this effect, Sudan's poor child health and nutrition statistics are quite telling of its poor sanitation and hygiene conditions: 33% of the country's children are malnourished and the child mortality rate under 5 years, is 68 deaths for every 1000 live births. Furthermore, the diarrhea rate is 29% among children under-5 years, 38% of Sudan's children are stunted and 16% are wasted. Additionally, it is estimated that for every 1 US dollar spent on sanitation that 2 US dollars is gained and that Sudan loses 2.1% of its GDP annually due to poor sanitation. This translates to USD 490 million / year or USD 32.8 per capita per year

The Federal Ministry of Health will provide the enabling environment and leadership required in achieving the target and Action Plan defined by working together with communities, civil society, development agencies, private sector and government at sub-national levels.

H.E. Bahar Iddris Abu Garada,

Minister of Health

Acknowledgements

This framework was developed under the leadership of the Federal Ministry of Health with the involvement of a wide range of sector stakeholders. It involved a staged consultative process, including: analysis of policies, strategies and associated documents; two consultative workshops held in Khartoum and El Fasher, North Darfur, involving representatives from most States in Sudan; key informant interviews; and a review process including reviewers from across Sudan and external and a validation workshop in Khartoum.

Sincere thanks to the wide range of contributors from Locality, State and Federal Levels across ministries, corporations and committees, from non-governmental organisations, the Sudan Red Crescent Society, universities, development partners and humanitarian donors, United Nations agencies and the private sector. The process was financed by UNICEF and the World Health Organisation, facilitated by RedR Sudan and supported by a core group from FMoH, UNICEF, WHO, MoH/Khartoum State and RedR Sudan.

Contributing institutions:

Government of Sudan:

- **National Sanitation High Committee**
- **Federal Ministries** - Health; Water Resources and Electricity, Drinking Water and Sanitation Unit (DWSU); Education; Environment, Natural Resources and Physical Development; Transport, Roads and Bridges/ Transport and Highways Corporation; International Cooperation; Finance and National Economy
- **State Ministries, Localities and Corporations**:
  - State Ministries of Health (16) – Blue Nile; Central Darfur; East Darfur; El Gadarif; Gezeera; Kassala; Khartoum; North Darfur; Northern; Red Sea; River Nile; Sennar; South Darfur; South Kordafan; West Darfur; and White Nile
  - Ministry of Urban Development and Infrastructure (or associated Ministry) / Water and Environmental Sanitation Unit (7), Blue Nile; East Darfur; North Darfur; Red Sea; South Darfur; South Kordofan; and West Darfur
  - Jaba Awhia Mahalia, Khartoum State; and Khartoum State Cleaning Corporation (KSCC)
  - State Ministry of Social Welfare / Humanitarian Aid Coordination (HAC), North Darfur

Civil society organisations and societies:

- Asalaam Organisation for Rehabilitation and Development (AORD); Dar es Salaam Development Association (DDA); Italian Cooperation; Labena Women's Organisation; Oxfam America; Plan International Sudan; RedR Sudan; Relief International (RI); Sudanese Hilef for Peace and Development Organization (SHPDO); Sudan Red Crescent Society (SRCS)

Higher education institutions:

- El-Fasher University; University of Bahri; University of Gazera; University of Khartoum

Private sector:

- Hilal Alfadil, Independent Consultant; Somaia Alfadil, Independent Consultant; Training Centre SWA; Medica Company

United Nations and associated agencies:

- International Office for Migration (IOM); United Nations Children's Fund (UNICEF); United Nations Development Programme (UNDP); World Health Organisation (WHO)

Other development partners and humanitarian donors:

- Department for International Development (DFID); African Development Bank (AfDB); European Humanitarian Aid and Civil Protection Department, European Union (ECHO); Japanese International Cooperation Agency (JICA); Office of United States Foreign Disaster Assistance (OFDA)

Acronyms

AfDB	African Development Bank
AMCOW	African Ministers Committee on Water
ARIs	Acute respiratory infections
CATS/CLTS	Community Approaches to Total Sanitation (which is based on Community-led Total Sanitation)
CBO	Community based organisations
CBS	Central Bureau of Statistics
CEHA	WHO Regional Centre for Environmental Health Actions
CFS	Child Friendly Schools (also used for Child Friendly Spaces in humanitarian contexts)
CHAST	Child Hygiene and Sanitation Training
CLTS	Community-led Total Sanitation
CSO	Civil Society Organisations (NGOs, CBOs, FBOs)
DFID	Department for International Development, UK Government
DWST	Drinking Water and Sanitation Training Centre
DWSU	Drinking Water and Sanitation Unit, MoWRE (previously known as the PWC)
ECHO	European Humanitarian Aid and Civil Protection Department, European Union
EH	Environmental health
EMIS	Education management information system
FBO	Faith based organisation
FGD	Focus group discussion
FGM/C	Female genital mutilation / cutting
FMoH	Federal Ministry of Health
FRESH	Focussing Resources on Effective School Health
FSM	Faecal sludge management
GBV	Gender based violence
GoS	Government of Sudan
HAC	Humanitarian Aid Commission
H.Educ.	Higher education
HACCP	Hazard analysis critical control point
HCENR	Higher Council for Environment & Natural Resources (Khartoum State)
HCW	Health care wastes
HCWM	Health care wastes management
HMIS	Health management information system
HP	Hygiene promotion / Health promotion
HPS	Health Promoting Schools
HWM	Hazardous wastes management
IMCI	Integrated management of childhood illnesses
INGO	International non-governmental organisation
IOM	International Office for Migration
IVM	Integrated vector management
JICA	Japanese International Cooperation Agency
JMP	Joint Monitoring Program, WHO/UNICEF
KAP	Knowledge, attitude and practice
KII	Key informant interview
KSCC	Khartoum State Cleaning Corporation
M&E	Monitoring and evaluation
MDG	Millennium Development Goals
MHM	Menstrual hygiene management
MIC	Ministry of International Cooperation
MICS	Multi-Indicator Cluster Survey
MIS	Management information system
MoENRPD	Ministry of the Environment, Natural Resources and Physical Development
MoFNE	Ministry of Finance and National Economy
MoE	Ministry of Education

MoWRE	Ministry of Water Resources and Electricity
MoWSS	Ministry of Welfare and Social Security
NGO	Nongovernmental organisation
NSHC	National Sanitation High Committee
O&M	Operation and maintenance
OFDA	Office of United States Foreign Disaster Assistance
PHAST	Participatory Hygiene and Sanitation Transformation
PTA	Parents and Teachers Association
PWC	Public Water Corporation (now known as the DWSU)
PWD	Person(s) with disability
RedR	Register of Engineers for Disaster Relief
S&H	Sanitation and hygiene
SAEC	Sudan Atomic Energy Commission
SAG	Sector Advisory Group [of the humanitarian WASH Sector]
SDG	Sustainable Development Goals
SHCC	School Health Coordination Council
SM	Sanitation Marketing
SME	Small and medium sized enterprises
SMoUDPI	Ministry of Urban Planning and Infrastructure – at State level (in some States the title 'Infrastructure' may be replaced by 'Public Utilities' or 'Construction')
SMoW/A	State Ministry of Welfare or Affairs
SNSHSF	Sudan National Sanitation and Hygiene Strategic Framework
SSC	State Sanitation Committee
SWA	Sanitation and Water for All
SWC	State Water Corporation
SWM	Solid waste management
TSSM	Total sanitation and sanitation marketing
TWG	Technical working group
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WASH	Water, sanitation and hygiene
WES	Water and Environmental Sanitation [Project]
WHO	World Health Organisation

Terminology and definitions

Term	Definition
Mahalia	Administrative sub-division just below State level also known as a Locality

Multiple and often over-lapping definitions exist globally related to sanitation, hygiene and environmental health (EH). The definitions which follow are those proposed for use in the Republic of Sudan.

Term	Definition
Hygiene	
Hygiene	The conditions and practices that help to prevent the spread of diseases and maintain health and dignity.
Hygiene promotion	A planned, systematic approach which encourages and enables people to take action and adopt safe hygiene practices and behaviours to prevent diseases and protect health.
Health promotion	Health promotion is the process of enabling people to increase control over and to improve their health. It moves beyond a focus on individual behaviour towards a wide range of social and environmental interventions.
Personal hygiene	The principle of maintaining personal cleanliness and grooming of the body and clothes, including hands, hair, nails and all parts of the body including menstrual hygiene.
Menstrual hygiene	Conditions and practices that help women of reproductive age to maintain their menstrual period in a healthy way and with dignity.
Menstrual hygiene management	Women and adolescent girls are using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the body as required, and having access to safe and convenient facilities to dispose of used menstrual management materials. They understand the basic facts linked to the menstrual cycle and how to manage it with dignity and without discomfort or fear. (JMP definition)
Environmental hygiene	Hygiene and cleanliness of the environment that helps reduce vectors, prevents the spread of disease and makes the environment more pleasant to live in.
Food hygiene	Food safety and wholesomeness in its production, storage, preparation, distribution and sale, until consumption.
Medical hygiene	A specific set of practices associated with medical contexts that preserve health, for example environmental cleaning, sterilization of equipment, hand hygiene, water and sanitation and safe disposal of medical waste.
Sanitation	
Sanitation	The hygienic means of promoting health through prevention of human contact with the hazards of wastes. It can include the provision of facilities and services for the safe disposal of human and animal excreta, solid wastes, domestic wastewater (sewage or grey water), industrial and agricultural wastes and may involve vector control. *Note: The Water / WASH sectors most commonly refer to 'sanitation' only in relation to the safe disposal of excreta and urine. See below for additional definitions related to excreta and urine disposal.*
Environmental sanitation	The hygienic means of promoting health through prevention of human contact with the hazards of wastes in the environment. It can include the provision of facilities and services for the safe collection, transfer, disposal, recycling and re-use of wastes. This includes human and animal excreta, solid wastes, domestic wastewater (sewage or grey water), industrial wastes, agricultural wastes and vector control. It can also include the air pollution prevention and clean housing environments.

Environmental health (EH)	This is the branch of public health that is concerned with all aspects of the natural and built environment that may affect human health through physical, biological, chemical, social and psychosocial factors. The environment is everything that surrounds us. The following EH intervention areas are considered part of S&H under this framework: • Safe excreta and urine management; solid waste management; health care and hazardous wastes management; vector control; food safety; drinking water safety; wastewater disposal (black, grey and rainwater). The following EH intervention areas, are not being covered as part of S&H for the purpose of this framework: • Air pollution control; industrial wastes management; quality of housing.
Public health	All organized measures (whether public or private) to prevent disease, promote health, and prolong life among the population as a whole. Its activities aim to provide conditions in which people can be healthy and focus on entire populations, not on individual patients or diseases. Public health is concerned with the total system and not only the eradication of a particular disease.
Sanitation definitions related specifically to the disposal of excreta and urine	
Basic sanitation	A basic sanitation service is considered as access to an improved sanitation facility which is not shared by two or more households. (JMP definition)
Improved sanitation	Improved sanitation facilities are those that effectively separate excreta from human contact, and ensure that excreta do not re-enter the immediate household environment. Improved sanitation facilities include: • A pit latrine with a superstructure, and a platform or squatting slab constructed of durable material. A variety of latrine types can fall under this category, including composting latrines, pour-flush latrines, and ventilation improved pit latrines (VIPs). • A flush toilet connected to a septic tank or a sewer (small bore or conventional). (JMP definition)
Adequate sanitation	Implies a system which hygienically separates excreta from human contact as well as safe reuse / treatment of excreta in situ, or safe transport and treatment off-site. (JMP definition)
On-site sanitation	The collection and treatment [or disposal] of waste at the place where it is deposited.
Open defecation	Excreta of adults or children are deposited (directly or after being covered by a layer of earth) in the bush, a field, a beach, or other open area; discharged directly into a drainage channel, river, sea, or other water body; or are wrapped in temporary material and discarded. (JMP definition)

Also refer to **Annex Section D - VI** for the emerging definitions and service ladders under development by the Joint Monitoring Programme (JMP) of WHO and UNICEF. These are for: drinking water supply, sanitation (excreta disposal), wastewater (focussing on faecal sludge and sewage), hygiene facilities and institutional WASH.

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Section 1 - Executive Summary

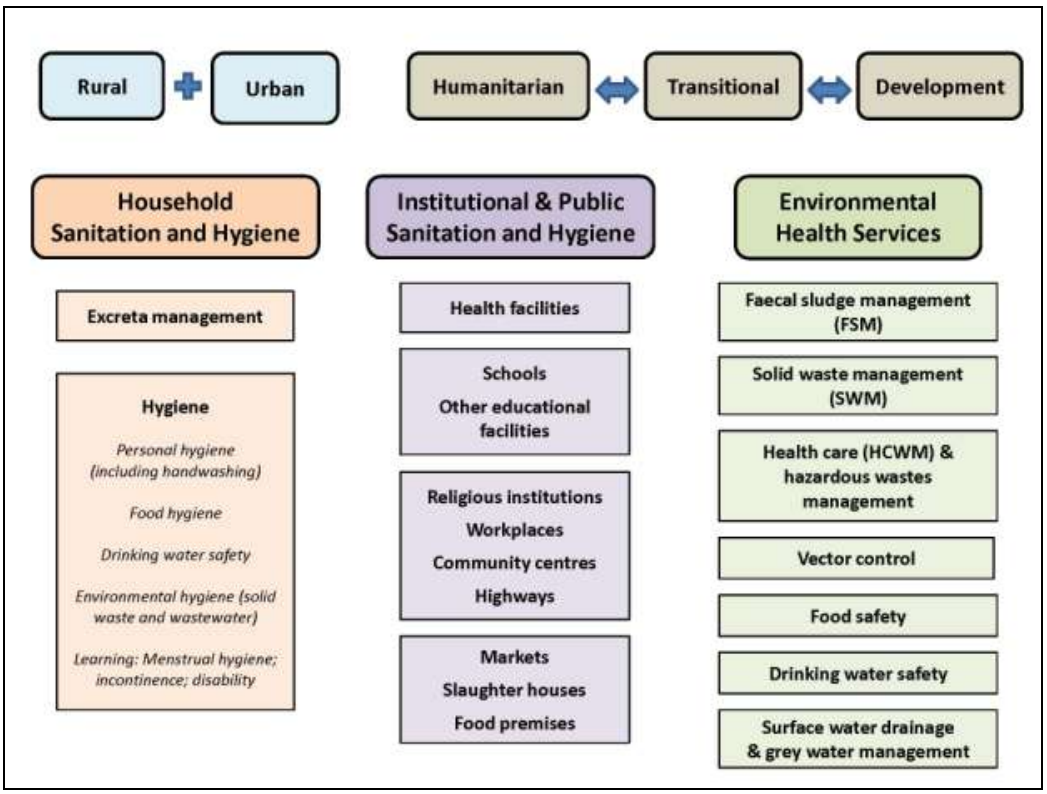
Sudan National Sanitation and Hygiene Strategic Framework

The Sudan National Sanitation and Hygiene Strategic Framework (SNSHSF) has been developed to provide strategic direction for scaling up sanitation and hygiene across Sudan.

It has been developed through a consultative process led by the Federal Ministry of Health (FMoH), involving representatives from Federal, State and Locality levels, across Ministries and sectors and involving representatives from government, civil society organisations, the private sector and higher education institutions, UN, development partners and humanitarian donors. The process has been financed by UNICEF and the World Health Organisation (WHO), facilitated by RedR Sudan, and supported by a core group of FMoH, UNICEF, WHO, MoH/Khartoum State and RedR Sudan.

Sanitation is the hygienic means of promoting health through the prevention of human contact with the hazards of wastes. Hygiene is the condition and practices that help to prevent the spread of diseases and protect health. The SNSHSF considers sanitation and hygiene at household and at institutional and public facility levels as well as in relation to the provision of environmental health services. It considers sanitation and hygiene in both rural and urban contexts, as well as humanitarian and longer term development contexts and the transitions in-between.

Fig 1 - Contexts and components of S&H covered by the SNSHSF



Importance of sanitation and hygiene

Increasing access to improved sanitation facilities and effective services and improving good sanitation and hygiene behaviours are critical for human health, dignity and economic development. They also contribute

to the attainment of a number of human rights including, but not limited to: survival, well-being, attaining an adequate standard of living, health, education and gender equality. Increasing access to improved sanitation and hygiene services and improving sanitation and hygiene practices, contribute to improving child, maternal and neonatal nutrition and reducing morbidity and mortality, as well as increasing dignity and well-being for people, especially those with disabilities. It increases school and work attendance, and reduces the workload burden and can contribute to reduce vulnerabilities to violence for women and girls. It is also estimated that for every 1 USD spent on sanitation 2 USD is gained and that Sudan loses 2.1% of its GDP annually due to poor sanitation. This translates to USD 490 million / year or USD 32.8 per capita per year[1]. Investing in sanitation and hygiene therefore makes very good economic sense.

Key challenges facing sanitation and hygiene in Sudan

29% of the population of Sudan currently still practices open defecation, only 33% have access to improved sanitation (excreta disposal), 68% have access to an improved water source and 41% of the population have a dedicated location for hand-washing, with only 26% also having water and soap at this location[2]. It is estimated that somewhere between 35 to 69% of schools have latrines[3], 20% have a place for hand-washing with soap and 85% have garbage around the school[4]. There are significant rural disparities with 5% of the urban population and 40% of the rural population practicing open defecation; and variations across States, with 1.7% of the people in Khartoum State practicing open defecation and 44.9% in Kassala State. In addition there are significant differences in access for people of different wealth quintiles, for example with only 6.2% of the poorest quintile having access to an improved latrine, against 91.9% of the richest quintile[5].

Only 2.8% of the population of Khartoum and 0.8% of the population of Sudan has access to a sewerage system[6] and the sewage is only partly treated before discharge. In rural areas the most common technologies for faecal disposal are pit latrines, whereas in urban areas it is a combination of pit latrines and toilets using septic tanks or cess pits. Unsafe disposal of sewage sludge from pit latrines also poses additional risks to the environment. The management of solid waste (SWM) remains a major problem particularly in urban areas. Significant portions of the urban population are not supported with SWM services and are either burning or dumping wastes on open ground or in drains. SWM service providers have struggled with ageing equipment, inadequate finance, as payments for services / tax revenues do not cover the real costs, and also the challenges of how to promote positive behaviour change for solid waste management disposal.

Environmental health management and infection control in health facilities faces many challenges including a lack of allocated budget and a lack of monitoring and auditing system, although work is on-going to improve the situation. The management of healthcare and hazardous wastes remains a major challenge. In many cases health care wastes are being disposed of together with general wastes and there are limitations in the legal and institutional framework for hazardous wastes.

Although some efforts are on-going to build capacities for vector control, in general it tends to only be undertaken as a reactive response in outbreak situations and there is a gap in vector related surveillance systems. Food control is undertaken by Localities and Administrative Units (Municipal) but they struggle with limited logistics and financial resources, including for laboratory tests as well as low penalties for breaches of legislation. Drainage systems only exist in parts of cities and are often used as dumping grounds for solid waste.

The health promotion teams at Locality and Administrative Unit (Municipal) level face particular difficulties due to lack of logistics and funding, making promoting positive behaviour change for the huge populations within their areas of responsibility, immensely challenging.

[1] Sanitation and Water for All (2012) *Sudan - Briefing: Economic Impact of Water and Sanitation*
[2] MICS, 2014 (noting that WHO/UNICEF JMP analysis, 2015, estimates that 27% of the population of Sudan has access to improved sanitation and 69% to an improved water source)
[3] Data sources vary. Data from the MoE (2016); MoE (2016, draft) *School Health Strategic Plan, 2017-2020*; MoE (2016) Rapid survey
[4] MoE (2016, draft) *School Health Strategic Plan, 2017-2020*
[5] Data from MICS, 2014
[6] MICS, 2014

Cross-cutting issues

Many of the water, sanitation and hygiene (WASH) activities undertaken in Sudan at present are focussed on the humanitarian context, which is complex, fluid and in increasing numbers of cases, protracted. This poses multiple challenges for implementing agencies, including how to transition between humanitarian and development contexts.

Gender roles and relationships vary across Sudan and influence the ability of women and girls to be able to participate in and make decisions related to WASH. There is a need for the WASH sector to better understand issues related to gender, equity and vulnerability and how to practically respond to these issues in their work.

Sudan faces a range of emergencies, some of which are influenced by climate change, such as resource based conflicts and natural disasters and the impacts of climate change can also be seen through dropping water tables. Sustainability and operation and maintenance of sanitation and hygiene facilities is also a significant problem, particularly related to communal or shared latrines in both humanitarian and development contexts; and there is also a need to better understand how to facilitate processes for sustained behaviour hygiene change.

There has been some, but limited engagement of the private sector in Sudan. This includes in areas such as: the operation of desludging trucks; water trucking; in operating public latrines; through integrating hygiene messages in hygiene promotion into marketing processes; and in the operation of a new incinerator for health care wastes in Khartoum State. More learning is needed on opportunities for the private sector in sanitation and hygiene in Sudan and support provided for its development.

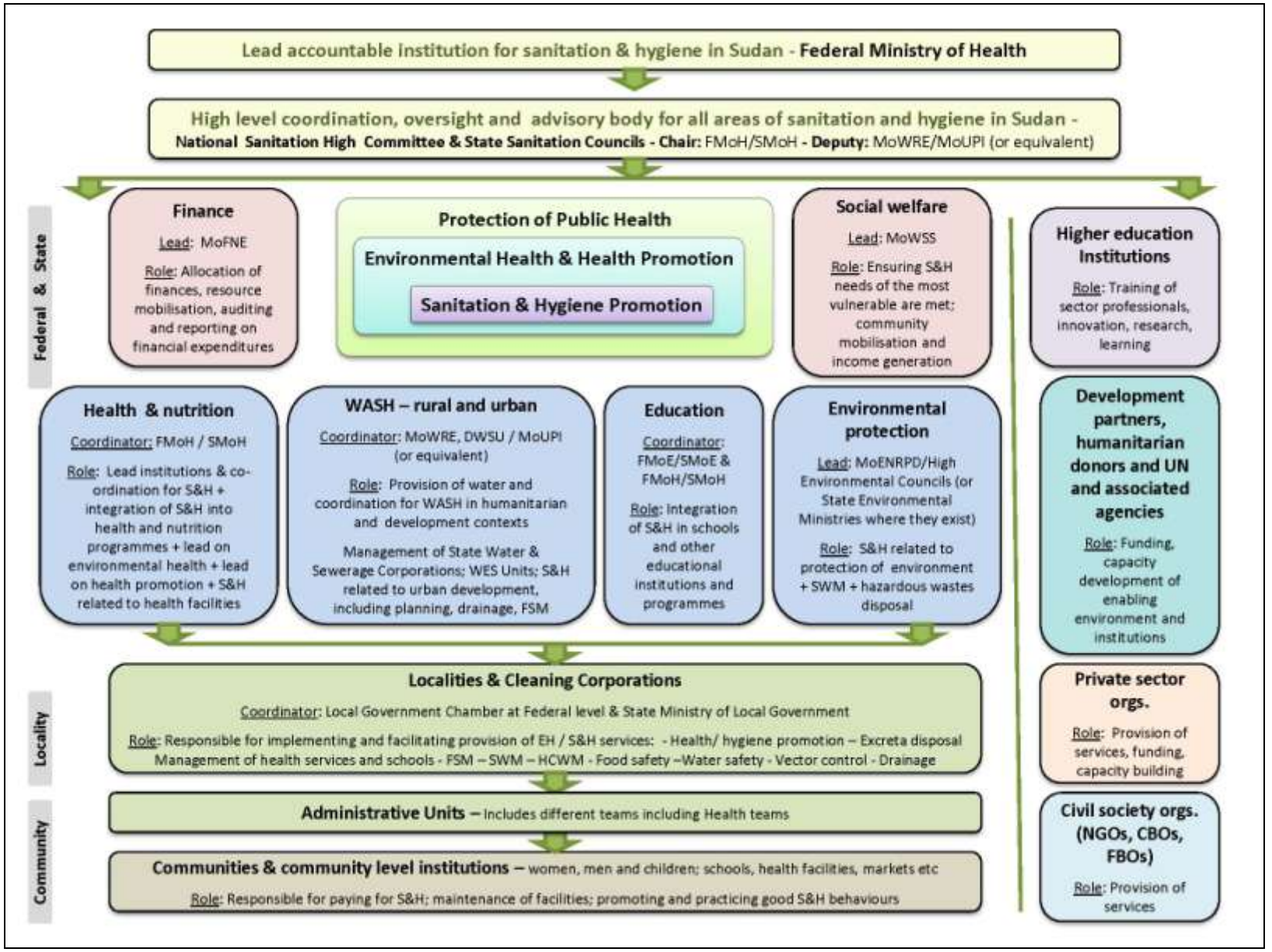
Building blocks – legal framework, institutional responsibilities and resources

Sanitation and hygiene are cross-sectoral issues with responsibilities across the health and nutrition, water, education, urban development and environmental protection sectors. The Localities and Administrative Units (Municipal) have the largest responsibility for sanitation and hygiene, being responsible to ensure that their populations have adequate services to protect public and environmental health. The Ministries of Finance and National Economy and Welfare and Social Services and the private sector, civil society, higher education institutions, and the UN, development partners and humanitarian donors all also have key supporting roles. The FMoH has been designated as the lead institution for S&H in Sudan and National and State level coordinating and advisory bodies, the National and State level Sanitation Committees/Councils have been established. Refer to **Figure 2** - for an overview of the institutional responsibilities for S&H in Sudan.

A range of laws, regulations, policies, strategies and guidelines exist that are relevant to each of the components of S&H. There are however some overlaps and inconsistencies and hence a need to review and revise these for increased coherence. Key laws include those related to public health, environmental health, education and the environment. Examples of particularly relevant strategies / strategic plans relate to environmental health; school health; and vector control. Action is urgently needed to respond to major gaps in the legislation, leadership and institutional responsibilities related to the management of health care and hazardous wastes. There has never been an approved water, sanitation and hygiene Policy in Sudan, although WASH Strategic Plans exist at national and state levels.

In both the global and Sudan contexts sanitation and hygiene has often been overlooked with more resources going to water in the WASH sector and more going to curative health in the Health sector; although over the past 8-10 years there has been increasing momentum globally to remedy this situation. Sudan has engaged with the global processes of the AfricaSan and the Sanitation and Water for All movement and has signed the eThekwini Declaration (2008), as well as developing its own Khartoum Declaration (2009). As part of these processes Sudan pledged to increase its government's contribution towards the target of 0.05% of GDP, although government budgets for S&H still remain low.

Fig 2 - Overview of institutional responsibilities for S&H across Sudan



A number of national management information systems and monitoring and evaluation systems exist, which include components of S&H, including those managed or supported by the FMoH, MoWRE, WHO and UNICEF. There is an urgent need to revisit the different systems and to establish a coherent system which establishes accurate data related to S&H in Sudan.

There are currently 8 Universities in Sudan which are training professionals in the area of Environmental Health and also specific training institutions managed by the FMoH and MoWRE, both of which have sanitation and hygiene related courses. In addition, a range of capacity building is being supported by development partners and other sector stakeholders across all sectoral areas. A wide range of sectoral capacity building needs have been identified from staff working at community level up to political and decision-making levels and hence there are significant needs in this area.

Strategic Objectives

The following strategic objectives have been established for each of the key components of sanitation and hygiene, for the 'cross-cutting issues' and for the 'building blocks'. Each are supported by a series of strategies.

Strategic Objectives: Household sanitation and hygiene

Household excreta disposal:

1. To scale up efforts to ensure that 100% of households in Sudan stop open defecation and move up the sanitation ladder to improved, gender-sensitive, safe and fully accessible excreta disposal facilities.

Household hygiene:

1. To scale up the sustained practice of good hygiene behaviours by all people in Sudan.

Strategic Objectives: Institutional and public sanitation and hygiene

Health facilities:

1. To ensure effective EH services and behaviours in all health facilities across Sudan, both public and private sector, to reduce EH risks for staff, patients, visitors and neighbouring communities.

Schools and other educational facilities:

1. To ensure that schools and all other educational facilities provide healthy WASH environments with adequate numbers of safe, accessible, gender-segregated latrines, as well as safe drinking water and hand-washing facilities with a constant supply of water and soap and provide conditions where girls can manage their menstrual hygiene in privacy and in dignity.
2. To ensure that all children in Sudan have the opportunity to learn about good hygiene and sanitation practices and that all girls are able to manage their menstruation in safety, in privacy and with dignity and confidence.

Religious institutions, workplaces, community centres and highways:

1. To ensure that religious institutions, workplaces, community centres and highways are served by adequate accessible, clean, safe and well maintained S&H facilities including for solid waste and menstrual hygiene material disposal.

Markets, slaughter houses and other food related premises:

1. To increase access to improved S&H facilities, including discrete disposal systems for menstrual hygiene materials.
2. To improve the cleanliness and sustainability of all facilities and ensure application of public health legislation.

3. To improve personal hygiene of operatives and food hygiene and control.

Strategic Objectives: Environmental Health Services

Faecal sludge management:

1. To improve faecal sludge management systems in Sudan, particularly in urban contexts, to improve the safe containment, emptying, transport, treatment and re-use/disposal systems.

Solid waste management:

1. To ensure effective and safe collection, transfer, disposal, re-use or recycling of all solid waste in Sudan to ensure a clean, safe and healthy environment.

Health care waste and hazardous waste management:

1. To ensure the health and safety of health care workers, patients and surrounding populations from poor management of health care wastes.
2. To ensure the safe management of all health care and other hazardous wastes, to reduce risks to human populations, animals and the environment.

Vector control:

1. To strengthen the vector control capacities at State and Locality levels with particular focus on entomological surveillance, strengthening laboratories and increasing attention on community engagement and mechanical means of vector prevention.
2. To strengthen attention on maintenance of existing IVM equipment to ensure it's most effective use.

Food safety:

1. To strengthen the legislative and institutional framework for food control in Sudan.
2. To strengthen the capacity of the food control system in Sudan, particularly at Locality level, including logistics and ongoing costs for operations and on focussing on awareness raising of responsibilities of food handlers and producers, inspections, enforcement and remedying infringements.

Drinking water safety:

1. To improve drinking water safety across Sudan through the protection of sources, water surveillance and treatment and capacity building.

Surface water drainage and grey-water disposal and re-use:

1. To improve the scope and functioning of surface water drainage networks in Sudan to reduce flooding, improve the environmental conditions and reduce mosquito breeding opportunities.
2. To increase opportunities for re-use of grey-water for productive purposes.

Strategic Objectives: Cross-cutting issues

Humanitarian – development transition

1. To more effectively consider the humanitarian – development transitions when undertaking humanitarian interventions, enabling smooth transitions in the approach for scaling up S&H.

Gender, equity and vulnerability:

1. To build capacities to ensure that all S&H programmes effectively respond to the needs of all people in Sudan, particularly women and girls, people with disabilities and those in marginalised or particularly vulnerable situations.

Sustainability, environment and climate change:

1. To increase the sustainability of S&H services, facilities and behaviours, including from the effects of climate change.
2. To protect the environment through appropriately designed S&H interventions.

Private sector engagement:

1. To investigate opportunities for greater engagement of the private sector in S&H in Sudan.
2. To strengthen private sector engagement in S&H in Sudan.

Strategic Objectives: Building blocks for sanitation and hygiene

Legal and policy framework

1. To update and strengthen overall coherence of legal and policy framework for S&H in Sudan across the humanitarian, transitional and development contexts.

Institutional responsibilities for sanitation and hygiene:

1. To have clear institutional responsibilities for S&H in Sudan across Ministries and between all stakeholders.

Financing sanitation and hygiene:

1. To significantly increase the investment into S&H in Sudan.
2. To identify new sources of funding for S&H in Sudan, including from the community, from across sectors, the private sector, micro-credit and through cross-subsidies.

Planning, monitoring, review and learning:

1. To establish a simple streamlined and efficient gender-sensitive monitoring system for collecting information on S&H, that can be used at all levels, is useful to all key actors and sustained over time.
2. To improve the level of experience sharing and learning opportunities for professionals working on S&H at all levels.

Building capacity for scaling up sanitation and hygiene in Sudan:

1. To build the capacity of S&H professionals of the future, through increasing opportunities for student workplace experience as part of their studies.
2. To utilise the knowledge and skills of higher education institutions to undertake applied research, assessments and evaluations, whilst also updating the knowledge and experience of lecturers.
3. To increase experience sharing, learning and capacity building opportunities for operational agencies, particularly national NGOs and staff working at community, Locality and Administrative Unit (Municipal) levels, but also at every level, including for decision-makers and politicians.
4. To encourage increased learning through networking.

Annex Section C - incorporates a 5-year action plan for implementation of the SNSHSF.

For further references for the information in the Executive Summary please refer to the relevant section in the main report or Annexes.

Section 2 - Introduction

2.1 Aim of the framework

The aim of the Sudan National Sanitation and Hygiene Strategic Framework (SNSHSF) is to provide strategic direction for scaling up sanitation and hygiene (S&H) across Sudan.

2.2 Structure of the framework

The main body of the SNSHSF has been structured:

- **Section 3** - Current situation of S&H in Sudan
- **Section 4** - Vision, purpose, principles
- **Section 5** - Strategies – Scaling up S&H across Sudan – separated by component
- **Section 6** - Strategies – Cross-cutting issues
- **Section 7** - Strategies - Building blocks for S&H in Sudan

As evidence of the need for the **Strategies** a more detailed **Situation Analysis** has been included in **Annex Section B**.

The **Strategies** have been separated into: **Enabling environment; Supply; Demand; and Quality**. However, as progress on demand and quality will occur following improvements first occurring in the enabling environment and supply, most sections only include: enabling environment and supply.

Five-year **Action Plans** have been prepared for this framework and are included in **Annex Section C**. They aim to provide an overview of the key actions for S&H in Sudan that will be championed and monitored by the National Sanitation High Committee for the scaling up of S&H across Sudan. For the action plans, only priority actions have been included. Where possible these have been limited to five for each component. The action plans for each component do not attempt to replicate the complete more action plans identified in existing component specific strategic plans.

2.4 Terminologies and definitions for sanitation and hygiene

Many different, often overlapping, definitions exist globally for the words 'sanitation', 'environmental sanitation', 'environmental health' (EH), 'hygiene' and 'environmental hygiene'. There is no single definitive definition. This framework therefore identifies the definitions that should be used in Sudan for the key terminologies related to S&H. In Sudan 'Sanitation and Hygiene' is understood to encompass the broader definition of sanitation and hygiene, including the components included under the term 'Environmental Health'.

In relation to definitions it is important to understand that the WASH Sector usually focus solely on the disposal of excreta and urine when discussing 'sanitation'. As part of efforts to improve monitoring of water and S&H, the Joint Monitoring Programme (JMP) of WHO/UNICEF, has also developed a number of specific terms to enable comparison across contexts. For sanitation this includes terms such as 'basic', 'improved' and 'unimproved' as well as the term 'open defecation'. For hygiene, the JMP proposal is currently to focus on monitoring the areas of hand-washing with soap; food safety; and menstrual hygiene management. As part of the process of moving from the MDGs to the SDGs, a process is on-going to develop a refined set of terminologies and indicators. This process also involves the development of 'service ladders' for: sanitation (excreta disposal); hand-washing facilities; wastewater disposal (considered for this purpose as faecal sludge and sewage); drinking water supply; and institutional WASH, particularly for health facilities and schools. For excreta disposal the ladder moves from: no service (open defecation), to unimproved; to improved; to shared; to basic; to safely-managed; to sustainable.

For the definitions for S&H in Sudan refer to the **Terminology and Definitions Section** at the beginning of the document. For more details of the JMP emerging terminologies and service ladders refer to **Annex Section D – Annex VI**.

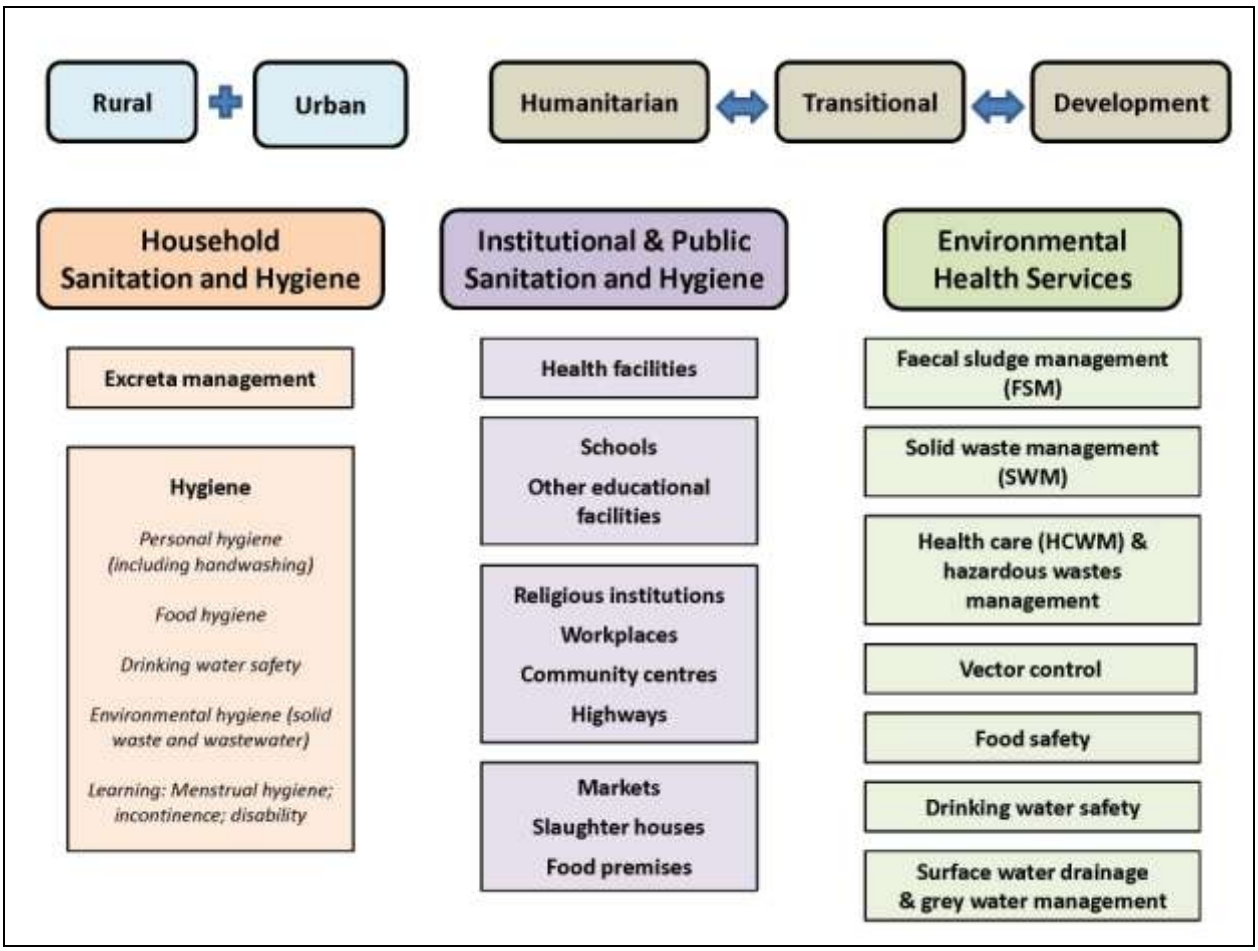
2.5 Scope of sanitation and hygiene included in this framework

This framework covers sanitation and hygiene:

i. In development, humanitarian and transitional contexts.
ii. In rural and urban contexts - including village, small town, peri-urban, cities and pastoral.
iii. At household, at institutional and public levels and in relation to environmental health services.
iv. As a cross-sectoral issue with responsibilities across the health, nutrition, water, education, urban development and environmental protection sectors and with key responsibilities for local government and related to social welfare and finance.
v. Including - excreta management; hygiene promotion; solid waste management; hazardous wastes management; faecal sludge management (sewage sludge and sewage wastewater); vector control; food safety; drinking water safety; and surface water drainage and grey water management.

The components of S&H covered by this framework are summarised in **Fig 3**.

Fig 3 - Contexts and components of S&H covered by the SNSHSF



It is acknowledged that access to adequate quantities of water supply is required for effective S&H. This strategic framework does not however focus on the provision of water, but includes a focus on the hygiene of water, referred to as 'drinking water safety'.

2.6 The importance of investing in sanitation and hygiene

Access to effective sanitation and the practice of good S&H behaviours are critical for human health, dignity and economic development. They also contribute to the attainment of a number of human rights including, but not limited to: survival, attaining an adequate standard of living, health, education and gender equality. Increasing S&H services and improving S&H practices contributes to improving child, maternal and neonatal nutrition and reducing morbidity and mortality. It increases the time that is spent in school and work, due to less time off due to sickness, looking after the sick or in order to manage a woman or girl's menstrual period and it reduces the workload burden, particularly on women and girls. It can improve dignity and reduce shame and embarrassment associated with open defecation and the management of menstrual hygiene; and it contributes to increased cognitive function and concentration in school for both girls and boys. It can also contribute to reducing vulnerabilities to violence particularly for adolescent girls, women and children through reducing the need to practice open defecation or using unsafe facilities, which can lead to opportunities for harassment or assault. Accessible facilities can contribute to ensuring health, dignity and quality of life for people with disabilities and mobility limitations.

There is clear evidence that the child stunting rate increases with both a reduction of access to improved water sources and open defecation in the States across Sudan[7]. In relation to the prevention of deaths of Under-fives due to nutrition related actions, hand-washing with soap can prevent 8% of deaths, improved sanitation and the utilisation of latrines or toilets by 6% and the hygienic disposal of children's stools by 3%[8].

It is also estimated that for every 1 USD spent on sanitation that 2.0 USD is gained and that Sudan loses 2.1% of its GDP annually due to poor sanitation. This translates to USD 490 million / year or USD 32.8 per capita per year[9]. Investing in S&H therefore makes very good economic sense.

Refer to **Fig 4** for a Theory of Change for S&H.

2.7 Global action and commitments on sanitation and hygiene

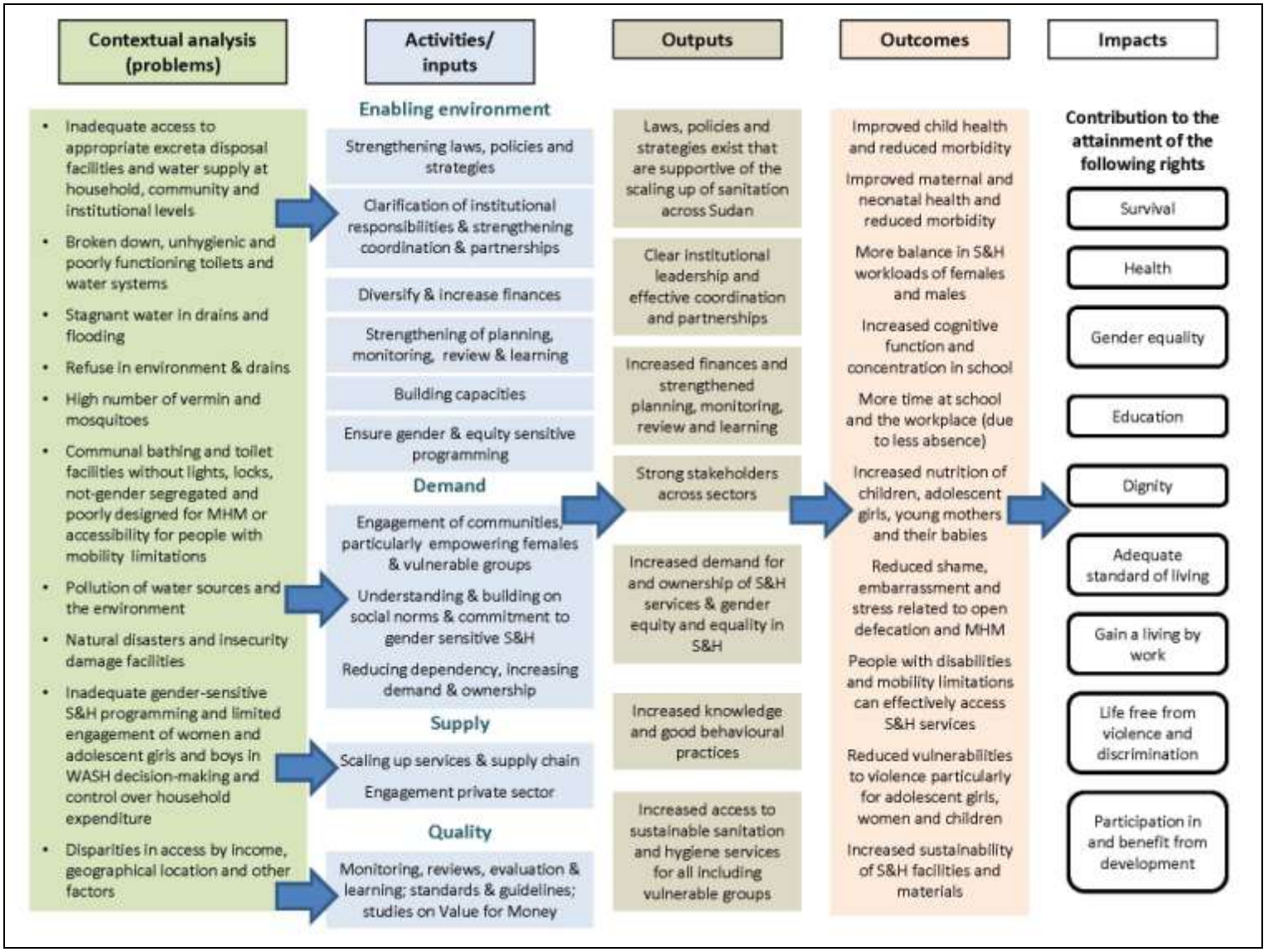
There has been increasing engagement in the area of sanitation and hygiene in the global arena since 2002. Particular global initiatives in which Sudan has engaged include:

1. The **AfricaSan** conferences and movement from which the **eThekwini** (2008) and **Ngor Declarations** (2015) were prepared and signed; which in turn led to the development of the **Khartoum Declaration** (2009) signed by 6 Ministries.
2. The **Sanitation and Water for All (SWA)** world-wide, multi-stakeholder movement that brings together partners to catalyse political leadership and commitment on sanitation and water and promote accountability.
3. The **Sustainable Development Goals (SDGs)** which have followed the Millennium Development Goals. They provide goals which aim to ensure that 100 percent of the world's population will be able to access improved water and basic sanitation and effective wastewater disposal by 2030.

For more information on the above global and Sudan based initiatives and information on Sudan's commitments to S&H and its progress against its commitments, refer to **Annex Section D – VII**.

[7] World Food Programme and UNICEF (2016) *The case for investment in nutrition in Sudan*, February 2016
[8] World Food Programme and UNICEF (2016) *The case for investment in nutrition in Sudan*, February 2016
[9] Sanitation and Water for All (2012) *Sudan - Briefing: Economic Impact of Water and Sanitation*

Fig 4 - Theory of Change for S&H[10]



[10] Developed for Sudan from a range of global sources related to evidence of linkages between WASH gaps, activities, outputs, outcomes and impacts and reports from Sudan identifying the current situation

Section 3 - Current situation of sanitation and hygiene in Sudan

3.1 Sudan context

The Republic of the Sudan is the third largest country in Africa with a land area of 1,886,860 square kilometres and a population of 39,598,000 million with an annual growth rate of 2.4% (Central Bureau of Statistics estimated data, 2016). It has borders with 7 countries: Egypt, Libya, Chad, Central African Republic, Eritrea, Ethiopia and South Sudan and is split into 18 States, each sub-divided into *Mahalias* / Localities, each sub-divided again into Administrative Units.

The majority of the population in Sudan follows Islam, with a smaller proportion following Christianity and African traditional religions. Sudan has wide cultural diversity with hundreds of different groups that speak hundreds of different languages and dialects, many of which are native to Sudan.

Whilst much of Sudan is peaceful, it also faces multiple humanitarian emergencies of varying kinds, including conflicts, refugees, internally displaced persons (IDPs), disease outbreaks, floods and droughts. The area of Sudan with the largest population affected by humanitarian emergencies is the Darfur Region, following conflict related displacements occurring in North, Central and Eastern Darfur. Data from the Government of Sudan, Humanitarian Aid Commission (HAC) for people affected by emergencies (2016) includes:

- **Internally Displaced Persons (IDPs) - 2.25 million** – the majority in: Central, East, North, South and West Darfur; but others also in: South Kordofan; West Kordofan; Blue Nile; Sinnar; Red Sea; Khartoum and White Nile.
- **Returnees from Chad, South Sudan and Ethiopia – 428,776** – in: South, North, East, Central and West Darfur; as well as in Blue Nile, Sinnar and White Nile
- **Refugees – 177,060** registered and **491,840** non-registered
- **Arrivals from South Sudan – 352,740** – Most in Khartoum, White Nile, west Kordofan, East Darfur and South Kordfan; but also some in: Abyei, Red Sea, Blue Nile, Northern, Gezira, River Nile, Gadaref, Sinnar, North Kordfan and Kassala

The situation is complex with combinations of protracted and new emergencies in rural and urban contexts and with challenges in accessing some areas, particularly in Central Darfur. For further information and analysis of the challenges faced in responding to WASH needs in each context refer to **Annex Section B – III.2**.

In order to ensure appropriate targeting and design of interventions, it is critical to understand the variations in situation for the poorest versus richest households, between States and between rural and urban contexts. **Annex Section D - VIII** - provides an overview of key data from the Multi-Indicator Cluster Survey (MICS), 2014. In general a child from a rural household in the poorest wealth quintile, is more likely than their urban peers or those from higher wealth quintiles to: a) not have been born at a health facility, b) to practice open defecation, c) not have access to improved water and sanitation facilities, c) to die before they are 5, d) be malnourished, e) not go to school, f) to be illiterate, and g) to be married before they are 19 years old[11].

[11] i.e. up until they are 18 years old

3.2 Overview of the sanitation and hygiene situation in Sudan

A **Situation Analysis** of each component of S&H is included in **Annex Section B**. This section provides a snapshot of this situation.

3.2.1 Situation - Household sanitation and hygiene

MICS data, 2014, indicates that:

- 32.9% of the population has access to an improved latrine and 29.2% practices open defecation
- 53% of children had their faeces safely disposed of the last time before the survey
- 28.2% of the population have access to both improved drinking water and improved sanitation
- 40.9% of households have a dedicated place for hand-washing and 25.8% having a dedicated place as well as availability of water and soap
- 55.4% of households have soap or another cleaning agent present
- 68% of households have access to improved water sources
- 4.1% of households who use unimproved water sources use an appropriate water treatment method
- 43.4% of the population have water (improved or unimproved) on their premises; 19% have to walk for less than 30 minutes to collect water; 31.4% have to walk for longer than 30 minutes; 6.2% don't know.

Note that the Joint Monitoring Programme (JMP) of WHO/UNICEF analyses data from different national surveys, including census, household budget surveys and MICS surveys and compares the indicators used to enable comparison across countries to establish trends. The JMP 2015 estimates are that 27% of the population of Sudan has access to an improved latrine; whereas the MICS, 2014, estimates access at 32.9%.

There are significant rural disparities with 5% of the urban population and 40% of the rural population practicing open defecation (MICS, 2014); and variations across States, with 1.7% of the people in Khartoum State practicing open defecation and 44.9% in Kassala State. In addition there are significant differences in access for people of different wealth quintiles, for example with only 6.2% of the poorest quintile having access to an improved latrine, against 91.9% of the richest quintile. For more examples of the disparities see the graphs in **Annex Section B – II.2**. and **Annex Section D – VIII**.

Efforts have been started to scale up the Community Approaches to Sanitation (CATS/CLTS) through building capacities across Sudan and there is an intention to also build skills and capacities for sanitation marketing.

Funding for hygiene/health promotion is a major issue in the longer term development contexts with some Localities / Administrative Units (Municipal) having limited budgets for these activities. There is an identified need for capacity building in both sanitation and hygiene promotion and community mobilisation in humanitarian contexts.

For a more detailed Situation Analysis for Household S&H refer to **Annex Section B – II.2**.

3.2.2 Situation - Institutional and public sanitation and hygiene

Particular challenges in relation to institutional or public S&H include:

Health facilities - Most health facilities do not have strong EH/S&H/WASH systems, with most medical waste being mixed with general waste and disposed of at landfill. Where incinerators exist they tend to be traditional single chamber versions. There is currently a move to have a Public Health Officer with dedicated responsibility for EH and infection control in each hospital, with plans to later expand this to other health facilities. Recruitment and training is in process.

Schools – Current data on access to school WASH varies:

- Data provided by the MoE in 2016 indicates that 62% of schools have access to latrines[12], but with no indication of the quality or how many are gender segregated. Other data from the MoE indicates that 35% of schools have a reasonable number of latrines against the number of users[13] and most are unclean and have no source of water. A rapid survey across all 18 States undertaken by the MoE in 2016, indicated access to latrines as 69%[14].
- Only 25% and 20% of schools have a proper place for hand-washing and soap respectively and none have programmes on hand-washing[15].
- 75% have sanitation cleansing tools but only 40% have dustbins and 85% have garbage around the school[16].
- Very few schools have accessible latrines for people with disabilities or other mobility limitations.

Religious institutions, workplaces, community centres and highways - Data is not available for these contexts, but the general impression is that S&H facilities and services including solid waste collection and disposal and disposal for menstrual wastes are currently inadequate. Operation and maintenance of public latrines is a particular concern. Some successes have been seen through the involvement of the private sector, but also examples where private sector management has not succeeded. Public latrines on highways are an area of particular concern, but Government of Sudan now requiring that S&H facilities must also be included when new roads are constructed.

Markets, slaughter houses and food related premises - S&H facilities, services and behaviours in markets, slaughter houses and other food related premises are of particular concern because of the risks to health from poor practices. Public facilities are often poorly managed, or where people who do not want to or are unable to pay the fee, still resort to open defecation. Localities are making efforts to undertake trainings in market areas and with butchers; but limitations in funding for HP teams restricts the scope of this work. Some slaughter houses are not functioning, leading to illegal slaughtering of animals and poor disposal of wastes.

For a more detailed Situation Analysis of Institutional and Public S&H refer to **Annex Section B – II.3**.

3.2.3 Situation - Environmental health services

Faecal sludge management - Sewerage networks only exist in Khartoum providing service to 2.8% of the population of Khartoum and 0.8% of the population of Sudan[17]. The sewage is only partially treated and is discharged into open drains that occasionally flood. Most faecal material in urban areas is disposed of by pit latrine or using a septic tank or cess pits, which contain the faeces but can lead to contamination of groundwater and also need intermittent emptying. Suction tankers generally discharge their contents either into wastewater plants where they exist (such as in Khartoum State) or illegally on to open fields away from residential areas.

Solid waste management - Solid waste management is undertaken by households, Localities and Administrative Units (Municipal), Cleaning Corporations and the private sector. Only parts of urban populations are served with functional SWM services, with other households either burning waste or simply dumping it on the open ground or in storm water drains. Efforts are underway to support the improvement of the SWM services in Khartoum State with support from JICA to the Khartoum State Cleaning Corporation (KSCC) and Localities. Efforts are also underway to strengthen awareness raising on good SWM behaviours. SWM services are currently not financially sustainable based on income from the end users and hence rely

[12] MoE, 2016
[13] School Health Strategy, 2016-2020 (draft)
[14] MoE (2016) *Rapid Survey, 2015-16 Data*
[15] School Health Strategy, 2016-2020 (draft)
[16] School Health Strategy, 2016-2020 (draft)
[17] MICS, 2014

on a high level of subsidy by the GoS. Some community based management systems are operational in rural and humanitarian contexts, but sustainability remains a challenge in most contexts. There is currently very little formal recycling on a large scale.

Health care and hazardous waste management - Health care and hazardous wastes pose particular challenges for Sudan. Currently there is limited segregation of health care wastes and much is disposed of in general landfill or standard disposal sites. People who scavenge wastes on landfill sites are particularly vulnerable to this practice. Some health care wastes in Khartoum State are being incinerated and some now autoclaved with the recent investment by a private company from Saudi Arabia, which has installed an industrial autoclave in Khartoum State. The legislative environment and definition of institutional responsibility for hazardous waste management are particularly weak areas which need urgent attention.

Food safety - Administrative Units (Municipalities) and Localities have food inspection teams but often do not have adequate resources to undertake inspections or enforcement. Fines for breaches of food hygiene practice are also not large enough to act as a deterrent. The laboratories for food control testing are also inadequate and the costs of undertaking tests are high, limiting use because of limited budgets.

Vector control - There are increasing trends for some vector based diseases such as malaria and Dengue and expectations of increasing challenges with the progress of climate change. Although there has been some capacity building related to vector control in Sudan, currently most vector control is undertaken on a reactive basis and in response to outbreaks. Vector related surveillance capacities to predict potential outbreaks are weak or non-existent in most States and regular maintenance of spraying equipment requires improvement. There is increasing resistance to key insecticides and a need to build community capacities to use mechanical means of protection.

Drinking water safety - Pollution of both surface water and groundwater sources are problems in Sudan. The use of open sources such as *Hafirs* and water transfer by donkey carts also add risks to water quality. Only 35% of Localities have some form of drinking water surveillance system. There is a lack of trained human capacity at Locality level as well as limited equipment and supplies. WHO has developed a monitoring system to analyse data from MoH surveillance systems where they exist.

Surface water drainage and grey water disposal and re-use - Urban areas in Sudan face flooding incidents during the rainy season between July to October. The construction of drainage systems are the responsibility of the State Ministry of Urban Planning and Infrastructure (large drains); Administrative Units (Municipalities) / Localities (medium drains); households (smaller drains). Cities including Khartoum have incomplete drainage systems and some have challenges because of the flat topography. Drains are often used as dumping places for solid wastes and ponding of water and flooding leads to increases in mosquitoes and other vectors.

For a more detailed Situation Analysis of Environmental Services refer to **Annex Section B – II.4**.

3.2.4 Situation - Cross-cutting issues

Humanitarian - development transitions

Many of the water and sanitation and hygiene activities undertaken in Sudan at present are focussed on the humanitarian context, which is complex, fluid and in increasing numbers of cases protracted. Contexts vary from IDPs living in camps to those living in rural areas, to those who have been present for a number of years, but still with new arrivals. There are also refugees, returnees and host communities, each of which require variations in S&H solutions. A supply driven approach for S&H tends to be utilised in humanitarian contexts and a demand driven approach used in longer term more stable contexts; which causes some challenges when transitioning between the two. Other examples of challenges faced include: the lack of consistency of the different approaches used by different agencies (such as subsidy or the level of payment made to hygiene promoters); from the security situation; from limited space in some camps; from the fact that some IDPs have animals which live with the household; related to the operation and maintenance of communal sanitation facilities; as well as the sustainability of solid waste management operations.

Refer to **Annex Section B – III.2** for more information.

Gender, equity and vulnerability

Gender roles and relationships between males and females vary across Sudan and influence the ability of women and girls to be able to participate in, lead and make decisions related to WASH. However, women and girls often have the largest responsibility for sanitation and hygiene in the household, have particular S&H related needs such as for the management of menstrual hygiene, and also are vulnerable to violence, including if they have to go to secluded areas or use S&H facilities after dark; and hence their active engagement is essential. The needs, skills and potential of youth are often under-utilised and the needs, priorities and skills of people with disabilities are also often overlooked, leading to sanitation facilities that are not accessible for their needs. Some nomadic communities in Sudan move on a regular basis, whereas some others have a settled base for a few months of the year and hence different S&H approaches are required for different communities. There is currently limited consideration of the needs of vulnerable or marginalised groups in S&H efforts in Sudan and a need for the WASH sector to better understand issues related to gender, equity and vulnerability and how to practically respond to these issues in their work.

Refer to **Annex Section B – III.3** for more information.

Sustainability, environment and climate change

The impacts of climate change can be seen through resource based conflicts, natural disasters and through dropping water tables. Environmental impacts and health risks can also be seen from: the illegal disposal of faecal sludge on open land away from urban settlements; from the contamination of groundwater from pit latrines and septic tanks; from the disposal of solid wastes in the open or burning in open spaces; and from the weak legal and institutional framework for the management and safe disposal of hazardous wastes.

Sustainability of S&H facilities is a major challenge with particular problems for communal or public latrines in both humanitarian and development contexts; but also related to household latrines that are not well constructed. There is also a need to better understand how to facilitate people for sustained hygiene behaviour change, how to respond to climate change and to improve emergency preparedness.

Refer to **Annex Section B – III.4** for more information.

Private sector engagement

There has been some, but limited engagement of the private sector in Sudan. This includes in areas such as: the operation of desludging trucks or water tankers; small scale construction workers and traders; in the operation of public latrines; integrating hygiene messages in hygiene promotion campaigns; and in the operation of a new incinerator for health care wastes in Khartoum State. More learning is needed on opportunities for the private sector in S&H in Sudan and on how to build their capacity.

Refer to **Annex Section B – III.5** for more information.

3.2.5 Situation - Building blocks for sanitation and hygiene in Sudan

Legal and policy framework

A range of laws, regulations, policies, strategies and guidelines relevant to each of the components of S&H already exist at both Federal and State levels. However, there are areas of overlap and inconsistencies and hence there is a need to review, update and expand these to ensure their coherence.

- Key laws include those related to: public health (2008); environmental health (2009); education (2001); food control (1973); and environmental protection (2008).
- Examples of key regulations and by-laws include: the by-law related to drinking water safety (2014); and the regulation related to hazardous wastes (2014).
- Examples of relevant strategies / strategic plans include: environmental health (2015-19); health promotion (2012-16); WASH (2012-16); and school health (2016, draft); as well as others such as related to vector control.

Action is urgently needed to respond to major gaps in the legislation related to the management of health care and hazardous wastes. The policy for hazardous wastes in health care facilities is currently still in draft form and there has never been an approved water, sanitation and hygiene policy in Sudan.

Refer to **Annex Section B – IV.2** and **Annex Section D – XI** for more information.

Institutional responsibilities

Sudan has identified and designated the FMoH as the lead institution for S&H in Sudan and has established National and State level coordinating and advisory bodies, the National Sanitation High Committee at Federal level and Sanitation Councils at State level. Other Councils or coordination bodies that have responsibilities for S&H include: WASH sector (humanitarian) coordination mechanism; School Health Multi-Sectoral Coordination Councils; National Public Health Coordination Council; High Council for the Environment and Natural Resources; and the National Pesticides Council.

S&H are cross-sectoral issues with responsibilities across the sectoral areas of: health and nutrition, water, education, urban development and environmental protection. The Localities and Administrative Units (Municipal) have the largest responsibilities for sanitation and hygiene, being responsible to ensure that their populations have adequate services to protect public and environmental health. The Ministries of Finance and National Economy and Welfare and Social Services and the private sector, civil society, higher education institutions, and the UN, development partners and humanitarian donors all also have key supporting roles. The fact that S&H is a cross-sectoral issue is positive in that it brings the skills and resources of a wide range of actors to support S&H at scale, but it can also lead to some confusion over responsibilities. Weaknesses in legislation, such as in relation to health care and hazardous wastes, has led to a situation where handling and disposal varies across States and there is unclear responsibility and accountability for its management.

Refer to **Figure 2** in the Executive Summary for an overview of the institutional responsibilities for S&H in Sudan and to **Annex Section – B – IV.3** for more information.

Financing sanitation and hygiene

Both the global and Sudan contexts S&H has often been overlooked, with more resources going to water in the Water/WASH sector and more going to curative health in the Health sector; although over the past 8-10 years there has been increasing momentum globally to remedy this situation. Sudan has engaged with the global processes of the AfricaSan and the Sanitation and Water for All movement and has signed the eThekwini Declaration (2008), as well as developing its own Khartoum Declaration (2009). As part of these processes Sudan pledged to increase its government contribute towards a 0.05% GDP target. The contribution of the Government of Sudan (GoS) is still low, although in 2015 the MoFNE allocated SDG 1 million to the Environmental Health Directorate of the FMoH. The amount of funding from all sources in Sudan is currently still minimal against what is needed to scale up across all the components of S&H across the whole of Sudan; which is hence an area requiring significant attention.

There is a need to look at new opportunities for financing of S&H such as through: integrating S&H into the work of multiple sectors; through community based resources and investment; more realistic tariffs for services such as solid waste management; micro-finance and cross-subsidies; looking at the value chain for S&H waste products through recycling and re-use; and investment by the private sector.

Refer to **Annex Section B – IV.4** for more information.

Planning, monitoring, review and learning

A number of national Management Information Systems and Monitoring and Evaluation systems exist, which have components of S&H in them but which also have overlaps, including those managed by the FMoH, MoWRE, WHO and UNICEF. This leads to some confusion and a lack of coherence in data. There is an urgent need to revisit the different systems and to establish a coherent system that can function at multiple levels. In addition capacity building for M&E is also seen as an urgent need at all levels. There are currently limited

opportunities for experience sharing and learning related to S&H in Sudan, an area requiring significant increased attention.

Refer to **Annex Section B – IV.5** for more information.

Building capacity for scaling up sanitation and hygiene in Sudan

There are currently 8 Universities in Sudan which are training professionals in the area of Environmental Health and separate capacity development institutions are managed by the FMoH and MoWRE, both of which have a number of S&H related courses. Opportunities exist to strengthen relationships between the higher education institutions and the S&H implementing institutions for mutual benefit. This might be through work placements for students and utilising the skills of University staff and students in undertaking tasks such as research, assessments and evaluations.

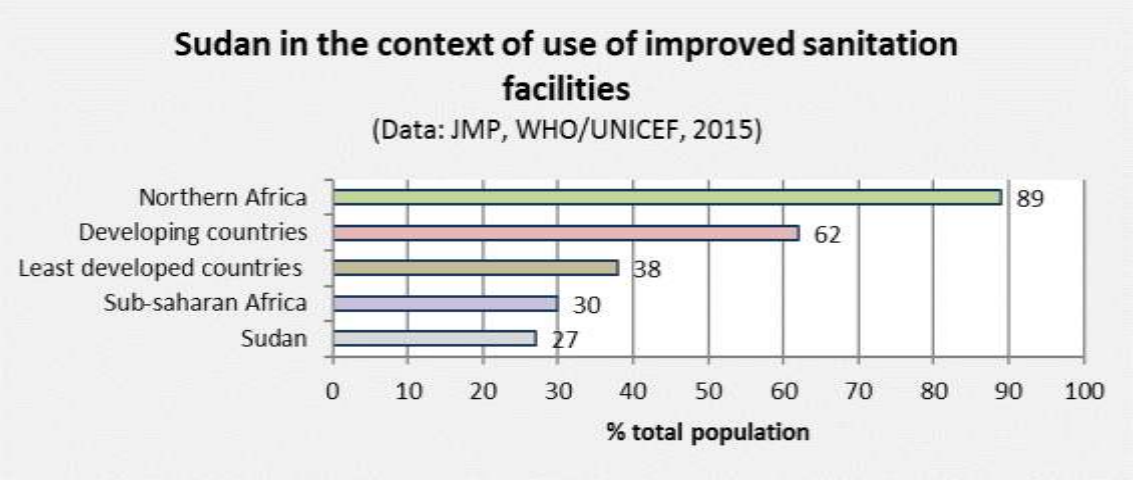
A wide range of S&H capacity building needs have been identified from staff working at community level up to political and decision-making levels and hence there are significant needs in this area. A study of capacity building needs in the humanitarian sector which was undertaken in 2014[18], indicated that staff working at community level are in particular need of capacity building with only 1.3% of the staff working on hygiene promotion and community mobilisation having had the opportunity for any training in the previous year. A 3 year plan for capacity building for the WASH sector (humanitarian) was prepared in 2014[19] and the WASH sector (humanitarian) has also set out a Sector Improvement Framework (2015-17. In addition, a range of capacity building is being supported by development partners and other sector stakeholders across all sectoral areas. Significantly more attention and resources are needed in the area of capacity building if it is to be possible to scale up in all components of S&H across Sudan.

Refer to **Annex Section B – IV.6** for more information.

3.3 Trends and progress in scaling up excreta disposal and hygiene in Sudan

Fig 5 provides a comparison of how progress on access to improved sanitation (excreta disposal) in Sudan compares to other regional and global groupings. It can be seen that Sudan has a lower access than the average for countries in: North Africa; developing countries; least developed countries; and sub-Saharan Africa.

Fig 5 - Comparison of access to improved sanitation facilities between Sudan and other sub-regional and global groupings[20]



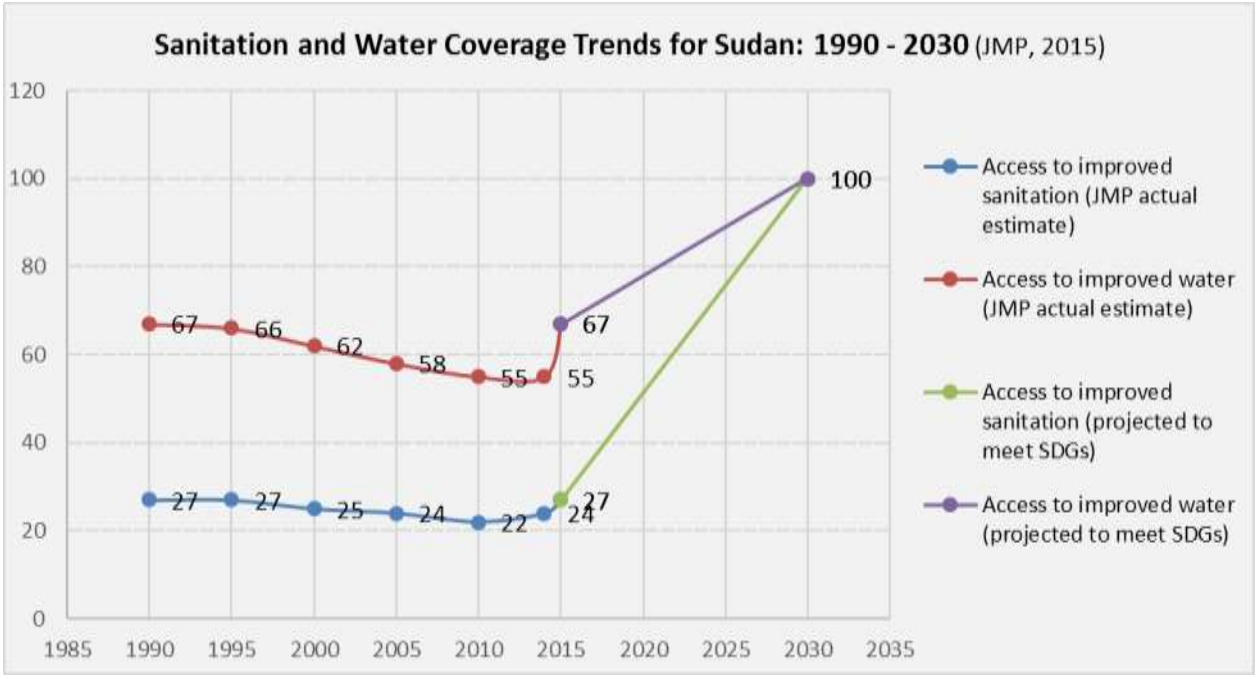
[18] Blason, A, Eissa, A, Ito-Pellegri, G. Nardo, E (2014) *Capacity Development Comprehensive Assessment for WASH Staff in Sudan*, Final Report (draft version), 23 Sept, 2014

[19] UNICEF (2014) *WASH Sector Capacity Development Framework, A 3-Year Capacity Development Plan,* October 2014

[20] Habila, O (2015) *Strategic Issues for Scaling up, S&H in Sudan*, Presentation at the GoS-UNICEF Programme Annual Review and Planning Meeting, National Health Insurance Fund, Khartoum, 13-14 Dec 2015

WHO/UNICEF JMP analysis of national surveys in Sudan between 1990 to 2010, indicated that access to improved sanitation (excreta disposal) had been slowly decreasing from 27% to 22%. In the year 2010 the trend started to change direction and access started to increase to 24% in 2014 and an estimated 27% in 2015. Sudan did not meet the Millennium Development Goal (MDG) target for basic sanitation to halve the gap in the population without access. See **Fig 6** below.

Fig 6 - Sanitation and water coverage trends between 1990 - 2030[21]



From 2015 the trend now needs to increase dramatically from 27% in 2015 to 100% in 2030. This means **there will need to be an increase of 73% of the population of Sudan gaining access to improved sanitation between 2016 and 2030; which is an increase of on average 5% gaining access per year**. Considering that there are likely to be fluctuations, some years more than 5% of the population of Sudan will need to gain access to improved latrines, if Sudan has a chance to achieve 'sanitation for all' by 2030. Considering that the increase between 2010 and 2014 was 0.5% per year and the increase between 2014 and 2015 is estimated to be 3%, there is a clear need to significantly speed up and sustain the scaling up of access to improved sanitation across Sudan over the next 15 years.

A key milestone in the process of scaling up S&H was the signing of the **eThekwini Declaration** in 2008, by the Federal Minister for Health. The **Khartoum Declaration** in 2009 followed and was signed by 6 Federal Ministers: the Federal Minister of Health, the Federal Minister of Irrigation and Water Resources, the Federal Minister of Education, the Federal Minister of Environment & Physical Development, the Federal Minister of Religious Guidance & Endowments and the Federal Minister of the Chamber Federal Governance of Sudan.

However an indication of the limited progress in Sudan in relation to S&H is that in the past 8 years since the declaration was signed, of the 6 commitments made jointly by the 6 Ministers only one has scored *'some progress'* with the others remaining as *'limited or no progress'*. The only commitment that has been progressed is to have one accountable body to lead on sanitation and one coordinating body for sanitation. The Ministry of Health has been identified and designated as the 'lead accountable institution' and the National Sanitation High Committee, the 'one coordinating body responsible for S&H involving all stakeholders'.

[21] Habila, O (2015) *Strategic Issues for Scaling up, S&H in Sudan*, Presentation at the GoS-UNICEF Programme Annual Review and Planning Meeting, National Health Insurance Fund, Khartoum, 13-14 Dec 2015

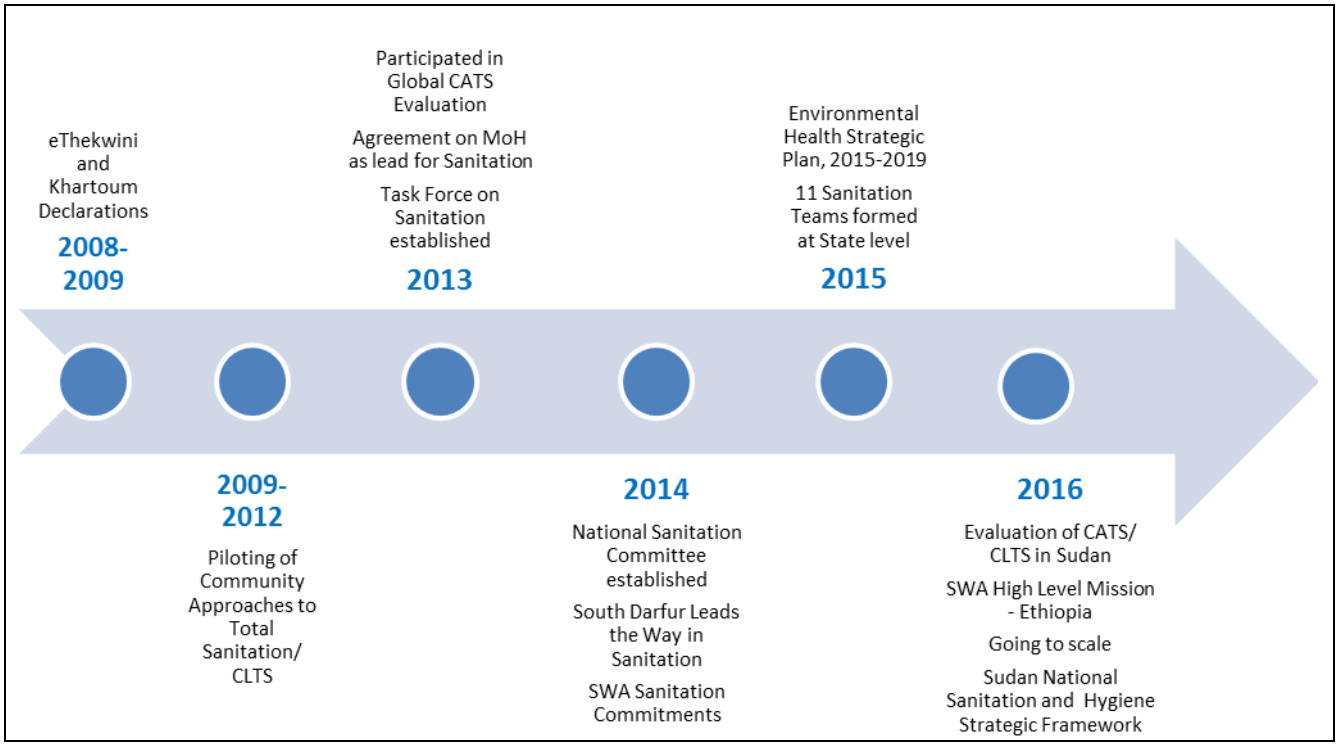
Sudan also participates in the Sanitation and Water for All (SWA) Movement. Its long-term vision for the SWA 2014 High Level Meeting follows.

Sudan's Long Term Vision as part of its 2014 SWA Commitments

Sudan is determined to achieve universal access to water and sanitation. It aims to eliminate open defecation nationwide by 2025 and to provide a minimum standard WASH package to 100% of the population by 2031. Sudan will prioritize the delivery of basic services to the poorest rural districts with highest malnutrition rates, as well as to underserved urban poor dwellings.

Fig 7 - provides a timeline of key S&H milestones between 2008 and 2016, which have occurred in the process of increasing attention and engagement towards scaling up S&H in Sudan.

Fig 7 - Timeline of S&H actions - 2008 - 2016[22]



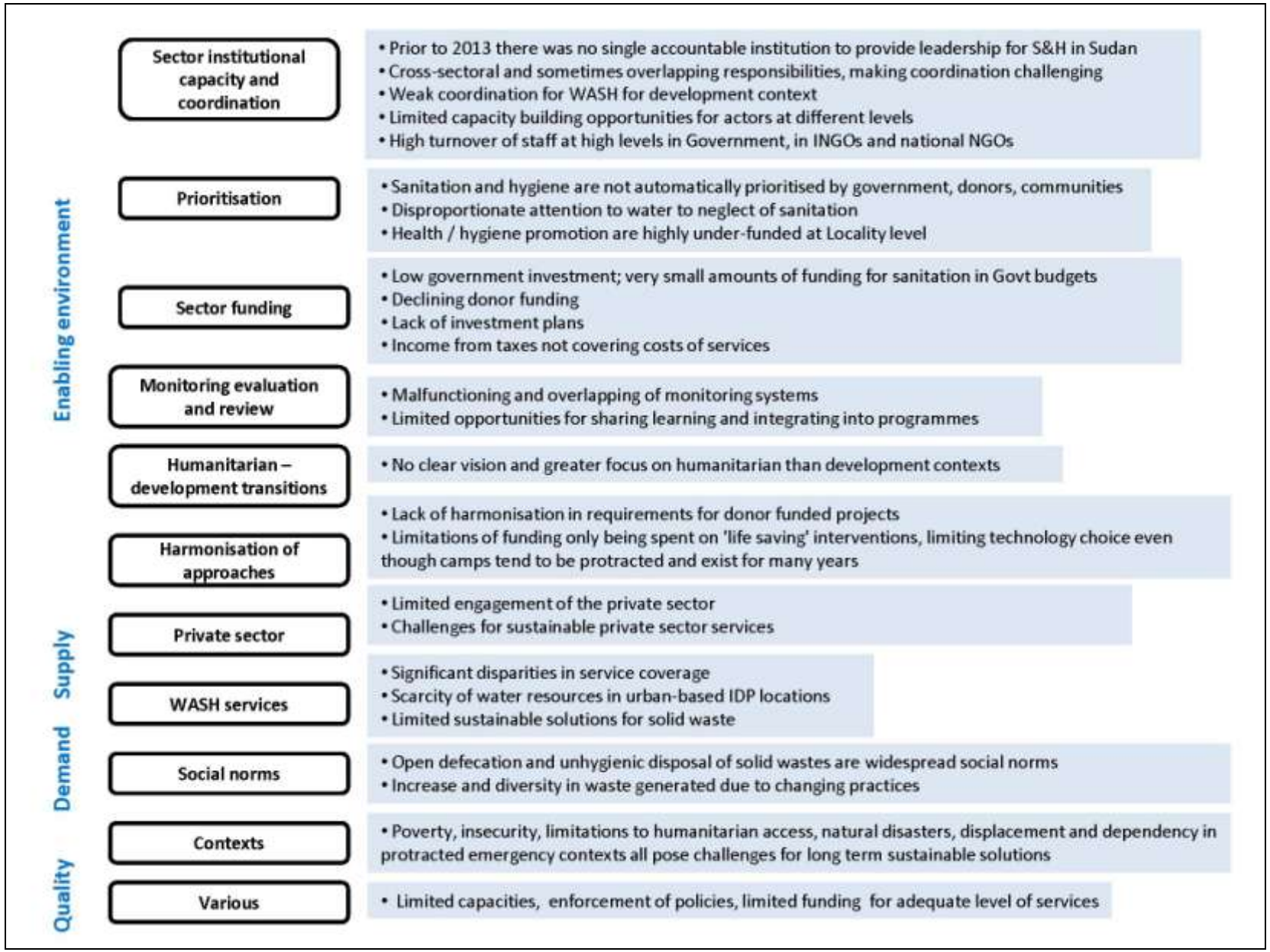
3.4 Bottlenecks for sanitation and hygiene in Sudan

Fig 8 - provides a snapshot of key bottlenecks for S&H in Sudan.

For further details of the bottlenecks for rural sanitation and for school WASH refer to **Annex Section D – IX**.

[22] Habila, O (2015) *Strategic Issues for Scaling up, S&H in Sudan*, Presentation at the GoS-UNICEF Programme Annual Review and Planning Meeting, National Health Insurance Fund, Khartoum, 13-14 Dec 2015

Fig 8 - Snapshot of key bottlenecks for S&H in Sudan



Section 4 - Vision, purpose, principles of the SNSHSF

4.1 Vision

All people in Sudan have access to and use improved sanitation (excreta disposal), dispose of solid and liquid wastes safely and practice healthy hygiene behaviours; contributing to a clean environment, a disease-free Sudan, the upholding of a range of human rights and the longer term prosperity and development of Sudan.

4.2 Purpose

The SNSHSF will contribute to scaling up S&H across Sudan in development, humanitarian and transitional contexts through:

1. Providing clear strategic direction, leading to increased harmonisation of approaches by all stakeholders across sectors, including government, non-governmental organisations and the private sector.
2. Increasing understanding of the cross-sectoral responsibilities and the contributions of S&H to upholding a range of rights for the people of Sudan, including but not limited to: education, health, nutrition, dignity, gender equality and economic development.
3. Encouraging increased collaboration, partnerships and engagement across sectors, resulting in increased commitment, resources, learning and strengthened capacities of all stakeholders.

4.3 Principles

The scaling up of S&H across Sudan will be undertaken with the following principles:

Principle 1 - Community engagement and equity - *Community engagement and understanding the norms, skills, priorities and needs of communities, particularly women and girls and those of vulnerable or marginalised groups, will underpin efforts to develop solutions*

Core to the efforts to scale up S&H in Sudan will be understanding the motivations, cultural norms, skills, priorities and needs of the girls, boys, women and men of Sudan; encouraging their leadership, participation and innovation, and increasing demand for sanitation services, as well as sustained practice of positive hygiene behaviours.

Particular efforts will be made to ensure that the skills, needs and priorities of women and girls are considered, as well as those of men and boys, when designing interventions and services and engaging with children to build their capacities and knowledge on S&H from a young age. Particular efforts will also be made in identifying, involving and prioritising the needs of the poorest and those in most vulnerable or marginalised situations, including those affected by disasters, conflict and other emergencies.

Principle 2 - Leadership, coordination and partnerships - *Strong, clear and accountable leadership, coordination, partnerships and teamwork will underpin all efforts*

S&H activities in Sudan are led by the Ministry of Health but implemented collaboratively and in a spirit of team work and shared responsibility, working towards the same goal, across sectors and Ministries. This will make the most of the varied skills, experiences and opportunities that come from each sector, particularly

across the sectors and institutions with responsibilities for health, water, education and environmental protection, Administrative Units (Municipal), Localities, finance and social welfare.

Partnerships will be established and nurtured between the GoS at all levels, across sectors and organisations, including community based organisations, non-governmental organisations, research institutions, the private sector and bilateral and multi-lateral organisations, making the most of the skills, experiences, knowledge and resources of each.

Principle 3 - Capacity development - *Developing capacities at individual, institutional and enabling environment levels is recognised as a key step in the process of scaling up for sustained solutions*

Efforts will be made to build capacities at all levels, from community, Locality and State to Federal levels; building capacities of individuals and institutions and strengthening the enabling environment. Capacity building will include, but not be limited to, legal, policy, regulatory and enforcement capacities; technical skills and cross-cutting issues such as gender, equity and vulnerability; increasing transparency and accountability and strengthening management skills, as well as ensuring that the institutions with responsibilities for S&H have the resources, equipment and technical skills to be able to effectively carry out their responsibilities at all levels.

Principle 4 - Sustainability - *Sustainability of facilities and behaviours will be integral to the design of solutions*

All efforts on S&H will consider the short, medium and longer term sustainability of facilities, services and behaviours. Sustainability will be considered from the financial, technical, environmental and social perspectives and the impact of climate change. Interventions in the early stages of humanitarian responses will consider the impacts of approaches on later solutions for longer term actions and communication will be made with communities about the likely change in approaches and level of support over time.

Principle 5 - Monitoring, evaluation and learning - *Innovation will be encouraged and the quality and effectiveness of interventions will be improved through continual monitoring, evaluation and the sharing of learning and fed back into designs for improved solutions*

Monitoring, evaluation and information management related to S&H interventions and their results will be strengthened, providing both quantitative and qualitative feedback and contributing to learning and the continuous improvement of services and approaches. Innovation and the testing of new approaches will be encouraged as well as the sharing of experiences and learning. The most effective use will be made of partnerships between higher educational institutions and operational organisations and institutions for mutual benefit of the quality of interventions, as well as for continuing capacity building of future S&H professionals.

Section 5 - Strategies - Scaling up sanitation and hygiene in Sudan

5.1 Introduction to strategies for scaling up sanitation and hygiene in Sudan

This section identifies the Strategic Objectives and Strategies for the scaling up of S&H under the following groupings:

- **Section 5.2** - Household sanitation and hygiene
- **Section 5.3** - Institutional and public sanitation and hygiene
- **Section 5.4** - Environmental health services

For a **Situation Analysis** of these components and information on approaches, refer to **Annex Section B – II**.

5.2 Household sanitation and hygiene

5.2.1 Excreta disposal

Strategic objectives:

1. To scale up efforts to ensure that 100% of households in Sudan stop open defecation and move up the sanitation ladder to improved, gender-sensitive, safe and fully accessible excreta disposal facilities.

Strategies:

Enabling environment:

1. Scale up the CATS/CLTS approach across all States in Sudan through engaging more organisations and institutions, training of CATS/CLTS facilitators, strengthening resources for logistics and on-going support costs.
2. Each State to undertake mapping of the role and responsibilities of sector partners in S&H promotion and to develop a S&H action plan.
3. Undertake monitoring of progress and on-going sustainability of the CATS/CLTS approach in Sudan.
4. Complete trials on the use of CATS/CLTS and SM in urban contexts and share learning.
5. Activate and amend existing legislation and increase enforcement related to open defecation in urban areas.
6. Undertake research on social norms, motivators, behaviours and opportunities for SM and prepare a SM strategy.
7. Undertake trials on options for SM based on the SM strategy and document and share findings.
8. Undertake research and trials on community level micro-finance options including through Village Savings and Loans groups or small scale credit and share findings.
9. Consider a system of the second stage post-ODF verification, for 'community rewards' for becoming open defecation free (ODF).

Supply:

10. Increase efforts to scale up SM across Sudan including through: developing simple sanitation marketing solutions; training artisans, both male and female, in technical options and business and marketing approaches; and peer-to-peer learning.

Demand:

11. Establish and launch a National Sanitation Campaign to end open defecation in Sudan with strategies to engage across sectors and to engage: youth and women's groups; senior decision makers; line ministries; the media; civil society; academic institutions; and the private sector.
12. Link in CATS/CLTS and sanitation promotion to village level community action planning.
13. Focus on the empowerment of women and girls to participate in and lead in ensuring household and community ODF and positive hygiene behaviour change; as well as engaging men and boys.
14. Provide opportunities for peer-to-peer experience sharing and support between Natural Leaders at community level.

Quality:

15. Develop technical guidelines for the implementation of CATS/CLTS in Sudan and disseminate.
16. Develop ODF verification and monitoring guidelines and roll out for all CATS/CLTS in Sudan.
17. Increase opportunities for regular peer-to-peer experience sharing on using CATS/CLTS in Sudan including on quality factors:
    a. How to ensure that the poorest and most vulnerable can be supported to construct a latrine;
    b. How to encourage the engagement of women and girls in the design of household latrines;
    c. How to link CLTS and SM to help people improve their own latrines;
    d. How much follow-up is needed to ensure sustainability over the longer term.
18. Develop standardised guidelines for latrine options in humanitarian contexts - including both technical aspects as well as social mobilisation and gender aspects.

5.2.2 Hygiene promotion

Strategic objectives:

1. To scale up the sustained practice of good hygiene behaviours by all people in Sudan.

Strategies:

Enabling environment:

1. Advocacy for significantly increased resources to be allocated to HP at Locality level, as a standard part of Government funding.
2. Undertake qualitative research into menstrual hygiene, incontinence and WASH for people with disabilities in Sudan - to develop strategies to respond to these issues as part of hygiene promotion using a rights and equity approach.
3. Discuss and agree across sectors the standard policy on the payment or incentives for community hygiene / health promoters.
4. Establish opportunities for hygiene promotion stakeholders to share experiences and good practices with peers at each level.

Supply:

5. Update household focussed hygiene promotion approaches to focus on the following components:
    a. Excreta disposal - use of a latrine and safe disposal of children's and animal faeces
    b. Personal hygiene - including hand-washing with soap
    c. Food hygiene
    d. Hygiene of drinking water
    e. Environmental hygiene including SWM and wastewater disposal
    f. To also learn about: Menstrual hygiene, incontinence and accessibility to WASH for people with disabilities
6. Increased integration of hygiene promotion into other sectors core activities - particularly make sure that handwashing with soap and excreta disposal are clearly integrated into:
    a. Integrated management of childhood illnesses
    b. School health promotion activities
    c. Nutrition interventions and programmes
    d. EmoC - Emergency obstetric care strategies and training
    e. Training of Traditional Birth Attendants and Midwives
    f. Outpatient information for patients visiting health facilities
    g. Information for pregnant and lactating women and girls at antenatal and postnatal appointments; and through mother and baby groups
    h. Integrated into health campaigns - such as for immunisation and de-worming
7. Review the current methodologies being used for hygiene promotion and consider how they could be improved through the use of additional or newer approaches such as social marketing or the 3-Star or School Led Total Sanitation (SLTS) approach for schools to complement the National Health Promotion Strategy.

Demand:

8. Create/enhance the sense of ownership and build the capacity of community members to internalise, replicate and sustain house-to-house and effective public hygiene promotion activities.

Quality:

9. Increase efforts to monitor and evaluate hygiene promotion approaches being used in both humanitarian and development contexts. Ideally partner a leading global institution experienced in measuring behaviour change with national higher education institutions to build their skills in supporting with this task.

5.3 Institutional and public sanitation and hygiene

5.3.1 Health facilities

Strategic objectives:

1. To ensure effective EH services and behaviours in all health facilities across Sudan, both public and private sector, to reduce EH risks for staff, patients, visitors and neighbouring communities.

Strategies:

Enabling environment:

1. Review the legislative, strategic and guidance materials for EH in health facilities including accreditation, audit[23] and monitoring systems.
2. Increase attention on establishing evidence based information on WASH in healthcare facilities, such as in reports such as the 'Service availability and readiness assessment (SARA)'[24] for Sudan.
3. Advocacy for increased budget allocations for EH in health facilities including capital and on-going operation and maintenance costs.

Supply:

4. Recruit and build the capacity of Public Health Officers on EH in health facilities including infection control procedures, safe excreta disposal, safe water supply, safe health care waste management, food safety, and vector control; and on associated monitoring.
5. Raise awareness of health, administrative and support staff in health facilities on infection control procedures, on the proper segregation and management of health care wastes, and health and safety procedures to prevent nosocomial infections and physical injuries.
6. Ensure that all health facilities have adequate numbers of improved excreta disposal facilities which are accessible, gender-segregated, have easy access to water supply and good quality, user-friendly, including for the management of menstrual hygiene.
7. Ensure that all health facilities have water points for hand-washing with a continual supply of water and soap at toilets, in food areas, in strategic locations around the facility to enable regular hand-washing by patients, medical and support staff.
8. To ensure that all health facilities have improved and a continual supply of water.
9. Ensure all health facilities provide training for food related staff on food hygiene and safety.

Refer to **Section 5.4.3** for actions related to the management of health care wastes.

5.3.2 Schools and other educational facilities

Strategic objectives:

1. To ensure that schools and all other educational facilities provide healthy WASH environments with adequate numbers of safe, accessible[25], gender-segregated latrines, as well as safe drinking water and hand-washing facilities with a constant supply of water and soap and provide conditions where girls can manage their menstrual hygiene in privacy and in dignity.
2. To ensure that all children in Sudan have the opportunity to learn about good hygiene and sanitation practices and that all girls are able to manage their menstruation in safety, in privacy and with dignity and confidence.

Strategies:

Enabling environment:

1. Review legislation to ensure that it includes the requirement for adherence to standards for WASH in schools.

[23] An example of such an audit tool is the Ethiopian *'Clean and Safe Health Facility (CASH) Audit Tool'*.
[24] This is a health facility assessment tool designed to assess and monitor the service availability and readiness of the health sector to generate evidence to support the planning and management of a health system.
[25] 'Accessible' means accessible to all including people with disabilities

2. Develop a road map / plan to increase school WASH coverage.
3. Strengthen school WASH information systems, ensuring that school WASH data is collected as part of the national EMIS and to establish a reliable database.
4. Undertake a School WASH Mapping – to establish the accurate situation of WASH in schools across Sudan.
5. Advocate for the development of legislation to prohibit school construction without integrated WASH services.
6. Review, develop, and adopt standards and specifications for appropriate S&H technologies in schools.
7. Advocacy to increase government commitment, finances and priority for school HP/EH/WASH.
8. Increase mobilisation for finances for school EH/WASH facilities and equipment (latrines, hand-washing, water supply, solid waste management, food safety related facilities, menstrual hygiene) ensuring that the facilities are accessible for people with disabilities and also in educational facilities for nomadic communities - for capital construction, on-going O&M and associated costs.
9. Undertake detailed qualitative research with schools across a range of contexts in Sudan, urban, rural and emergency affected, to understand the menstrual hygiene situation and in particular the challenges that girls and female teachers face in managing their menstrual hygiene in schools as well as their recommended solutions.
10. Review the curriculum in relation to EH/WASH, including menstrual hygiene and update / improve where needed.
11. Include the operation and maintenance of WASH in schools and school EH in the school supervisors checklist to be used to assess the performance of the school principle and quality of the education and facilities.

Supply:

12. Activate school health teachers in each school and training of teachers on school WASH in 22,000 schools.
13. Establish school health (including hygiene) committees and school health (including hygiene) clubs.
14. Mainstream gender equality and the needs of children and teachers with disabilities in all school WASH planning, implementation and monitoring processes.
15. Investigate the possibility of using the 3-Star approach to WASH in Schools or School-Led Total Sanitation (SLTS) and also the possible use of rewards for progress.
16. Print, distribute, advocate for and build capacity on the implementation of the school health strategy.

5.3.3 Religious institutions, workplaces, community centres, highways

Strategic objectives:

1. To ensure that religious institutions, workplaces, community centres and highways are served by adequate accessible, clean, safe and well maintained S&H facilities including for solid waste and menstrual hygiene material disposal.

Strategies:

Enabling environment:

1. Review legislation to ensure that it includes the requirement for adherence to standards for communities and public facilities, including for accessible facilities for PWDs.

2. Clarify the responsibilities of religious institutions, workplaces and community centres and similar other public facilities for EH/S&H, and disseminate this information.
3. Require employers to provide a separate food eating area for employees with hand-washing facilities, water, soap and solid waste disposal facilities, as requirement to being able to operate[26].
4. Require employers to have user-friendly gender-segregated, accessible[27] and private latrines with water supply and functional hand-washing facilities with a continuous supply of soap as well as a discrete and effective disposal mechanism for menstrual hygiene products, as a requirement to being able to operate.

Supply:

5. Provide training sessions on their responsibilities related to occupational and EH including S&H.
6. Investigate the possibility of supporting latrine and hand-washing facilities at private fuel stations on highways with charges for use; with the private operator of the fuel station to clean and maintain the facility. Include the requirement as part of the permission to open and run a fuel station.
7. Strictly enforce the Government of Sudan policy that no new roads are to be built without toilet facilities and hand-washing.
8. Increase private sector management of public latrine facilities, but in parallel also strengthen the system for increased supervision / monitoring of their work.

5.3.4 Markets, slaughter houses and other food related premises

Strategic objectives:

For all markets, slaughter houses and food and beverage related premises:

1. To increase access to improved S&H facilities, including discrete disposal systems for menstrual hygiene materials.
2. To improve the cleanliness and sustainability of all facilities and ensure application of public health legislation.
3. To improve personal hygiene of operatives and food hygiene and control.

Strategies:

Enabling environment:

1. Review relevant legislation (laws and subsidiary regulations) to ensure that it includes all S&H related food safety requirements.
2. Increase food inspection with enforcement for breaches of regulations.
3. Develop a compulsory hygiene certification system for all food operatives, who must undergo training in hygiene processes to attain the certification.
4. Advocacy for increased prioritisation and funding allocations for Localities to be able to undertake regular hygiene promotion awareness sessions with food operatives in markets, slaughter houses and food and beverage related premises.

Supply:

5. Form committees for markets to involve traders in solutions for ensuring good standards of S&H.

[26] World Business Council for Sustainable Development (2016) *Safe Water, Sanitation and Hygiene at the Workplace*, http://www.wbcsd.org/washatworkplace.aspx

[27] Accessible for all, including people with disabilities

6. Investigate increased public-private collaboration for the management of public latrines at market places with fee paid for use to fund the maintenance and fines for open defecation.

Also refer to the strategies in **Section 5.4.5** on food safety.

5.4 Environmental health services

5.4.1 Faecal sludge management

Strategic objectives:

1. To improve faecal sludge management systems in Sudan, particularly in urban contexts, to improve the safe containment, emptying, transport, treatment and re-use/disposal systems.

Strategies:

Whilst the ideal situation would be to replace on-site systems in urban areas with sewerage systems and comprehensive treatment systems, the cost of such infrastructure is very high in terms of capital and ongoing operation, maintenance and replacement costs; and hence unlikely to happen in the near future for all urban areas. Also sewerage systems tend to be built in areas that benefit the richer portion of the population, whilst the poorer portion of the population is expected to fund their own sanitation facilities. Hence, whilst it is an ideal situation, prioritising expenditure on sewerage is challenging.

Enabling environment:

1. Revisit the legal requirements and financial contributions required for sewerage services when new construction is approved for high rise buildings in urban areas. To consider if owners could be required to fund the construction of local sewerage networks and treatment facilities as part of the planning approvals.
2. There is a need to better understand the current faecal sludge management systems which exist in Sudan, particularly in urban areas. This is to consider both on-site and sewerage systems and each of the stages of the value chain and to make recommendations for going forward, including different technologies for faecal sludge treatment, disposal and re-use; and to understand the costs and financial and environmental aspects.
3. To develop Master Plans for S&H including faecal sludge management for all cities and towns in Sudan.

Supply:

4. In the interim while moving towards sewered systems for all cities over the longer term, the assumption should be made that all groundwater extracted from urban areas from shallow or medium depth boreholes will be contaminated. Increased efforts should be made to educate users of water from urban sources to treat drinking water at point-of-use.

5.4.2 Solid waste management

Strategic objectives:

1. To ensure effective and safe collection, transfer, disposal, re-use or recycling of all solid waste in Sudan to ensure a clean, safe and healthy environment.

Strategies:

Enabling environment:

1. To review legislation and institutional responsibilities at all levels, increasing awareness of responsibilities of institutions, businesses and the general population and more effective use of enforcement for breaches of legislation.

2. To undertake analysis of the real costs of performing SWM and increase the charges to solid waste producers, household, businesses and institutions, in parallel with improvements in services; and where feasible increased involvement of the private sector.
3. To undertake increased advocacy with policy makers and the public on the importance of solid waste management and the need to better finance it for sustainable, effective solutions.
4. To continue learning on options for community based SWM, use of the small scale private sector or community based organisations and how to establish sustainable systems for rural and small town areas. To also consider formalised options for similar engagement in low income areas in cities not covered by municipal services. Consider these small scale systems in partnership with Administrative Units (Municipal), so that businesses will not be destroyed at a later date if the Administrative Unit (Municipal) decides it is able to provide services.
5. To understand research and learning into the informal waste collection and recycling that is already undertaken in Sudan by waste pickers, with consideration as to how the processes may be adapted to engage the waste pickers in formalised and safer processes for recycling with steady incomes.

Supply:

6. Increase household responsibilities and good practices for SWM into the school curriculum.
7. To increase the amount of waste segregation at source and recycling industries as well as increased composting of organic wastes. In particular to encourage a reduction in the current high levels of soil found in solid wastes in Sudan.

Demand:

8. Increased efforts on raising awareness and behaviour change for solid waste minimisation, recycling, re-use and disposal (particularly with the urban populations). Continue to use multiple channels and approaches, and continuing to learn from successes in other countries in the region or with similar challenges to Sudan.

Refer to **Section 5.4.3** for the strategies for health care and hazardous wastes management.

5.4.3 Health care waste and hazardous waste management

Strategic objectives:

1. To ensure the health and safety of health care workers, patients and surrounding populations from poor management of health care wastes.
2. To ensure the safe management of all health care and other hazardous wastes, to reduce risks to human populations, animals and the environment.

Strategies:

Enabling environment:

1. Review and strengthen the legislative and institutional framework to ensure the safe management of hazardous and health care wastes in Sudan, ensuring a stable institutional framework. This is to avoid unstable institutions and responsibilities.
2. Urgently prepare a national policy for the management of health care and hazardous wastes. The current situation of leaving every state to set its own policies must come to an immediate end. One policy applicable to all states of the country is essential and it must be set and led by FMoH.
3. A national body for the management and control of health care wastes should be formed under the umbrella of FMoH. That body should have branch bodies at state level. The relationship between the national body and the state bodies in addition to the relationship between the state bodies and the

SMoH and any Environmental related Council or Ministry at State level where they exist, should be clearly defined and regulated to avoid any kind of conflicts.

4. To establish a national body for the management of hazardous wastes.
5. To establish a clear article in the relevant law to reflect the importance of the following statement: *"No health facility, company or any other entity is authorized to import any instrument or device used for treatment of HCW or HW unless it has got written permission from the national health care waste management body"*.
6. Under the Basel Convention, the government should sign agreements with developed countries which have the ability and technology for hazardous waste treatment in order to export some hazardous wastes for treatment, since it can't be treated here.
7. To establish a surveillance and monitoring system for health care and other hazardous wastes management (see also the strategies for Health Facilities) in **Section 5.3.1**.
8. To develop improved and simple guidelines for the management of health care wastes in health facilities.

Supply:

9. Provide training for Public Health Officers responsible for the management of health care wastes, health and support staff in health facilities across Sudan.
10. Undertake capacity building of staff and awareness-raising of businesses on their responsibilities related to HCW & HWM and the punishments for breaches of legislation.

Quality:

11. To increase monitoring and enforcement of breaches of legislation in the management of health care and hazardous wastes.
12. Assess the operational efficiency and emissions from traditional incinerators used in health facilities to provide evidence to the Government to fund the replacement of traditional incinerators; and to gradually replace traditional incinerators with more advanced options.

5.4.4 Strategic objectives and strategies related to vector control

Strategic objectives:

1. To strengthen the vector control capacities at State and Locality levels with particular focus on entomological surveillance, strengthening laboratories and increasing attention on community engagement and mechanical means of vector prevention.
2. To strengthen attention on maintenance of existing IVM equipment to ensure its most effective use.

Strategies:

The following strategies are recommended for vector control:

Enabling environment:

1. With the joint leadership by the FMoH and WHO to increase collaboration across ministries, partners and organisations in Sudan as well as neighbouring countries to develop strategies and to increase resource allocation for IVM.
2. Increase advocacy on IVM to increase political commitment and resources.
3. Undertake a detailed entomological survey across all States in Sudan (including bio-assay) to identify the epidemiological profile of each State/Locality.

4. Develop strategies to develop more comprehensive approaches linked to the epidemiological profile of each State/locality.
5. Establish an information system that contains an inventory of equipment and personnel, reports and interventions.

Supply:

6. Strengthen IVM capacities at State and locality levels - staff capacities, logistics, laboratories, maintenance routines, running costs.
7. Develop a strengthened vector control campaign to engage communities on community behaviours and mechanical prevention of vector borne diseases.

5.4.5 Food safety

Strategic objectives:

1. To strengthen the legislative and institutional framework for food control in Sudan.
2. To strengthen the capacity of the food control system in Sudan, particularly at Locality level, including logistics and ongoing costs for operations and on focussing on awareness raising of responsibilities of food handlers and producers, inspections, enforcement and remedying infringements.

Strategies:

Enabling environment:

1. Review the current legislative and institutional framework for Sudan, identifying areas where improvements are needed.
2. Increase the size of fines to increase their deterrent nature and feed this income back into laboratory testing and funds for logistics for inspections.

Supply:

3. Strengthen the capacity of the Locality level food control system, focussing on training, increasing the number of inspections, enforcement and remedying infringements.
4. Improve capacities of food control laboratories and undertake advocacy to increase finances for regular testing.
5. Increase awareness raising with food and beverage related businesses as to their legal requirements and penalties for non-compliance.

5.4.6 Drinking water safety

Strategic objectives:

1. To improve drinking water safety across Sudan through the protection of sources, water surveillance and treatment and capacity building.

Strategies:

Enabling environment:

1. Develop drinking water safety plans at State, Locality, community, water point and household levels (handling, storage, transportation and treatment).

Supply:

2. More attention to be put into the protection of water resources - such as through borehole design, water storage and distribution systems through fencing, improving drainage and separation of water points for animals and humans.
3. Strengthen water surveillance systems, including using sanitary inspections, water quality testing, monitoring and record keeping; and including survey and monitoring at household levels.
4. Support the use of water treatment including chlorination with appropriate pre-treatment and point of use water treatment systems.
5. Undertake capacity building of water surveillance staff at Locality and community levels (water committees, operators).

5.4.7 Surface water drainage and grey-water disposal and re-use

Strategic objectives:

1. To improve the scope and functioning of surface water drainage networks in Sudan to reduce flooding, improve the environmental conditions and reduce mosquito breeding opportunities.
2. To increase opportunities for re-use of grey-water for productive purposes.

Strategies:

Enabling environment:

1. To develop Master Plans for S&H including surface water drainage for all cities and towns in Sudan.
2. To improve the drainage network in urban areas in Sudan through improved analysis of flood risks, urban planning, drainage design and allocation of resources.

Supply:

3. To undertake awareness raising campaigns and enforcement of local by-laws to reduce the disposal of solid waste into drainage systems.
4. Support innovation in the use of grey-water for productive uses through research and testing whilst also considering health and safety.

Section 6 - Strategies - Cross-cutting issues

6.1 Introduction to cross-cutting issues

This section identifies the Strategic Objectives and Strategies responding to the cross-cutting issues under the following groupings:

- **Section 6.2** – Humanitarian – development transitions
- **Section 6.3** – Gender, equity and vulnerability
- **Section 6.4** – Sustainability, environment and climate change
- **Section 6.5** – Private sector engagement

For a **Situation Analysis** of these components and information on approaches, refer to **Annex Section B – III**.

6.2 Humanitarian - development transitions

Strategic objectives:

1. To more effectively consider the humanitarian – development transitions when undertaking humanitarian interventions, enabling smooth transitions in the approach for scaling up S&H.

The following table identifies the strategies that have been identified in response to specific issues identified related to protracted crises and the humanitarian-development transitions.

Table 1 - Strategies - S&H for humanitarian contexts considering protracted crises and the humanitarian - development transition

	Issue	Strategies
Enabling environment		
1	Inadequate coordination across sectors and short term planning	• Engage across sectors to develop response plan with phases to longer term perspective from early stages • Increase efforts for co-ordination across sectors and develop long-term preparedness and response plan
2	Tendency for donor driven nature of humanitarian action, each donor with different conditions	• Bring humanitarian donors together to agree key principles and standards for response for increased harmonisation • Key partners to follow the standards and principles of the S&H framework
3	Limited willingness of donors to fund recovery and development	• Improve data collection and analysis on the situation in non-humanitarian contexts for advocacy
4	Different approaches used by different actors for latrine construction, NFIs and payment of hygiene promoters in humanitarian contexts	• All actors in each specific context required by government to agree on a unified approach - for level of subsidy, NFIs and payment level for hygiene promoters
Supply		
5	Poor camp planning / lack of space for new arrivals or household latrines after	• Develop standard layouts for camp locations and high level of attention on camp planning at outset of emergency to enable

	having communal latrines	space for household latrines and to have more separation for animals within household. • Limit numbers in camps, make new camps or extensions including additional services for new arrivals.
6	Payment for hygiene promoters in humanitarian context	• Community based hygiene promoters should be paid for their work (cash or in-kind), particularly in the first three to six months of a humanitarian crisis. • After one year community based hygiene promoters should be paid in line with longer term approaches. It is considered positive for community based hygiene promoters to receive some form of payment or incentives in line with payments by other sectors and based on their activities / outputs. Currently most payments are in-kind (food, soap or other items) or cash based on household visits and during IEC material distribution.
Demand		
7	Sense of dependency and difficulty to transition to non-subsidy approaches for the longer term	• Respect community capacities and dignity and involve the community in establishing the phase-out strategy from an early stage to reduce expectations. Engage with community leaders (male & female), discussing needs and phasing. Discuss: o Provision of subsidy for latrine construction during initial periods of displacement, to be phased out over time o Where possible incorporate community contributions from early stages, including participation o Engage across sectors, encourage support for income generation • Undertake willingness and ability to pay survey for S&H services.
8	Inadequate attention for gender, equity/equality and vulnerability while planning for and implementing S&H facilities and programmes	• Increase capacity building for gender, equity/equality and vulnerability for all humanitarian WASH stakeholders – to ensure that the needs and priorities of women/girls and people who may be vulnerable, marginalised or disadvantaged are considered and responded to. • More widespread use of the Gender Marker to encourage focus on these issues and increased monitoring.
Quality		
9	Difficulty of maintaining communal / shared latrines over the longer term	• Aim for provision of household or shared household latrines (max. 3 families) from beginning of emergency.
10	Poor waste collection and disposal and cleaning of communal latrine facilities over the longer term	• Engage communities in establishing system for payment for solid waste management and cleaning of communal / public latrine facilities. • Or consider integration of the costs of solid waste collection and cleaning of communal latrines into payments for water.

6.3 Gender, equity and vulnerability

Strategic objectives:

1. To build capacities to ensure that all S&H programmes effectively respond to the needs of all people in Sudan, particularly women and girls, people with disabilities and those in marginalised or particularly vulnerable situations.

Strategies:

Enabling environment:

1. Build capacities of S&H sector stakeholders to be able to practically consider gender, equity, vulnerability in their work and support women's increased involvement in the sector, including through men and boys support for this change.
2. Investigate how to better use the skills and knowledge of women's organisations and youth organisations to support increased engagement of women and girls as well as men and boys in WASH programmes.
3. Particular guidance to be provided on technical options for improving accessibility of latrines and bathing facilities for PWDs and people with mobility limitations.
4. Consider how the WASH sector can better engage with Ministry of Welfare Social Security to help it build its capacity in responding to these issues.
5. Increase the collection of disaggregated data related to S&H programmes.

6.4 Sustainability, environment and climate change

Strategic objectives:

1. To increase the sustainability of S&H services, facilities and behaviours, including from the effects of climate change.
2. To protect the environment through appropriately designed S&H interventions.

Strategies:

Enabling environment:

1. Undertake research and learning into sustainability of S&H services and behaviours as well as possible impacts and responses to climate change. This could be linked to the proposed research on the costs of SWM, the research on the engagement of the private sector or social marketing research. In addition focussed learning is required on the O&M aspects of EH/WASH in schools and EH/WASH in humanitarian contexts, to gather a great understanding of the scale of the challenge and examples of good practice for wider sharing.
2. Strengthen emergency preparedness systems and capacity across all areas of S&H with particular attention on outbreak prediction, prevention, control and response.

Supply:

3. Increase attention on strengthening SWM, FSM and hazardous waste management systems to reduce impacts on the environment.

Demand:

4. Create positive S&H social norms at community level using participatory demand-based approaches to promote acceptability, ownership and system sustainability.

Quality:

5. Increase capacity for environmental assessment and monitoring in relation to urban S&H services.

6.5 Private sector engagement

Strategic objectives:

1. To investigate opportunities for greater engagement of the private sector in S&H in Sudan
2. To strengthen private sector engagement in S&H in Sudan

Strategies:

Enabling environment:

1. Undertake a study of private sector opportunities to engage in S&H in Sudan, identifying the major constraints and developing an action plan to respond to the constraints.
2. Investigate or establish finance and micro-finance opportunities for S&H businesses and disseminate.

Supply:

3. Provide capacity building in specific priority areas, such as in sanitation marketing, maintenance or business skills, to small and medium sized enterprises (SMEs).

Demand:

4. Promote the opportunities available in the S&H value chain to attract new businesses.

Quality:

5. Provide opportunities for peer-to-peer learning with Localities and States and where appropriate at national or international level.

Section 7 - Strategies - Building blocks for sanitation and hygiene in Sudan

7.1 Introduction to the building blocks

This section identifies the Strategic Objectives and Strategies for each of the 'Building Blocks' for scaling up S&H in Sudan under the following groupings:

- **Section 7.2** – Legal and policy framework
- **Section 7.3** - Institutional responsibilities
- **Section 7.4** – Financing sanitation and hygiene
- **Section 7.5** – Planning, monitoring, review and learning
- **Section 7.6** – Building capacity

For a **Situation Analysis** of these components and information on approaches, refer to **Annex Section B – IV**.

7.2 Legal and policy framework

Strategic objectives:

1. To update and strengthen overall coherence of legal and policy framework for S&H in Sudan across the humanitarian, transitional and development contexts.

Strategies:

1. Review, finalise and endorse the legal and policy framework for S&H in Sudan. Ensure that the AfDB funded institutional review for the Water Sector involves the FMoH as the lead accountable institution for S&H for the analysis of S&H in Sudan[28].
2. To continue strategic discussions on the definitions of the transitional phases for each stage assessed on specific needs.

7.3 Institutional responsibilities for sanitation and hygiene

Strategic objectives:

1. To have clear institutional responsibilities for S&H in Sudan across Ministries and between all stakeholders.

Strategies:

1. To review the legal status of the responsibilities of each key institutional actor for S&H in Sudan and update legislation to reduce any points of overlap. S&H (from the WASH Sector perspective) will be

[28] There will be a process for review of the legal and policy framework for the Water Sector funded by the AfDB. However care will be needed to ensure that sanitation and hygiene is covered in a comprehensive manner and in alignment with the components in this framework. If the AfDB funded processes are not able to consider the full scope of sanitation and hygiene, for example only focussing on excreta disposal and hand-washing, additional processes will be required to cover the other elements through additional resources. There is an essential need to ensure that the FMoH as the lead for S&H in Sudan is highly involved in the AfDB funded review processes, responses and approaches, as well as the MoWRE and other key Ministries.

reviewed as part of the AfDB supported Institutional Reform programme for the Water Sector. There will also need to continue this analysis from the perspective of other sectors.

2. To improve opportunities for CSOs (NGOs, FBOs, CBOs) to engage together with the GoS in strategic planning and capacity building related activities. To include an annual WASH Sector Forum as well as specific strategic planning events.

7.4 Financing sanitation and hygiene

Strategic objectives:

1. To significantly increase the investment into S&H in Sudan.
2. To identify new sources of funding for S&H in Sudan, including from communities, from across sectors, the private sector, micro-credit and through cross-subsidies.

Strategies:

1. Increase regular engagement with the Ministry of Finance and National Economy (MoFNE), inviting representatives to all key S&H related events, in order to build up the understanding of the importance of S&H, not just to the health and dignity of the nation, but also its economic development.
2. Influence policy at State Level to allocate increased finances for EH/S&H at Locality level as standard practice. Influence the Governor's Office of the Ministry of Local Government, and the Commissioner's Office at Locality level, through advocacy at Presidential level and through the Public Health National Coordination Council.
3. To prepare a Sector Investment Plan (SIP) for S&H in Sudan[29].
4. Scaling up community self-financing through creating sanitation and hygiene positive social norms with focus on community economics and demand driven approaches, appropriate low cost technologies, women's empowerment, rewards and celebrations.
5. To undertake analysis of possible new sources of funding for S&H in Sudan, including from across sectors, the private sector, micro-credit and through cross-subsidies[30]. Over the past 5 years there has been a much increased understanding in the nutrition sector of how essential S&H is to reducing undernutrition; and increasingly the importance of S&H is understood in relation to schooling, particularly of girls. This increased understanding should open up opportunities through the Education, Nutrition and other sectors to access new or additional funding for S&H.
6. To investigate whether micro-finance, savings clubs and other micro-opportunities may be useful and appropriate tools for raising finance for SMEs or households.
7. To investigate new financing opportunities from the private sector from direct investment, from the angle of Social Corporate Responsibility (CSR), or marketing campaigns as part of their product promotion, as part of public-private-partnerships. This will require strengthening of the legal framework for quality control.

[29] A SIP is planned for the Water Sector under funding by the AfDB, but it is not yet clear how much attention will be made to the S&H elements in the analysis. In addition, if included it is likely to only include investment costs for excreta disposal and hygiene promotion and not the other components of sanitation.

[30] i.e. funds raised from one activity, such as water, to be used for other activities, such as solid waste management

7.5 Planning, monitoring, review and learning

Strategic objectives:

1. To establish a simple streamlined and efficient and gender-sensitive monitoring system for collecting information on S&H, that can be used at all levels, is useful to all key actors and sustained over time.
2. To improve the level of experience sharing and learning opportunities for professionals working on S&H at all levels.

Strategies:

There is an urgent need for the following:

Enabling environment:

1. To find an integrated solution for the management of information and monitoring and evaluation that will reduce duplication:
    a. Consider who will manage the system and how it will be sustained over the longer term.
    b. WHO and UNICEF to agree how to support coherent data collection / information gathering[31].
    c. Any MIS / M&E system to be a simple system that can be used from all levels.
    d. Establish mechanisms to ensure data provided is as accurate as possible.
    e. Ensure time commitment for the collection and management of data.
2. Ensure that gender-sensitive data on S&H is effectively integrated into all regular data collection and national surveys, such as through the EMIS and HMIS and Household Budget Survey; recognising the level of technology available at locality level.
3. Train S&H actors on M&E including at lowest levels in M&E stressing its importance, to increase interest and commitment; and to keep repeating the training over time due to turnover of staff.
4. Establish annual reviews for the WASH sector, and also ensure that WASH is effectively integrated into the annual reviews for other sectors - such as the Education and Health sectors.
5. Establish learning centres in all States and Localities for the sharing of information.
6. Run learning events on a regular basis for the sharing of good practice between different sector stakeholders, with particular focus on State, Locality, National / Local NGOs and INGOs at the operational level.

Also see the strategies for capacity building in **Section 7.6**.

7.6 Building capacity for scaling up sanitation and hygiene in Sudan

Strategic objectives:

1. To build the capacity of S&H professionals of the future, through increasing opportunities for student workplace experience as part of their studies.
2. To utilise the knowledge and skills of higher education institutions to undertake applied research, assessments and evaluations, whilst also updating the knowledge and experience of lecturers.

[31] WHO and UNICEF are specifically mentioned due to their key roles in S&H and in sector strengthening and their existing support for different MIS and M&E systems

3. To increase experience sharing, learning and capacity building opportunities for operational agencies, particularly national NGOs and staff working at community, Locality and Administrative Unit (Municipal) levels; but also at every level including for decision and policy makers.
4. To encourage increased learning through networking.

Strategies:

1. To increase coordination and engagement between universities and operational agencies. This is to:
    a. Open up new opportunities for students to experience the workplace and the community.
    b. To increase the number of lectures that operational professionals give at universities to bring practice and experience into the lecture theatre (*"a half hour lecture from an experienced professional is worth two hours of theory from a university lecturer"*).
    c. For the S&H operational agencies and institutions to more readily share research topics with the university lecturers and to involve staff and post-graduate students in applied research, assessments and evaluations, to benefit both the sector and to update the university staff with the latest approaches and practices.
2. Implement the 3-year WASH Sector Capacity Development Plan (humanitarian), which has the following objectives:
    a. More effective dissemination and sharing of information
    b. Improve the performance of the coordination platform
    c. WASH agencies are able to manage capacity development in a systematic way
    d. A more sustainable and broader approach to capacity building
3. Pay particular attention on building capacities in the following areas:
    a. To strengthen the coordination and leadership capacities of the Sanitation Team across States and Localities in Sudan including logistics and on the scale up of CATS/CLTS[32]
    b. Operational agencies and in particular NNGOs working in humanitarian contexts
    c. Advocacy and capacity building of decision and policy makers including Ministers and Governors, to increase support for the sector
    d. Mainstreaming S&H related gender and equity/ equality and vulnerability aspects in all capacity building programmes
    e. Hygiene promotion and community mobilisation skills in both humanitarian and development
    f. The private sector including in sanitation marketing
    g. Community based SWM and vector control
    h. Other sectors to better integrate S&H into their programmes
    i. To strengthen sector level M&E systems and skills
    j. To increase engagement of CSOs in sector related strategic planning activities

Capacity development activities related to specific components of S&H have been discussed in their respective sections of this report.

[32] No author (no date) *Framework for Building Capacity on Community Approaches to Total Sanitation (CATS/CLTS) in Sudan*

Sudan National Sanitation and Hygiene Strategic Framework

Annexes

26 August 2016

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Acronyms

AfDB	African Development Bank
AMCOW	African Ministers Committee on Water
ARIs	Acute respiratory infections
CATS/CLTS	Community Approaches to Total Sanitation (which is based on Community-led Total Sanitation)
CBO	Community based organisations
CBS	Central Bureau of Statistics
CEHA	WHO Regional Centre for Environmental Health Actions
CFS	Child Friendly Schools (also used for Child Friendly Spaces in humanitarian contexts)
CHAST	Child Hygiene and Sanitation Training
CLTS	Community-led Total Sanitation
CSO	Civil Society Organisations (NGOs, CBOs, FBOs)
DFID	Department for International Development, UK Government
DWST	Drinking Water and Sanitation Training Centre
DWSU	Drinking Water and Sanitation Unit, MoWRE (previously known as the PWC)
ECHO	European Humanitarian Aid and Civil Protection Department, European Union
EH	Environmental health
EMIS	Education management information system
FBO	Faith based organisation
FGD	Focus group discussion
FGM/C	Female genital mutilation / cutting
FMoH	Federal Ministry of Health
FRESH	Focussing Resources on Effective School Health
FSM	Faecal sludge management
GBV	Gender based violence
GoS	Government of Sudan
HAC	Humanitarian Aid Commission
H.Educ.	Higher education
HACCP	Hazard analysis critical control point
HCENR	Higher Council for Environment & Natural Resources (Khartoum State)
HCW	Health care wastes
HCWM	Health care wastes management
HMIS	Health management information system
HP	Hygiene promotion / Health promotion
HPS	Health Promoting Schools
HWM	Hazardous wastes management
IMCI	Integrated management of childhood illnesses
INGO	International non-governmental organisation
IOM	International Office for Migration
IVM	Integrated vector management
JICA	Japanese International Cooperation Agency
JMP	Joint Monitoring Program, WHO/UNICEF
KAP	Knowledge, attitude and practice
KII	Key informant interview
KSCC	Khartoum State Cleaning Corporation
M&E	Monitoring and evaluation

MDG	Millennium Development Goals
MHM	Menstrual hygiene management
MIC	Ministry of International Cooperation
MICS	Multi-Indicator Cluster Survey
MIS	Management information system
MoENRPD	Ministry of the Environment, Natural Resources and Physical Development
MoFNE	Ministry of Finance and National Economy
MoE	Ministry of Education
MoWRE	Ministry of Water Resources and Electricity
MoWSS	Ministry of Welfare and Social Security
NGO	Nongovernmental organisation
NSHC	National Sanitation High Committee
O&M	Operation and maintenance
OFDA	Office of United States Foreign Disaster Assistance
PHAST	Participatory Hygiene and Sanitation Transformation
PTA	Parents and Teachers Association
PWC	Public Water Corporation (now known as the DWSU)
PWD	Person(s) with disability
RedR	Register of Engineers for Disaster Relief
S&H	Sanitation and hygiene
SAEC	Sudan Atomic Energy Commission
SAG	Sector Advisory Group [of the humanitarian WASH Sector]
SDG	Sustainable Development Goals
SHCC	School Health Coordination Council
SM	Sanitation Marketing
SME	Small and medium sized enterprises
SMoUDPI	Ministry of Urban Planning and Infrastructure – at State level (in some States the title 'Infrastructure' may be replaced by 'Public Utilities' or 'Construction')
SMoW/A	State Ministry of Welfare or Affairs
SNSHSF	Sudan National Sanitation and Hygiene Strategic Framework
SSC	State Sanitation Committee
SWA	Sanitation and Water for All
SWC	State Water Corporation
SWM	Solid waste management
TSSM	Total sanitation and sanitation marketing
TWG	Technical working group
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WASH	Water, sanitation and hygiene
WES	Water and Environmental Sanitation [Project]
WHO	World Health Organisation

Terminology and definitions

Term	Definition
Mahalia	Administrative sub-division just below State level also known as a Locality

Multiple and often over-lapping definitions exist globally related to sanitation, hygiene and environmental health (EH). The definitions which follow are those proposed for use in the Republic of Sudan.

Term	Definition
Hygiene	
Hygiene	The conditions and practices that help to prevent the spread of diseases and maintain health and dignity.
Hygiene promotion	A planned, systematic approach which encourages and enables people to take action and adopt safe hygiene practices and behaviours to prevent diseases and protect health.
Health promotion	Health promotion is the process of enabling people to increase control over and to improve their health. It moves beyond a focus on individual behaviour towards a wide range of social and environmental interventions.
Personal hygiene	The principle of maintaining personal cleanliness and grooming of the body and clothes, including hands, hair, nails and all parts of the body including menstrual hygiene.
Menstrual hygiene	Conditions and practices that help women of reproductive age to maintain their menstrual period in a healthy way and with dignity.
Menstrual hygiene management	Women and adolescent girls are using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the body as required, and having access to safe and convenient facilities to dispose of used menstrual management materials. They understand the basic facts linked to the menstrual cycle and how to manage it with dignity and without discomfort or fear. (JMP definition)
Environmental hygiene	Hygiene and cleanliness of the environment that helps reduce vectors, prevents the spread of disease and makes the environment more pleasant to live in.
Food hygiene	Food safety and wholesomeness in its production, storage, preparation, distribution and sale, until consumption.
Medical hygiene	A specific set of practices associated with medical contexts that preserve health, for example environmental cleaning, sterilization of equipment, hand hygiene, water and sanitation and safe disposal of medical waste.
Sanitation	
Sanitation	The hygienic means of promoting health through prevention of human contact with the hazards of wastes. It can include the provision of facilities and services for the safe disposal of human and animal excreta, solid wastes, domestic wastewater (sewage or grey water), industrial and agricultural wastes and may involve vector control. *<u>Note:</u> The Water / WASH sectors most commonly refer to 'sanitation' only in relation to the safe disposal of excreta and urine. See below for additional definitions related to excreta and urine disposal.*
Environmental sanitation	The hygienic means of promoting health through prevention of human contact with the hazards of wastes in the environment. It can include the provision of facilities and services for the safe collection, transfer, disposal, recycling and re-use of wastes. This includes human and animal excreta, solid wastes, domestic wastewater (sewage or grey water), industrial wastes, agricultural wastes and vector control. It can also include the air pollution prevention and clean housing environments.

Environmental health (EH)	This is the branch of public health that is concerned with all aspects of the natural and built environment that may affect human health through physical, biological, chemical, social and psychosocial factors. The environment is everything that surrounds us. The following EH intervention areas are considered part of S&H under this framework: • Safe excreta and urine management; solid waste management; health care and hazardous wastes management; vector control; food safety; drinking water safety; wastewater disposal (black, grey and rainwater). The following EH intervention areas, are not being covered as part of S&H for the purpose of this framework: • Air pollution control; industrial wastes management; quality of housing.
Public health	All organized measures (whether public or private) to prevent disease, promote health, and prolong life among the population as a whole. Its activities aim to provide conditions in which people can be healthy and focus on entire populations, not on individual patients or diseases. Public health is concerned with the total system and not only the eradication of a particular disease.
Sanitation definitions related specifically to the disposal of excreta and urine	
Basic sanitation	A basic sanitation service is considered as access to an improved sanitation facility which is not shared by two or more households. (JMP definition)
Improved sanitation	Improved sanitation facilities are those that effectively separate excreta from human contact, and ensure that excreta do not re-enter the immediate household environment. Improved sanitation facilities include: • A pit latrine with a superstructure, and a platform or squatting slab constructed of durable material. A variety of latrine types can fall under this category, including composting latrines, pour-flush latrines, and ventilation improved pit latrines (VIPs). • A flush toilet connected to a septic tank or a sewer (small bore or conventional). (JMP definition)
Adequate sanitation	Implies a system which hygienically separates excreta from human contact as well as safe reuse / treatment of excreta in situ, or safe transport and treatment off-site. (JMP definition)
On-site sanitation	The collection and treatment [or disposal] of waste at the place where it is deposited.
Open defecation	Excreta of adults or children are deposited (directly or after being covered by a layer of earth) in the bush, a field, a beach, or other open area; discharged directly into a drainage channel, river, sea, or other water body; or are wrapped in temporary material and discarded. (JMP definition)

Also refer to **Annex Section D - VI** for the emerging definitions and service ladders under development by the Joint Monitoring Programme (JMP) of WHO and UNICEF. These are for: drinking water supply, sanitation (excreta disposal), wastewater (focussing on faecal sludge and sewage), hygiene facilities and institutional WASH.

Annex Section A - Introduction to Annexes

Annex I - Purpose and structure of the Annexes

These Annexes form a key part of the Sudan National Sanitation and Hygiene Strategic Framework (SNSHSF). They provide supporting information on the context from which the Strategic Objectives and Strategies in the main body of the framework have been established. They also form a resource for reference by sector stakeholders working on sanitation and hygiene in Sudan and as such they can be used as part of the SNSHSF or as a separate document.

The Annexes are structured into four components:

- **Annex Section A** – Introduction to the Annexes
- **Annex Section B** – Situation Analysis – S&H in Sudan
- **Annex Section C** – Action Plans
- **Annex Section D** – Supporting information

Annex Section B - Situation analysis - S&H in Sudan

Annex II - Components of sanitation and hygiene

II.1 Introduction to situation analysis of S&H in Sudan

The Situation Analysis of S&H in Sudan provides the background context to the Strategic Objectives and Strategies identified in the main body of the SNSFSF. It is structured as follows:

- **II.2** - Household sanitation and hygiene
- **II.3** - Institutional and public sanitation and hygiene
- **II.4** - Environmental health services
- **II.5** - Cross-cutting issues
- **II.6** - Building blocks

II.2 Household sanitation and hygiene

II.2.1 Excreta disposal – situation analysis

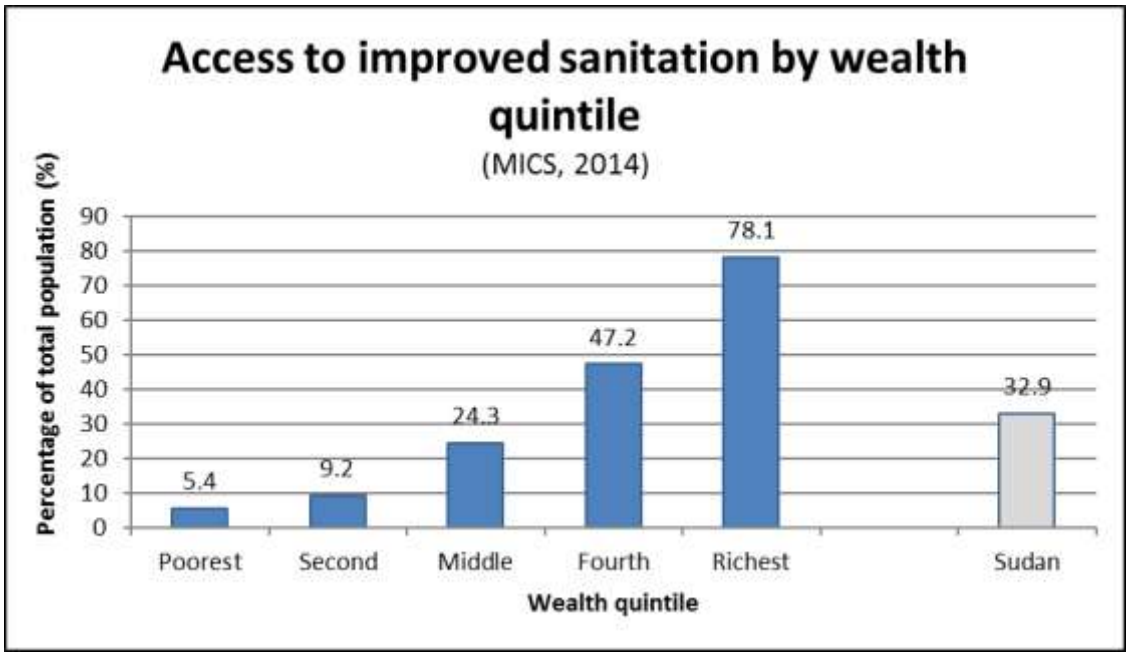
Current situation:

MICS data, 2014, indicates that:

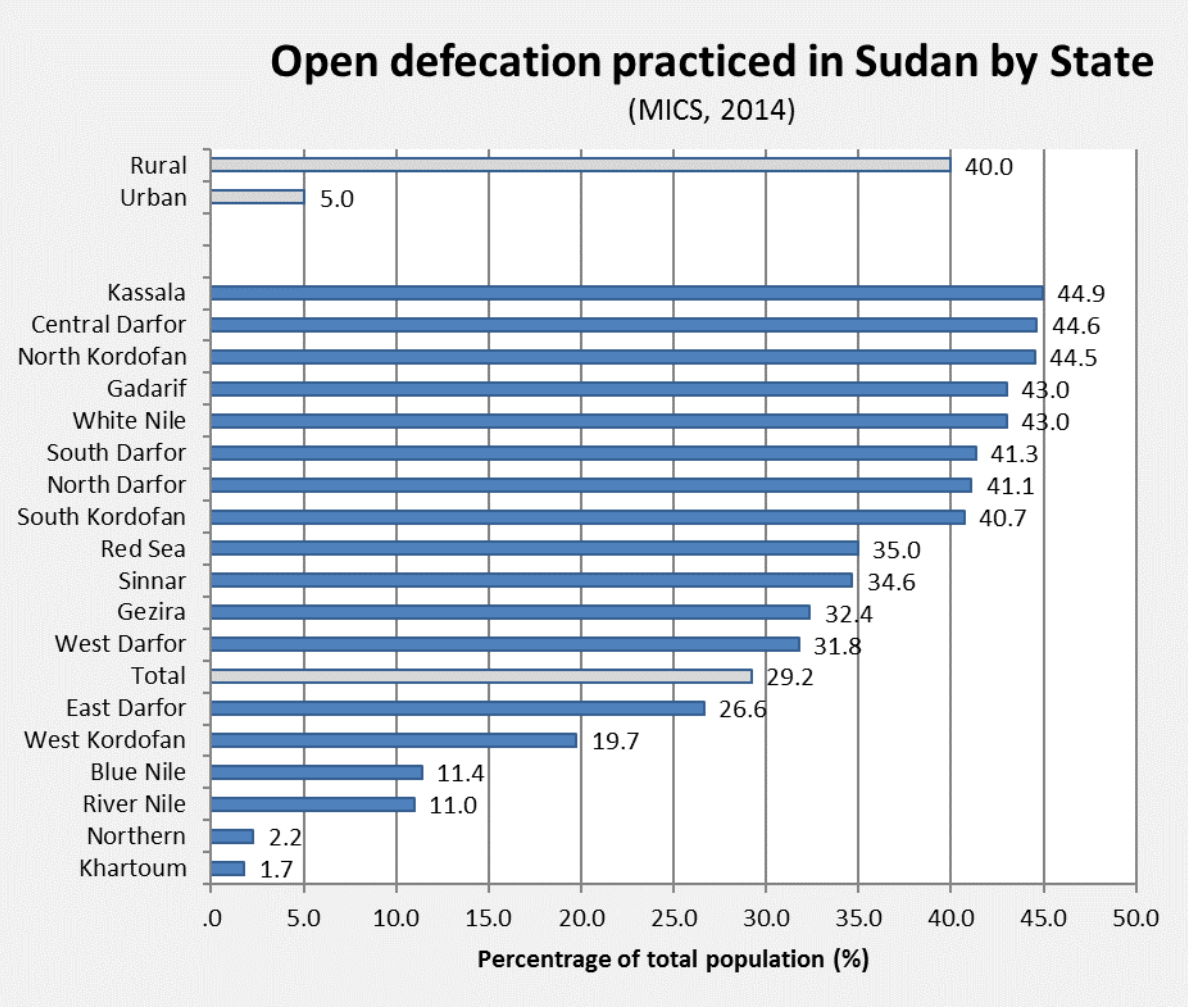
- 32.9% of the population has access to an improved latrine and 29.2% practices open defecation
- 53% of children had their faeces safely disposed of the last time before the survey
- 28.2% of the population have access to both improved drinking water and improved sanitation

There are significant variations across States, urban and rural and wealth quintiles. These disparities can be seen the graphs which follow in **Annex Figs 1, 2 and 3** - and in the MICS data in **Annex Section D - VIII**.

Annex Fig 1. Access to improved sanitation by wealth quintile (MICS, 2014)



Annex Fig 2. Open defecation practiced in Sudan by State (MICS, 2014)



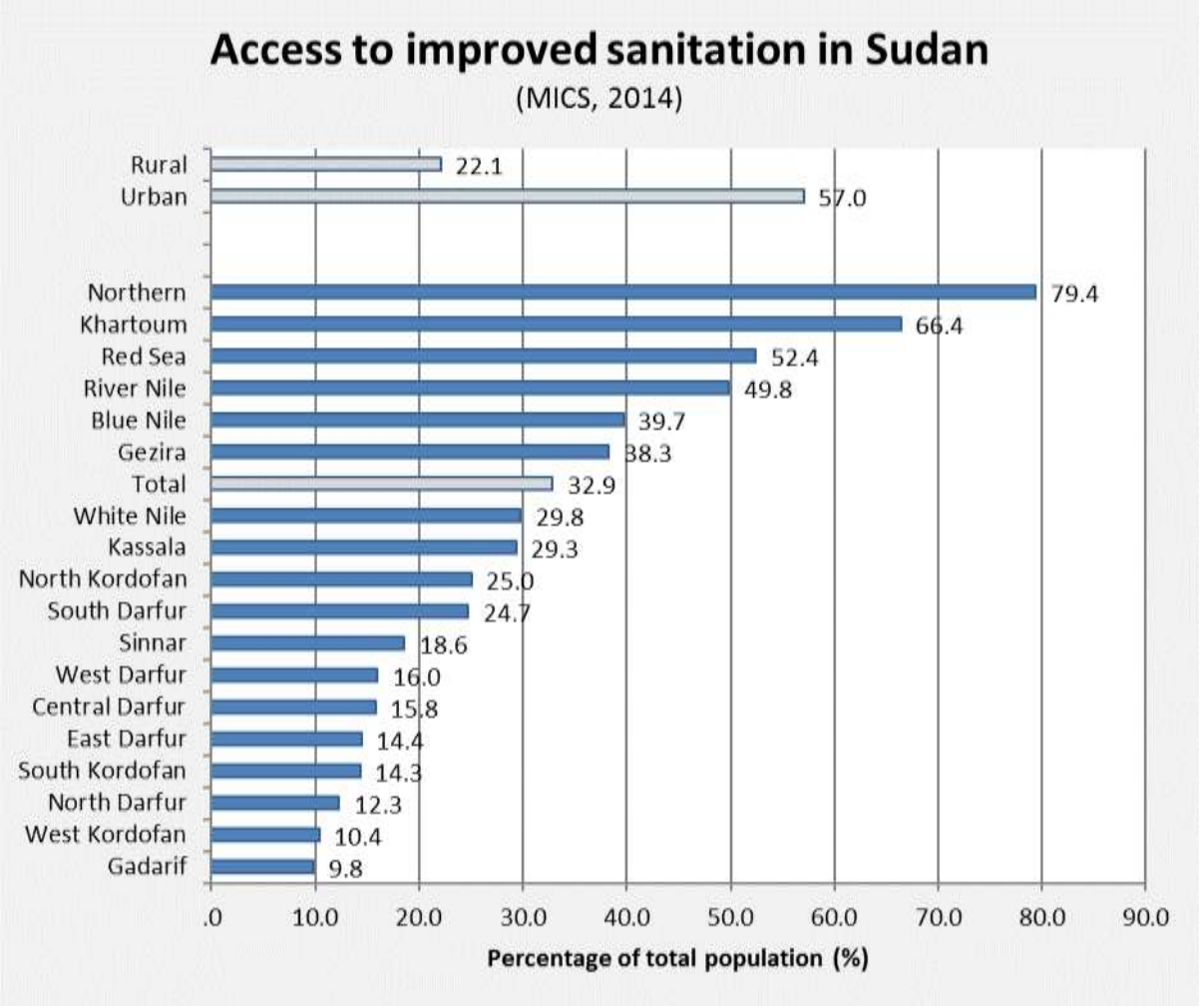
Common excreta disposal technologies used in Sudan include: traditional pit latrine with local materials; improved pit latrine; ventilated improved pit latrine (VIP); pour flush with septic tank or cess pit; and 0.8% of the population have access to sewerage services, all of whom live in Khartoum Municipality.

Challenges being faced related to excreta disposal at household level:

- Social norms / customs for the practice of open defecation and use of household expenditure for other priorities
- Poor knowledge and practice on the disposal of children's faeces and poor solid waste disposal
- Limited knowledge on simple adaptations to make latrines to make them accessible for people with disabilities or mobility limitations, such as older people
- Wasted time, lack of privacy and risks for harassment and violence against women and children when they are going for open defecation or using public / shared facilities such as in urban or camp settings
- Increasing urbanisation and challenges of space for safe disposal of excreta in urban environments[33]
- Land tenure and lack of appropriate facilities provided by landlords, also pose a challenge in urban environments

[33] i.e. limited space for re-building latrines when they are full if it is not possible to empty them; limited space for sludge removal trucks to reach septic tanks for emptying

Annex Fig 3. Access to improved sanitation in Sudan by State (MICS, 2014)



- Many people in rural contexts go to the farm land during the day hence away from their houses and any household latrine facility
- Quality of traditional latrines becoming damaged during the rainy season and difficulty for cleaning
- Limited household funds to build better quality latrines, particularly for the poorest
- Problems with open defecation because of lack of latrines in initial stages after displacement in emergencies and no use of defecation fields
- The use of public or shared latrines in humanitarian contexts, some also using poor designs, with particular challenges for on-going operation and maintenance
- Public or shared latrines are often designed without the involvement of women or girls - some are not gender segregated, may be in unsafe locations or without features like door locks or lights, and may not be designed to be user-friendly for the management of menstrual hygiene
- Pollution of groundwater latrines and effluents from septic tanks
- Pollution of surface water sources, increase in flies and in eye and diarrhoeal diseases due to open defecation
- Limited numbers of artisans or businesses with experience in sanitation marketing
- Limited engagement with pastoral communities on excreta disposal
- Limited capacity (human, logistics) of organisations and institutions to be able to undertake the CATS/CLTS approach for community mobilisation against open defecation

Faecal sludge management (FSM) of faecal pit contents / sludge and sewage wastewater is covered separately in **Annex Section D – II.4.1**.

II.2.2 Hygiene promotion – situation analysis

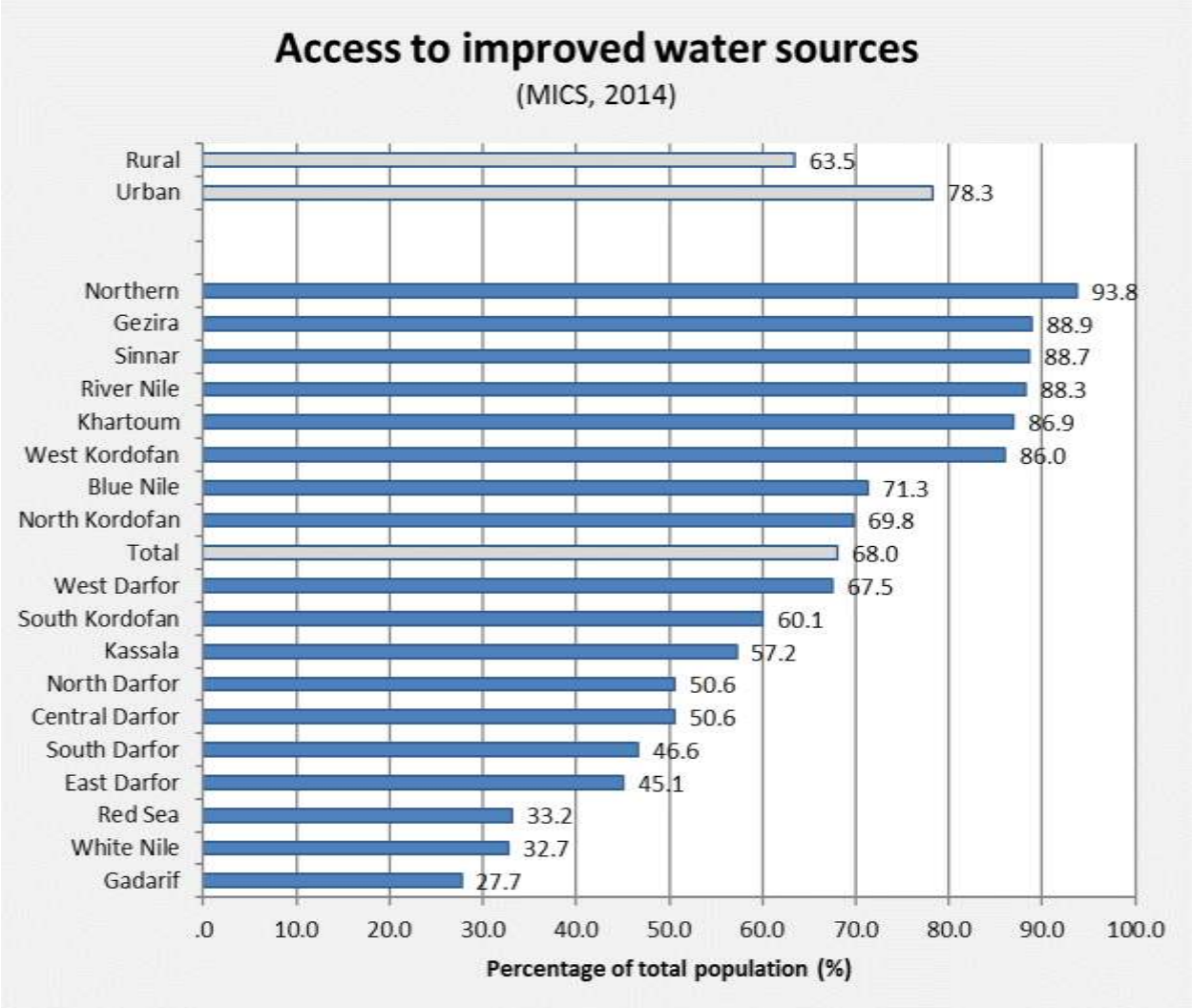
Current situation:

MICS data, 2014, indicates that:

- 40.9% of households have a dedicated place for hand-washing and 25.8% having a dedicated place as well as availability of water and soap
- 55.4% of households have soap or another cleaning agent present
- 68% of households have access to improved water sources
- 4.1% of households who use unimproved water sources use an appropriate water treatment method
- 43.4% of the population have water (improved or unimproved) on their premises; 19% have to walk for less than 30 minutes to collect water; 31.4% have to walk for longer than 30 minutes; 6.2% don't know.

There are significant variations across States, urban and rural and wealth quintiles. These disparities can be seen in **Annex Fig 4** and in the MICS data in **Annex Section D – VIII**.

Annex Fig 4. Access to improved water sources (MICS, 2014)



Challenges that are currently faced in encouraging good hygiene practices:

- Social norms / customs and practices which are not aligned with good hygiene practices, such as not washing hands before eating, poor disposal methods for child's faeces, practice of open defecation and inadequate disposal methods for solid wastes
- Inadequate access to sustainable and adequate volumes of water supply, particularly in urban IDP situations and due to environmental changes / climate change
- Lack of experience, knowledge and practice of household water treatment
- Migration from rural to urban areas or through displacement in humanitarian contexts, leading to higher populations using existing services, mixtures of cultural practices and level of knowledge
- Limited knowledge of the menstrual hygiene management practices in schools and in the community and their potential impact on girls concentration and school attendance
- Illiteracy is high, limiting the use of written media
- Different approaches to hygiene promotion used by humanitarian actors, sometimes in the same camps, which can sometimes lead to conflict (re payments; subsidies; NFIs etc)
- Difficulty to know if the hygiene promoters are doing their jobs
- Huge geographical areas and non-prioritisation by the government for funding, particularly at Locality level, sometimes leaving the HP teams without budget and logistics and having to undertake their work by joining other teams and with challenges for follow-up and sustaining activities over time
- Limited engagement in hygiene promotion activities across sectors

Scope of 'sanitation and hygiene promotion' as currently considered under the National Water and Sanitation Strategy, 2012-16 - This includes 6 components:

1. Package approach, that is addressing sanitation for all based on the ODF settlements concept, and hygiene simultaneously in households, schools and health units.
2. Community based hygiene and sanitation promotion.
3. Safe water handling and use
4. Latrine access and use.
5. Hand-washing.
6. Food hygiene and keeping a clean home environment.

Safe disposal of child faeces and animal faeces - Unsafe disposal of children's faeces is gaining increased attention globally because of the clear link between poor WASH practices, diarrhoea and undernutrition. There is a need to make sure that the safe promotion of child faeces is included in HP activities. In addition the safe disposal of animal faeces has been reported to be a particular problem in IDP camps where space is limited. Households often have one animal per one household member living in the same house structure as the family members. The safe disposal of animal faeces should therefore also be an integral part of HP activities.

Menstrual hygiene management - Menstrual hygiene management is an area that has not had much action so far in Sudan, except for the provision of some disposable or reusable menstrual hygiene pads in humanitarian contexts and some schools which provide sanitary pads for girls. Globally there is increased momentum on this area, working to understand the situation and the experiences of girls and women, to break the silence with girls, women, boys and men and to develop improved information sharing and other actions. The silence surrounding menstruation and menstrual hygiene and poor access to appropriate

menstrual hygiene materials, WASH facilities and a lack of supportive menstrual hygiene environment can result in a range of negative impacts[34] such as:

- Girls being teased, losing concentration, being stressed or embarrassed or taking time out of school
- Girls who have had the most severe forms of FGM/Cutting can face particular problems when menstruating as the blood is unable to come out of the small hole and can cause a high level of pain
- Girls believing they are sick or dying when their periods first begin if they have not been told about periods and not knowing how to manage them
- Poor hygiene practices leading to loss of dignity, stress and health problems
- Poor nutritional practices and girls or women reducing their engagement in usual activities
- Risk of increased vulnerabilities to harassment or other forms of violence due to trying to find locations to privately manage menstruation, including in secluded areas or if communal facilities, after dark

There are increasing examples of how this issue is being responded to in other countries around the world including in neighbouring countries to Sudan[35]. The first step for Sudan however is to undertake qualitative research on menstrual hygiene norms, practices, beliefs, challenges and recommendations as to what is needed in Sudan. This should be undertaken in a range of different cultural settings and with a range of different age groups of women and girls, as well as to understand the knowledge of men and boys. It would also be useful for the hygiene specialists from Sudan to also sign up to Menstrual Hygiene Day, 28 May[36] and its e-newsletter updates, to see what is happening globally.

Incontinence - Another emerging area of hygiene and sanitation is that of incontinence[37]. Incontinence is where a person is unable to control the flow of their urine or faeces. It is a very stigmatising issue that can cause embarrassment, social exclusion and in some cases serious health complications. It is much more common than perceived and can be experienced by: older people; people with disabilities; women and girls who have given birth; fistula where a tear occurs between the bladder or bowl and hence the urine or faeces continues to pour out which can happen as a result of obstructed labour and can occur due to young girls being married early and becoming pregnant before their bodies are ready as well as due to sexual assault; due to illnesses such as stroke, cancer, diabetes; and also simply due to malfunctioning bladder or bowels. In Sudan incontinence is known to be an issue due to fistula for women who have undergone Female Genital Mutilation / Cutting (FGM/C) due to obstructed labour, as well as due to war injuries and for people with disabilities. Learning is still on-going on hygiene options to support people with incontinence, but approaches have similarities to menstrual hygiene in terms of needs. It is something that S&H actors should be learning about and acting on particularly in humanitarian contexts and from rights, equity and hygiene and sanitation perspectives.

II.2.3 Excreta disposal and hygiene - promotional approaches

Sanitation promotional approaches for Sudan

Annex Fig 5 - follows provides an overview of the changes in approach to the promotion of sanitation which have occurred in the global context over the past decades.

[34] One paper providing evidence of impacts: Jewitt, S. And Ryley, H (2014) It's a girl thing: Menstruation, school attendance, spatial mobility and wider gender inequalities in Kenya, *Geoforum*, 56 (2014) 137-147. http://www.sciencedirect.com/science/article/pii/S0016718514001638

[35] A starting point can be: House, S, Mahon, T, Cavill, S (2012) *Menstrual Hygiene Matters; A resource for improving menstrual hygiene around the world*, WaterAid/SHARE (co-published by 18 organisations); or Roose, S, Rankin, T and S. Cavill (2015) Breaking the Next Taboo: Menstrual Hygiene within CLTS, *Frontiers of CLTS: Innovations and Insights*, Issue 6, July 2015

[36] Menstrual Hygiene Day, WASH United, http://menstrualhygieneday.org/

[37] Hafskjold, B. et al (2016) 'Incompetent at incontinence – why are we ignoring the needs of incontinence sufferers?' Waterlines, volume 35, issue 3, July 2016; and Giles-Hansen, C. (2015) *Hygiene Needs of Incontinence Sufferers; How can water, sanitation and hygiene actors better address the needs of vulnerable people suffering from urine and/or faecal incontinence in low and middle income countries*, WaterAid/SHARE http://www.communityledtotalsanitation.org/sites/communityledtotalsanitation.org/files/Hygiene_needs_of_incontinence_sufferers.pdf

Annex Fig 5. Changing approaches to the promotion of sanitation[38]

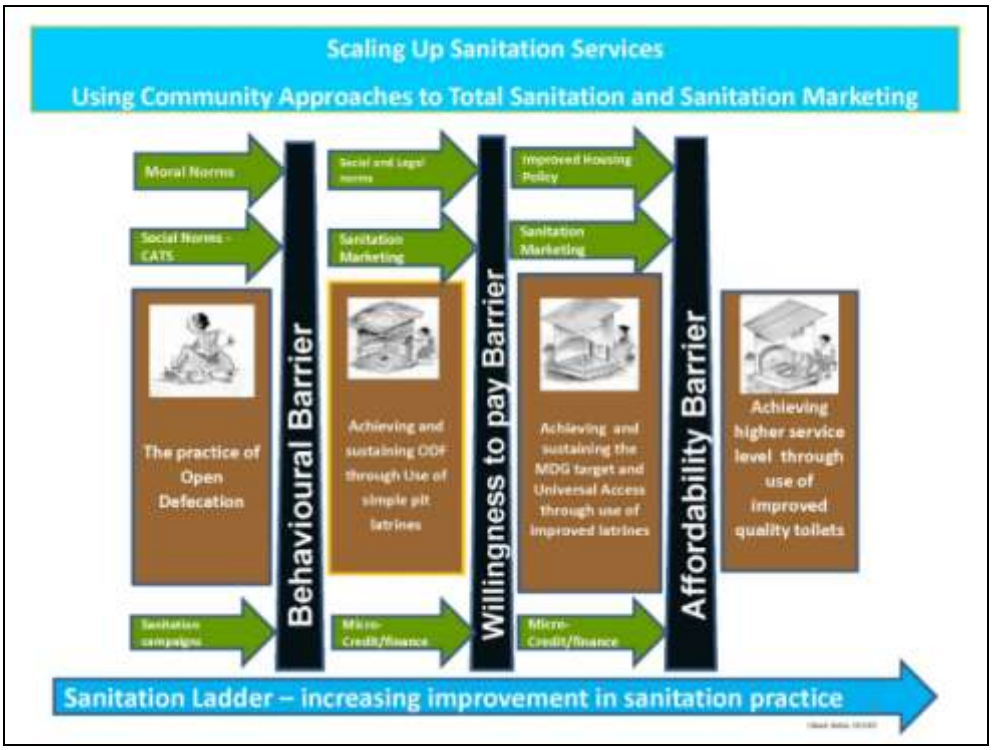
Old approaches	Newer approaches
Building toilets Individual/family Health message focussed Top-down & externally driven Didactic Predetermined technologies Subsidised Don't mention the S*** word	Changing social norms (creating positive social norms) Social/community Economic, social, health, disgust benefit motivators Community-led - internal, demand driven Participatory - natural & traditional leaders Local technologies - community capacity Rewards - pride, celebration Talk shit - Faeces, poo, shit, toilets, latrines

The Community Approaches to Sanitation (CATS/CLTS) was piloted in Sudan during the period of 2009-12 with a decision to scale-up the use of the approach in 2016. This approach builds on the Community Led Total Sanitation approach (CLTS). **Annex Table 1** - provides a summary of key sanitation and hygiene promotional approaches used in Sudan.

'Sanitation Ladder'

The 'Sanitation Ladder' is a term used to describe the gradual improvement in behaviour and sanitation technology. The approach for Sudan to rise up the sanitation ladder is to use CATS/CLTS which combines the use of CLTS to change social norms for the practice of open defecation, with sanitation marketing (SM) to help people move further up the sanitation ladder. The first step is overcoming the 'behavioural barrier' through the motivator of disgust and peer-pressure. The next steps are overcoming the 'willingness to pay' and 'affordability' barriers'. See **Annex Figure 6**.

Annex Fig 6. Breaking the behavioural, willingness to pay and affordability barriers to scaling up appropriate excreta disposal[39]



[38] UNICEF, 2011 in: UNICEF (2014) *Evaluation of the WASH Sector Strategy Community Approaches to Total Sanitation (CATS), Final Evaluation Report*
[39] Habila, O (2015) *Strategic Issues for Scaling up, Sanitation and Hygiene in Sudan*, Presentation at the GoS-UNICEF Programme Annual Review and Planning Meeting, National Health Insurance Fund, Khartoum, 13-14 Dec 2015

Experience of using CLTS or CATS/CLTS successfully in urban environments is limited so far in the global context. Trials are underway (2016) in North Darfur with the support of UNICEF and DFID to use CATS/CLTS as the main promotional approach for protracted IDP camps attached to the side of El-Fasher town[40].

Increasing attention is also being placed on:

- Better understanding of social norms related to excreta disposal[41];
- Supporting simple options for improving accessibility for people with disabilities and mobility limitations;
- Involving women and girls in designing sanitation solutions to better consider usability related to privacy, dignity, safety and usability, particularly during her menstrual period or when pregnant.

In humanitarian contexts in Sudan, excreta disposal facilities are still being provided using a supply driven approach in the initial stages of an emergency often with communal/public or latrines shared by a number of families. In response to this issue the strategies being promoted are to move to household latrines as early as possible in an emergency or to limit sharing to a maximum of three families; and also to involve the households in the construction of their household latrines with part subsidy or tool provision. As the humanitarian contexts become protracted, the strategy is to move fully to the CATS/CLTS no-subsidy approach.

Hygiene / health promotion approaches for Sudan

Annex Table 1 - provides an overview of approaches already used or with potential for use for HP in Sudan.

Cross-sectoral engagement - It is very challenging to perceive that logistically it will be possible to undertake hygiene promotion activities with the whole population of Sudan as part one a single sector's programme. Hence it is critical to start increasing attention to considering opportunities for sharing information on good hygiene practices across sectors. This may be across different types of health, nutrition or school programmes. Specific examples are included in the strategies section below. A positive example of existing cross-sectoral engagement is the Resilience Project in Kassala, where health promoters and mother's group have been trained on nutrition, hand-washing and excreta disposal. The project uses IEC that integrates all components.

Hygiene promoters - As noted in **Annex Table 1**, a range of different people may undertake hygiene promotion. A number of challenges face community based hygiene promoters, a large proportion of whom are often women and who are often expected to undertake hygiene promotion on a voluntary basis or for a small incentive. If they are paid for their task then it is assumed that it is more likely that their promotion activities will not continue once the funding runs out. The challenge is balancing sustainability with not overloading individuals, and in particular women, with additional unpaid tasks; particularly when paid tasks associated with water management, for example, often go to men. Currently community based hygiene promoters are paid in emergency contexts. This is discussed further in **Annex Section B – III.2**. In longer term development contexts the situation varies. Natural Leaders under the CATS/CLTS approach are not paid for their efforts to lead. But it is understood that most community based hygiene promoters would expect some form of incentive to continue undertaking this work. This may be in-kind such as the provision of food or non-food items or allowances for participation in workshops.

Effectiveness of HP approaches - The measurement of success of hygiene promotion approaches is challenging. People can tell you what you want to hear and if you observe practices they can change their practices at that moment to suit. Some monitoring is undertaken of the effectiveness of hygiene approaches in emergencies using Knowledge, Attitude, Practice (KAP) surveys as well as some observations, interviews and focus group discussions. But more needs to be done to establish the effectiveness of the various approaches in encouraging and sustaining good behaviours.

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[40] UNICEF, UNOPS, DFID (2015) *Urban Water for Darfur Urban Project, Sustainable and more equitable access to water and improved sanitation and hygiene behaviour in targeted state capitals in Darfur, Project Summary for North Darfur State Government, Funded by UK Department of International Development, Sudan Office - Khartoum,* July 2015

[41] Bekele, A (no date) *Factors affecting the implementation of Community Approaches to Total Sanitation in Sudan: Understanding the Impact of Factual and Personal Normative Beliefs, A case study for social norms training*

Annex Table 1 - Sanitation and Hygiene Promotional Approaches used in Sanitation

Approach	Description
Community-Led Total Sanitation (CLTS)	Community based approach which aims to stop open defecation leading to Open Defecation Free (ODF) communities. It uses the motivator of disgust to 'trigger action' and 'ignite' the community to build own infrastructure without hardware subsidies. It uses Participatory Rural Appraisal techniques such as: focus group discussions; transect walks; mapping of open defecation sites and 'shit calculations'. It supports 'Natural Leaders' who provide leadership for change and it needs follow up support for encouragement.
Community Approaches to Total Sanitation (CATS/CLTS)	CATS/CLTS is based on CLTS but with some modifications. It's principles include: 1. Aim for 100% open defecation free 2. Involves broad members of community 3. Communities lead change process and use their own capacities 4. Subsidies not given to households – community rewards, subsidies, incentives only acceptable where encourage collective action to support total sanitation 5. Support communities to determine for themselves rather than imposing standards 6. Building local capacities for sustainability – training community facilitators and local artisans 7. Government participation from the outset – local and national 8. Greatest impact when integrates hygiene promotion 9. CATS/CLTS are an entry point for social change and wider community mobilisation
Social marketing	This is where a good or service that will have a social benefit is marketed using commercial marketing techniques. When social marketing is used for sanitation products it is sometimes referred to as sanitation marketing. The research and skills behind marketing approaches can be very useful for understanding motivations and designing effective hygiene promotion approaches. Public Private Partnerships for Hand-washing with Soap (PPPHW) is where the private sector and the government collaborate to promote hand-washing with soap, using the strength and scope of government with the marketing skills and reach of the private sector. Some collaboration has already been undertaken in Sudan between private sector companies and the government to promote good hygiene practices.
Sanitation Marketing (SM)	**Social Marketing** is a term used goods or services will result in improved health or other benefit. It is sometimes used for behaviour change. **Sanitation Marketing** is similar but tends to be used for promotion of goods and services related to construction and use of sanitation facilities. SM is based on a voluntary exchange between seller and consumer. SM may occur through the establishment of SaniMarts, small shops that provide access to sanitary products and sometimes also artisans, and the training of individual artisans in marketing of sanitation options. An effective SM strategy will need in-depth research on the social norms, behaviours, opportunities, abilities and motivators, ability and willingness to pay of people from different cultures and backgrounds in Sudan. It will need to consider the **demand side** – consider what motivates; stimulate demand; and the **supply side** – through the promotion of an appropriate product. This involves the: 4 Ps of Product, Price, Place and Promotion.
Total Sanitation and Sanitation Marketing (TSSM)	The combination of CLTS and SM is also known as Total Sanitation and Sanitation Marketing when designed together from the start of the programme.
Community mobilisation	A key element of HP is community mobilisation, enabling people to lead, take their own decisions and actions for sustainable solutions. Community mobilisation involves engagement with all groups within a community, including, women, men, girls, boys including youth, older people, people with disabilities and people from minority groups, and enabling them to contribute to their own situation and development.
PHAST	Participatory Hygiene and Sanitation Transformation. Community based step-by-step approach to identify risks and develop solutions and action plan.

Alshuffa'a Al soghar (the little children)	This approach focuses on the adoption of essential family care practices for survival and development by caregivers of young children. These practices relate to: breastfeeding and complementary feeding; sleeping under a mosquito net; hand-washing with soap at four critical times; managing diarrhoea with ORS and recognising signs of Acute Respiratory Infections (ARIs). The approach was developed with the support of UNICEF and has recently been approved for use in Sudan. It is a long-term, multi-sectoral, multi-channel communication initiative aimed at strengthening mother's / care givers and families' recognition of the special vulnerabilities of infants and young children. It segments its target groups and uses the following key strategies: a) use of mass media; b) use of an integrated public relations and social marketing programme; c) undertake capacity development of key partners including frontline staff across sectors and responsibilities; d) direct community engagement using innovative approaches.
Information, Education, Communication (IEC)	The National Health Promotion Strategy, 2012-16 emphasises: • The need to mix mass media and inter-personal and group communication. • To ensure that communication channels include feedback mechanism • To utilise personal testimonies instead of fear as it is not generally effective • A good blend of entertainment and social messages usually works well • Using mass media to discuss sensitive issues socially validates open discussion on these issues • It is important to allocate adequate resources for IEC interventions as a continuing barrier to success in having unrealistic expectations with limited resources
COMBI	**Communication for Behavioural Impact** - is being used for malaria prevention and solid waste promotion in Sudan. It is a planning framework and implementation method which involves developing promotional approaches based on research and analysis around the 4Cs - Consumers; Cost; Convenience; and Communication.
BCC	**Behaviour Change Communication -** is an interactive process using multiple channels and using research to design and test approaches.
Humanitarian HP	Various approaches used, but in overview good practice in humanitarian contexts[42] involves: 1. **Understanding the situation, assessment and monitoring** 2. **Design, use and maintenance of WASH facilities** 3. **Communication for action** - listening, advocating, mobilising 4. **Identification and use of hygiene items** - such as soap, buckets, menstrual hygiene pads, solid waste bins, cleaning tools, digging tools, donkey carts 5. **Participation and accountability** - allowing people to make decisions about the intervention and opportunities for feedback 6. **Coordination and collaboration** - collaborating with other sectors and institutions/ organisations
Enforcement	Can be used as a tool to encourage behaviour change. This is particularly important for issues such as public food hygiene where non-adherence to food safety standards can lead to many people becoming ill. But it can also be useful for other areas[43].
Methods used as part of HP activities	Interpersonal and group approaches: • Home visits • Women's groups, men's groups, youth groups • School clubs • Child-to-child approaches - getting children to learn through making decisions and taking action and peer-to-peer learning • Advocacy through community and religious leaders Mass media approaches: • Mass media - radio, TV • Drama, folk theatre and 'edutainment'

[42] Ferron, S (2011)

[43] An example exists of a State where people are fined for their animal faeces not being cleared up which it is reported to have had successful results.

	• Celebrations - Global Hand-washing Day • Lectures, interviews, discussions • Posters, leaflets
Locations where HP tends to be undertaken	• Households • Community meetings • Schools and other educational facilities • Health facilities • Child friendly spaces in humanitarian contexts • Prisons / police station • Food premises including markets, butchers, canteens • With donkey cart water carriers
Who undertakes HP activities	• HPs from NGOs • HPs from communities • Natural Leaders - identified through the CATS/CLTS approach • WASH committee members • Leaders - community, religious/Sheiks, youth, women's (*Hakhmat*) • Groups - women's youth, children's • Children - peer-to-peer • Teachers • Health facility staff

Also refer to:

- **Annex Section D - VI** - for discussion on definitions and terminology related to excreta disposal and hygiene and the 'service ladders' that are being promoted by the JMP programme of WHO/UNICEF.
- **Annex Section B – II.3.2** - on school health/EH/WASH and the possibilities for school-community engagement for the promotion of excreta disposal and the possible use of School-Led Total Sanitation.
- **Annex Section B – IV.6.4** - on the framework for building capacity on CATS/CLTS in Sudan.
- **Annex Section B – III.2** - for more information on the excreta disposal promotional approaches used in humanitarian and transitional contexts.
- **Annex Section B – III.4** - on private sector engagement including in sanitation marketing.

II.3 Institutional and public sanitation and hygiene

II.3.1 Health facilities

Current situation:

Health care facilities include hospitals, health centres, nutrition centres, clinics, health posts, dental surgeries and general practitioner settings. Health care facilities are settings with a high prevalence of infectious diseases and hence patients, staff, carers, visitors and neighbouring populations face unacceptable risks if EH conditions are inadequate. Particularly vulnerable patients, such as older people, newborns and mothers who deliver are at particular risk if hygiene is not of the highest standards. Refer to the **Section on Terminologies and Definitions** and **Annex Section D – VI**, for the proposed definitions for water, S&H in health facilities currently being discussed in response to the SDGs.

The situation of EH in health care facilities in Sudan[44] and challenges being faced include:

- There are 428 health facilities in Sudan[45] with 28,489 beds (an average of 1.2 per 100,000 population).

[44] Source taken from: From Azrag Dahab, A (2015) *Situation Assessment of EH in Health Facilities in Sudan, General Directorate of Primary Health Care*, Federal Ministry of Health, Sudan; Ahmed, N. O., Gasmelseed, G.A., Musa, A. E. (2014) Assessment of Medical Solid Waste Management in Khartoum State Hospitals, *Journal of Applied and Industrial Sciences*, 2014, 2(4): 201-205, ISSN: 2328-4595; National EH Strategy, 2015-19; and consultations

[45] Annual Health Statistics, 2012 (in print) as noted in Azrag, Dahab (2015)

- There is limited financial support for EH in health care facilities. Only large hospitals in capital cities have allocated a budget for EH activities and this budget is not adequate.
- Many of the small rural health facilities are without WASH services
- There is no environmental management or planning system, or accreditation, auditing or monitoring of the EH standards in most health facilities. In a small number of health facilities where EH Units have been established, reporting has started. An accreditation system for health facilities in general is in the process of development, but has not yet been implemented. There will be a need to check that this system adequately covers EH and that those undertaking the accreditation have the training and capacity to accredit the EH aspects.
- There is limited data on EH related injuries in health facilities, the amount of wastes produced or even an accurate number of health care facilities in Sudan.
- Most health facilities have latrines connected to a septic tank which is emptied by a suction tanker. Wastewater drains into the ground and can contaminate groundwater sources also used for drinking.
- Inadequate infection control through inadequate hand-washing in health care facilities, provision of soap and water and protective equipment.
- Poor health and safety awareness related to the handling of chemicals; lack of up-to-date databases and human resources with capacity to undertake risk assessments.
- Absence of Hazard Analysis Critical Point (HACCP) system for the catering sections leading to risks for food safety.
- Limited monitoring of water quality.
- In most cases all types of health care waste are being mixed and disposed of often in municipal landfills or just lay piled up around the facility.
- Some health facilities have incinerators, but most have traditional single chamber incinerators.
- FMoH believe that the protocols for the management of dead bodies are clear and working well, including for outbreak situations.

For more details of the management of health care wastes and incinerators, refer to **Annex Section B – II.4.3**.

In relation to staffing:

- Since the end of 2013, States started to employ Public Health Officers to be responsible for the management of EH activities in hospitals. The aim was to have them by the end of 2015. All facilities, whether large, medium or small, were meant to have such an officer by the end of 2015. Not all facilities have them to-date. Larger hospitals and teaching hospitals also have Sanitary Overseers.

- **Environmental Health Units** – There is a current plan that EH Units will be established in all large and medium health facilities, particularly hospitals. Some progress has been made in establishing these units, but not for all. These units are supported by the EH Department at State level (some are under the PHC Directorate, some under the Preventative Medicine General Directorate and some under other General Directorates). All staff have a Public Health specialisation. These units are responsible for: 1) water and sanitation; b) food control; c) air pollution; d) occupational health; e) health care waste; f) solid waste; g) vector control; h) health promotion.

- **Infectious Control Units** – Government policy is that these should exist in all health facilities and are responsible for promoting hygiene and preventing infections. They are supported by the Curative Medicine Directorate.

- Public Health Officers responsible for EH are trained in the FMoH Continuing Professional Development Training Centre. A curriculum for HCWM has been established since 2009 and some training is being supported by WHO.

- In four States (South Kordofan; Blue Nile; Red Sea; and Kassala) a Decentralized Health System and Development Project (DHSDP) has been established and a Safeguard Focal Point was appointed. They

have been trained on medical waste management and provided with protective and waste management equipment.

II.3.2 Schools and other educational facilities

Current situation:

There are 22,000 schools in Sudan. Most schools operate separately by gender, whether separate schools or separate shifts; and there is a move by the MoE to make all schools separate sex.

The data for school latrines in Sudan is currently not fully clear as figures from different sources vary. They include:

- The School Health Strategy, 2016-2020 (draft) notes that only **35%** of schools have a reasonable number of latrines compared to the number of users and that most of them are unclean and have no source of water.
- Data provided by the MoE in 2016, indicated that **62%** have access to latrines. It is understood that this means latrines in line with the MoH designs and excludes any schools with traditional latrines using local materials. It does not however indicate the number of students per latrine cubicle, the condition of the latrines or whether they are gender-segregated. Refer to **Annex Figure 7** for the variation in access across the States.
- A rapid survey across all 18 States undertaken by the MoE in 2016[46] indicated that **69%** of schools have access to latrines, but with no indication of the quality, quantity or gender segregation.

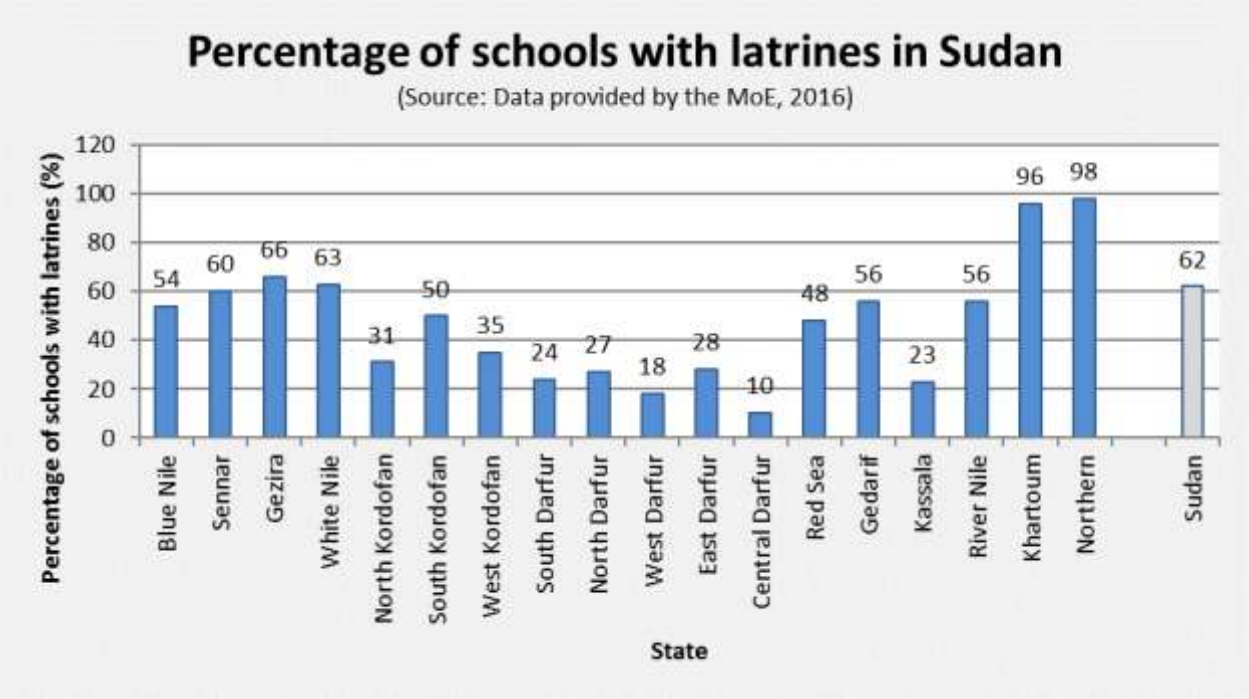
The School Health Strategy, 2016-2020 (draft) also notes that: 75% of schools have access to improved source of water (taps, wells and handpumps); 75% have water stored in large jars (Zeer); only 25% and 20% have a proper place for handwashing and soap respectively; none have programmes on hand-washing; 75% of schools have cleansing tools, but only 40% have dustbins and 85% burn garbage around the school.

Examples of how school WASH is being integrated into some schools at present includes:

- Schools check the quality / safety of food sold on its premises, which is mainly fast food sold by independent sellers, and prevent some food being sold (such as sodas).
- Water is provided at taps, in clay pots or barrels.
- Trees are planted in the school environment and students participate in solid waste management cleaning campaigns on a monthly basis.
- Some teachers have been trained, and one teacher is being allocated to be responsible for WASH.
- Schools have EH Committees / WASH Committees.
- Operation and maintenance is being overseen by the duty teacher who is responsible for water supply, activities and solid waste management. The Parents and Teachers Association (PTA) is also involved in some maintenance and cleaning.
- Each year there is a big State ceremony where students from the State come together and do campaigns, competitions and arts related to health.

[46] MoE (2016) *Rapid Survey, 2015-16 Data*

Annex Fig 7. Schools with latrines in Sudan



The National School Health Strategy, 2017-2020[47] and National Guidelines for Implementation of an Effective School Health Programme[48] are being finalised and soon to be approved. The 'whole school' environment is considered in the strategy. Both the MoE and MoH, Health Promotion Directorate have School Health Departments. They cover 8 components of the Health Promoting Schools (HPS) approach (developed by the US Centre for Disease Control/ WHO) between them.

The School Health Guidelines (draft) considers the Child Friendly School (CFS) approach, the Focussing Resources on Effective School Health (FRESH) approach and the HPS approach. The following table identifies some of the S&H approaches that are used in schools or could potentially be used in schools in Sudan.

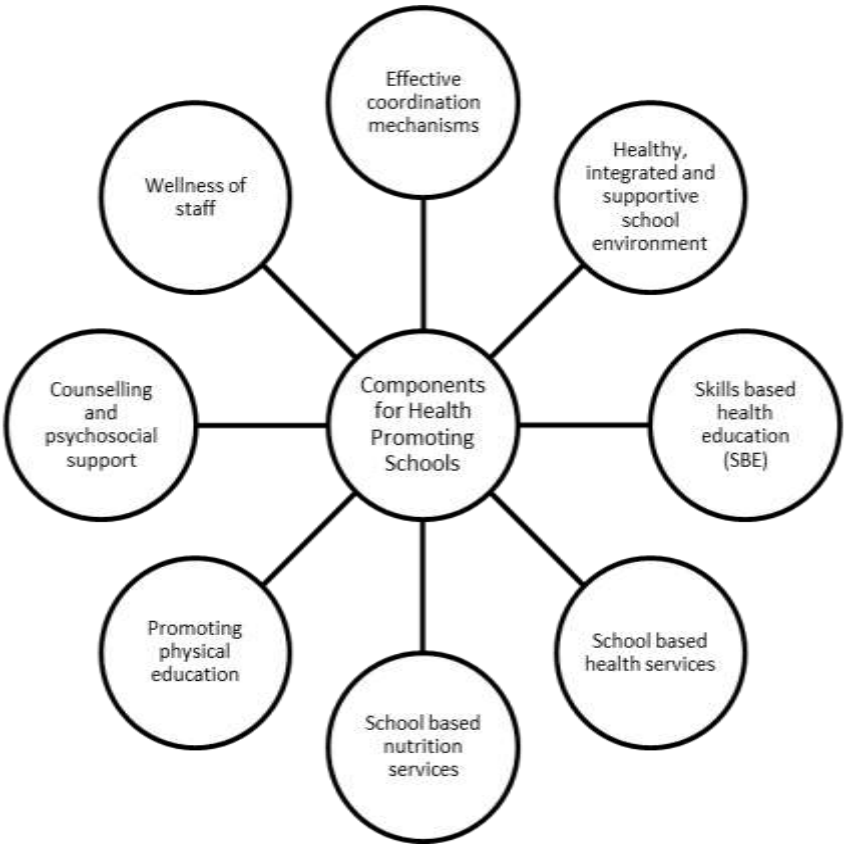
Annex Table 2 - S&H promotional approaches used in schools

Currently used	• **CHAST** - similar to PHAST but adapted for children using Child-to-Child approaches. • **Schools clubs -** usually with small groups of students who are then meant to share their knowledge and influence their peers
Potential for use	• **3 Star approach** - each school works through a series of steps to improve its WASH situation and is awarded a star at each milestone. Schools can then be ranked and compete against each other in their progress to become 3 Star schools. • **School led Total Sanitation** - similar in principle to CLTS but starts with the school and then influences the community

[47] Republic of Sudan, Ministry of General Education and Federal Ministry of Health (2016, draft) The National School Health Strategy, MoE, FMoH, UNICEF Sudan

[48] Republic of Sudan, Ministry of General Education and Federal Ministry of Health (2016, draft) National Guidelines for Implementation of an Effective School Health Programme, MoE, FMoH, UNICEF Sudan

Annex Fig 8. Components of Health Promoting Schools (HPS) Approach



Current challenges for school WASH in Sudan:

- Limited of information / data on school WASH coverage, although discussion is underway to include both water supply and latrine indicators in the EMIS.
- Limited availability of school latrines, with many schools not having any latrines.
- Considerable coeducation schools are without segregated latrines for boys and girls, leading to latrines that do not provide enough privacy or safety for girls.
- Lack of school WASH facilities that are accessible for children and teachers with disabilities.
- No comprehensive information on whether the latrines that exist are gender-segregated, accessible, clean and functional and of adequate number.
- It is common to see rural schools with latrines that are either locked or unusable.
- Latrines that are built for schools in emergency situations are not always constructed with permanent materials.
- Lack of water supply at the schools or water supply far from the school.
- The schools are crowded, sometimes 5 classes with 800 students (i.e. over 100 students per class)
- Latrines can be places where violence, harassment or bullying can occur.
- No information on the availability of water for hand-washing and managing menstrual hygiene and whether disposal systems are in place for menstrual hygiene products.
- Lack of sustainability of school WASH facilities - cleaning and maintenance is poor and who is responsible for operation and maintenance (O&M) is not always clear. In many schools there is no dedicated staff for O&M.
- Observations indicate that there is no systematic training for teachers.
- No hygiene education as part of the curriculum and unclear if menstrual hygiene is covered.
- Inadequate wastewater disposal.

- No information on the condition of school food hygiene for schools where food is provided.
- Lack of implementation of school standards in designing and constructing school WASH facilities.
- Lack of funding for school WASH.
- Limited number of national and international NGOs implementing school WASH

Menstrual hygiene - It is not clear how well girls are supported to learn about and manage their menstrual hygiene in schools. It has been noted that the science aspects are in the curriculum for girls and there is a psychosocial component of the schools work, which potentially could be used to support girls around MHM issues and some examples exist of teachers providing emergency pads for girls. But the extent of these practices and how much time girls are currently missing from schools or the challenges they face are not fully known. Considering that only between 35 to 69% of the schools are known to have latrines, this automatically poses significant challenges for girls and female teachers and staff to manage their menstrual hygiene while at school. Menstrual hygiene or menstruation is not mentioned in the new School Health Strategy or School Health Guidelines, although it does note in the indicators for monitoring that 100% of schools are meant to have access to sanitary towels for girls. It is known from global experience that when girls do not have access to adequate WASH facilities and do not have a supportive MHM environment that they lose concentration, may become stressed and embarrassed and miss time from school. This is an area that requires more learning across different contexts in Sudan.

Indicators and targets - The School Health Strategy, 2016-2020 (draft), includes indicators and targets for: accessible water-points close enough to the school with adequate volume of water; adequate number of accessible (disabled-friendly) hand-washing sinks for students and staffs before feeding and after using the toilet; availability of soap for hand-washing; adequate number of safe and accessible latrines for students, teachers, staff; separate latrines for girls, boys and male and female teachers; maintained water sources inside latrines; sustained waste disposal system; maintenance system in which students and staff participate; availability of sanitary pads for girls; number of students who don't wash their hands; students who don't brush their teeth.

Higher education and training institutes - All educational facilities, including higher education institutes, technical and vocational training institutes and adult education or community based training centres also require adequate sanitation, hygiene and water facilities and supportive environments for women and female staff to be able to manage their menstruation in safety, in privacy and in dignity. However data is not available on the current situation in relation to such facilities.

II.3.3 Religious institutions, workplaces, community centres, highways

Current situation:

Data is not available on the current status of S&H facilities and their conditions at religious institutions, workplaces, community centres and on highways. General impressions are that S&H facilities and services including solid waste collection and disposal and disposal mechanisms for menstrual hygiene wastes are currently inadequate. Latrine and hand-washing facilities on highways are seen as a particular gaps. The Government of Sudan is now requiring that when new roads are constructed they must also provide latrine facilities. Where latrines exist users have to pay for using them, but they are still not always kept clean. Businesses are meant to pay a fee for the collection of their solid wastes, but the level of compliance across Sudan is not known.

II.3.4 Markets, slaughter houses and other food related premises

Current situation:

The current situation includes:

- Limited funding being allocated to the provision of latrines, hand-washing facilities, disposal of menstrual hygiene materials and solid waste management in markets and other food related premises.
- Poor solid waste collection and disposal from markets and other food related premises.

- Inadequate provision of latrines, hand-washing facilities and facilities for disposal of menstrual hygiene materials at markets and other food related premises.
- Cost of user fees for use of sanitary facilities may be prohibitive for some, or lead to open defecation.
- Some slaughter houses are not functioning leading to illegal slaughtering of animals, sometimes around the non-functioning buildings, leaving animal carcass residues without correct disposal.
- Some agencies have supported slaughter houses in the IDP camps, but they are not of the highest standards.

The above leads to increases in open defecation and poor personal hygiene and general lack of environmental cleanliness results in an increase in vermin, breeding grounds for insects and in diseases and food related illnesses. The very young, sick and older persons are particularly vulnerable to WASH and food related illnesses, which can sometimes be fatal.

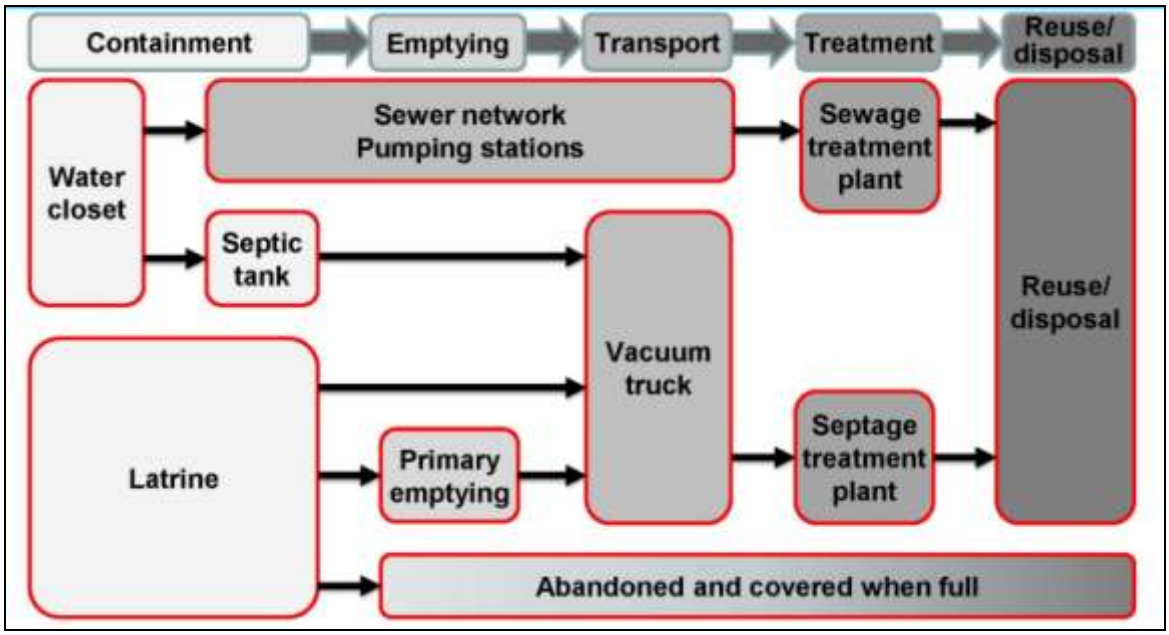
II.4 Environmental Health services

II.4.1 Faecal sludge management

Current situation:

The ideal routes for faecal waste flows can be seen in **Annex Fig 9** below.

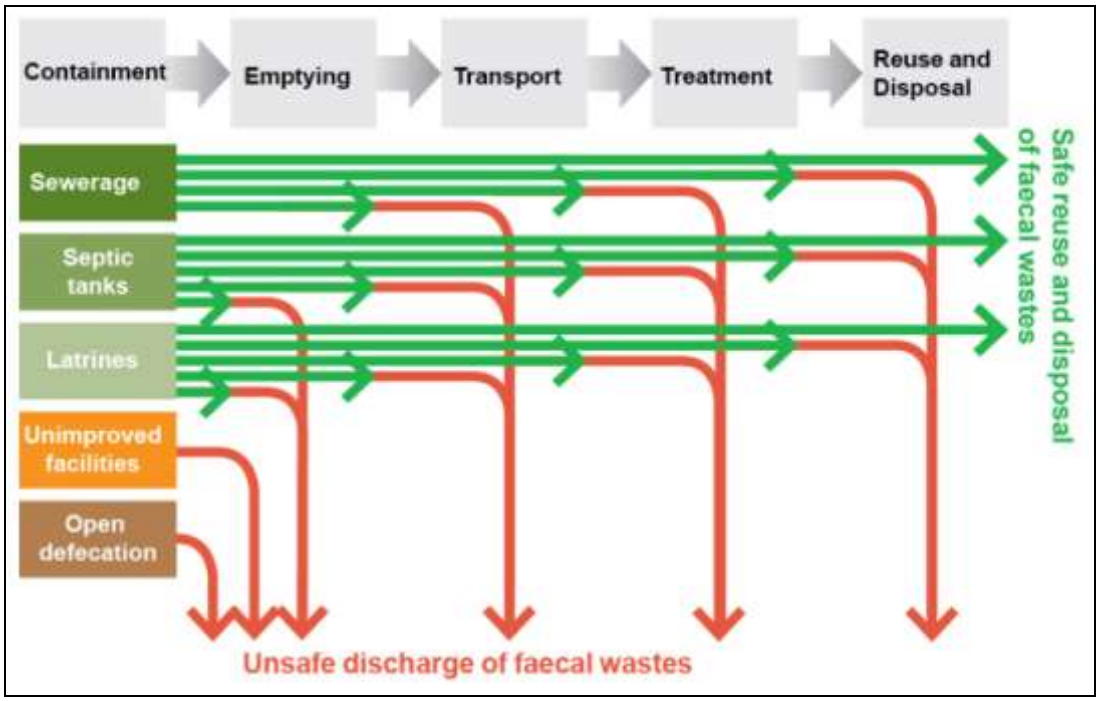
Annex Fig 9. Ideal routes for faecal flows[49]



Annex Fig 10 - provides a simplified image of the ideal situation for faecal flows with safe re-use and disposal as well as unsafe discharges.

[49] Blackett, I and Hawkins, P (2015) *Diagnostic Tools and Guidelines for Fecal Sludge Management*, FSM-3, Hanoi, 18 January 2015, World Bank Group and WSP

Annex Fig 10. Faecal flows - safe and unsafe discharge[50]



Sewerage networks only exist in Khartoum and the only existing Municipal sewage treatment plants are under the administration of the Khartoum State Sanitary Corporation. Two plants exist with a capacity of 56,000 m3/day. Sewerage networks only exist in Khartoum providing service to an estimated 2.8% of the population of Khartoum and 0.8% of the population of Sudan. In addition some institutional sewage treatment systems exist. These are mainly activated sludge systems. In urban areas households and some institutions use on-site systems such as septic tanks and pit latrines. In Khartoum State these are estimated to be used by 20% and 70% of the population respectively.

The treatment systems for sewage which do exist, only partially treat the sewage and the effluent is released into open drains which pass through inhabited areas in Khartoum State, before being deposited into the Nile. This leads to smell and breeding grounds for mosquitoes as well as risks for the spread of diseases, particularly when there are incidents of flooding. It also leads to pollution and changing water quality and damage to fish stocks.

The private sector in Sudan is not yet very strong and they face multiple challenges (see **Annex Section – III.4**). Examples however exist where the private sector is becoming stronger. For example there has been an increase in the number of desludging tankers in Nyala Town, as the private sector recognised the demand for their services. There is currently limited re-use of faecal sludge or effluents and it the disposal of faecal sludge removed by vacuum trucks is either disposed of in wastewater treatment facilities (in Khartoum State) or illegally in open fields away from residential areas.

There is a high level of risk of pollution of groundwater due to on-site sanitation systems in urban areas and high numbers of boreholes utilising groundwater.

[50] Emerging faecal flows diagram from: WHO & UNICEF (2015, draft) *JMP Green Paper: Global monitoring of water, sanitation and hygiene post-2015*, Joint Monitoring Programme, WHO & UNICEF

II.4.2 Solid waste management

Current situation:

Solid wastes include paper, cardboard, food packaging, metals, plastics, wood, glass, demolition products (bricks, masonry, pipes), carcasses of dead animals, organic wastes (such as manure, trees, grass, soil, human wastes in the garbage such as in babies nappies), e-wastes and a range of other hazardous wastes. There is a high percentage of soil in solid wastes in Sudan, with composition varying between 19-45% in different States[51]. Hazardous wastes make up 0.4-3% of the total of solid waste across six States. Health care and hazardous wastes have been considered separately in **Annex Section – II.4.3**.

Inappropriate disposal of solid wastes can lead to blocked drainage systems and breeding of mosquitoes, increase in numbers of vermin, smell and air pollution including dioxins, transfer of fungi and pathogens in aerosols and dust, blocked paths and access ways, contamination of water supplies, physical injury and spread of infectious diseases. Children and adults who sort or scavenge through solid waste (sometimes referred to as waste pickers) are particularly at risk or physical injury and other health related hazards.

The collection, transfer and disposal of solid wastes is managed in different ways across States and Localities. Some solid waste is collected by the Locality, some by corporations and some by private sector companies. Some payments for solid waste collection are made as monthly payments and some on a collection basis.

At the moment ways that solid waste is disposed of in Sudan includes: open dumps, sanitary landfills, dumping in the ocean, dumping in drainage channels, incineration and some small scale recycling and composting. It is estimated that approximately one third or less of the solid waste produced in Sudan is disposed of in landfills[52].

Solid waste management system in Khartoum

Khartoum State has 8 to 10 million people living within its boundaries. The Localities collect solid waste from some households, markets and businesses and take it to collection points. They also clear solid wastes from drainage before the rainy season.

The Khartoum State Cleaning Corporation (KSCC) picks up the solid wastes from transfer sites and takes it to the landfill sites. It manages the transfer stations and 3 landfills. It collects approximately 5,000 tonnes of general solid waste and an estimated 12 tonnes of medical waste per day[53]. This is currently only about 65% of the waste produced in Khartoum State, but efforts are underway to increase this to 80 or 90% in the next few years. It also works with area planning authorities and undertakes training, research and surveys. The charge for collection is approximately 1 USD / month per house. Its vehicles had become very old and expensive to run and maintain, but the KSCC have recently been given 98 vehicles by JICA. It is also building of a central workshop for their maintenance, training its staff in operation and maintenance and also provides bulldozers and excavators for the management of the landfill sites[54]. KSCC is aiming to outsource its collection work to the private sector or Localities.

The KSCC Cleaning Promotion Department focuses on the issue of behaviour change, providing information and encouraging community participation as well as undertaking monitoring and evaluation. It runs an emergency call centre (phone number 1965) and has offices in all Localities. It links with the media, including 26 radio channels and Khartoum and national TV companies. It also engages in social media, runs campaigns and engages with NGOs, youth and Women's Unions. They have been using the COMBI approach to combat

[51] Dahab, A. A (2016) Solid waste and health care waste management, presentation at the *Consultative Workshop for development of the Sudan National Sanitation and Hygiene Strategic Framework,* Khartoum, March 2016, Environmental Health Department, General Directorate of Primary Health Care, Federal Ministry of Health

[52] National EH Strategic Plan, 2015-19

[53] Estimation from KSCC

[54] JICA (2016) *Japan International Cooperation Agency in Sudan, Grant Aid, The Project for Improvement of Solid Waste Management in Khartoum State*, JICA

malaria, but have found the method expensive and are continuing to look at ways to improve their communication methods and approaches.

Community based SWM in villages and camps

A trial for community SWM supported by the FMoH, SMoH and WHO, has been undertaken in Gezira State in 1 rural village and 1 semi-urban village. Efforts were made to raise awareness on SWM and for the community to know the types and options for disposal. Each household segregates its waste and pays 1 SDG per week to a person with a cart who collects the waste and takes it to a specific location for disposal. They also installed an incinerator. After a year a neighbouring village copied the management scheme, and the original village is now investigating the possibility to develop a biogas system.

Civil society organisations have also been supporting SWM systems in camps. One example of this is a system supported by the Dar Es Salaam Development Agency (DDA). It has established 13 dumping places, has trained 50 community committees and provides gloves and masks. Solid waste is collected on a weekly basis and burned at the dumping location. The waste normally consists mainly of grass and plastic sheets. It also arranges for dead animals to be buried in the ground. In-kind incentives are provided for the task such as soap, jerry cans, clothes and plastic mats. Other systems that have been supported in other camps have included the provision of trailers, donkey carts, wheelbarrows and other equipment.

Challenges being faced with the current SWM systems:

- The movement of people to urban areas leading to increased urban populations.
- The increased complexity of waste streams due to industrialisation and changing lifestyles of the population (for example an increase in e-waste and food packaging).
- People are indifferent about solid waste management resulting in poor disposal behaviours, blocked drains, unsightly and unhygienic piles of waste and indiscriminate burning including of plastics.
- Communication for changing behaviour change with huge populations is expensive - the cost of using the media to raise awareness of good SWM behaviours is high.
- Lack of containers at household and collection points.
- Declining level of capital investment and expenditure on maintenance for solid waste management.
- The costs of running the service are often much higher than the income generated - in Khartoum approximately 20% of the cost is covered by taxes, the rest of the costs are subsidised by government; in camps there is no charge to householders for the SWM service with outside agencies paying to sustain the service or expecting intermittent voluntary community clean up campaigns to resolve the issue.
- If people pay for a SWM service they expect it to be fully functional, which is not yet possible across all areas of Sudan.
- Attention and funding allocation for maintenance of equipment is poor, leading to breakdown of vehicles and equipment.
- There is very little formal recycling being undertaken, only on a small scale basis, although some foreign companies have been invited to support development in this area.
- Some people scavenge waste to use for recycling and an income. It is a very dangerous job, including for children who undertake this task. Most waste pickers are either young people of less than 20 years of age or old men and women who were illiterate[55].

The Sudan National Baseline Household Survey, 2009, by the Central Bureau of Statistics[56], notes that 29% of the respondents noted that they burn their solid waste, 28% throw it on a heap and 41% of the urban respondents noted that they dispose of it in a skip. A separate study of the waste disposal practices in

[55] Abubaker, B.M.A, Alhadi, M, Magzoub, A. Mohammed, A. Hussein, G, Elamin, N. M., Osman, B.H., Adam, M (2014) Investigating the Solid Waste Management Problems in Urban Area, Sudan, *International Journal of Engineering Research & Technology (IJERT)*, Vol 3, Issue 6, June 2014

[56] Central Bureau of Statistics (2009) Sudan National Baseline Household Survey

Khartoum was also undertaken in 7 Localities in Khartoum[57]. In this study 69% of the households interviewed discarded their waste randomly in the residential area, 17% temporarily stored the waste in the house and 14% noted they dispose of their waste in the dumping site within the residential area, which is later transported to the three main landfill sites. 89% of the households do not pay for any solid waste management service and only 11% of households admitted paying the fees for the waste, although more people were open to paying. Wastes were also seen dumped around markets, welding workshops, cobblers stalls, slaughterhouses, shopping centres and a range of other contexts.

II.4.3 Health care waste and hazardous waste management (HCW & HWM)

Current situation:

A - Health care wastes:

Medical or health care wastes if not appropriately managed can result in hazards to the health and safety of health staff, to public health and to the environment. They may be produced as a result of diagnosis, treatment or immunisation of human beings or animals, or from medical testing or research; and can pose a range of physical, chemical, biological and radiological hazards. Medical or health care wastes include[58]:

Hazardous wastes (usually 10-25% by volume):

Infectious hazardous wastes:

- Sharps - such as needs, syringes, lancets, blades, blood transfer devises and broken glass
- Non-sharps but which have been in contact with blood or bodily fluids - bandages, swabs, gauze, cotton balls, gloves, used test kits, sputum cups, slides and anatomical wastes

Non-infectious hazardous wastes:

- Expired pharmaceuticals, vaccines, chemical agents and expired test kits

Non-hazardous wastes (usually 75-90% by volume):

- Office wastes, paper, packaging material, buffer bottles, uncontaminated glass/metal jars, left-over food

Good practice for the management of health care wastes involves the separation of wastes at source into sharps waste, non-sharps infectious waste and general waste and each disposed of separately. If it cannot be separated at source then all of the waste should be treated as infectious waste[59]. General good practice for segregation of the wastes is:

- Sharps / safety boxes - should be used for all sharps
- Red bag - for general infectious / hazardous wastes
- Yellow bag - for yellow bag for anatomical infectious wastes, such as placentas
- Black bag - non-hazardous wastes

End disposal methods for the hazardous health care wastes will depend on the size of the facility and may include a combination of burial, encapsulation (in a protected barrel or concrete), incineration, return of large quantities of unused pharmaceuticals to the supplier, disinfection or autoclaving.

Most hospitals in Sudan are in Khartoum State. A study of 20 hospitals in Khartoum[60], identified that the hospitals generate over 6,000 kg of waste per day, 20% of which is hazardous wastes. In general, infectious-hazardous wastes are mixed with general wastes and disposed of in general landfill. Training had been

[57] 350 randomised households as well as markets, slaughter houses, businesses, dumping sites and other areas - Abubaker, B.M.A, Alhadi, M, Magzoub, A. Mohammed, A. Hussein, G, Elamin, N. M., Osman, B.H., Adam, M (2014) Investigating the Solid Waste Management Problems in Urban Area, Sudan, *International Journal of Engineering Research & Technology (IJERT)*, Vol 3, Issue 6, June 2014

[58] USAID Deliver Project (2011) *Guide to Health Care Waste Management for the Community Health Worker,* USAID, Deliver Project, Task Order 4

[59] USAID Deliver Project (2011) *Guide to Health Care Waste Management for the Community Health Worker,* USAID, Deliver Project, Task Order 4

[60] Ahmed, N. O., Gasmelseed, G.A., Musa, A. E. (2014) Assessment of Medical Solid Waste Management in Khartoum State Hospitals, *Journal of Applied and Industrial Sciences*, 2014, 2(4): 201-205, ISSN: 2328-4595

provided for operators in 40% of the hospitals and only 30% provided protective equipment for the operators. 55% had no clear policy on waste management and only 20% had a waste management plan.

By the end of 2015 all hospitals are meant to have a Public Health Specialist who is responsible for the management of EH activities in the health facility including health care waste management[61]. It is planned after EH Units have been established at Hospital level, attention will then be made to the lower levels to also increase their EH capacities.

There is limited information on the EH Status on health facilities across Sudan, although a general overview of responsibilities, standards, plans, surveillance and monitoring has been prepared[62].

In general most health facilities which have incinerators have traditional single chamber models. The efficiency of these incinerators is not known, but the temperatures are not likely to be as high as required by best practice for the destruction of hazardous wastes. Some progress has been made on getting improved incinerators into some health facilities or establishing an autoclave system: 42 German incinerators have been provided for health facilities in 4 States. A private Saudi Arabian company has invested in Khartoum State and has installed an autoclave in 2015. Their work is supervised by the MoH in Khartoum State who use legislation to enforce each hospital to treat its medical waste. It costs 3 SDG to autoclave 1 kg of hazardous health care waste. In addition a tobacco company installed a Rotary Clean Incinerator at 400,000 USD which has been installed for incinerating waste tobacco (which is a hazardous waste). Now Khartoum State has also purchased one for its hazardous wastes. It is seen as being particularly appropriate for the treatment of both hazardous and healthcare wastes because it has a double chamber, gets to high temperatures and is equipped with a hazardous gases (emissions) treatment unit which captures dioxins. There is a proposal to undertake a study of the traditional incinerators to understand how they work and their emissions in order to provide evidence to the government of the problems with their emissions. In Khartoum State no more permission is being granted for the construction of traditional incinerators; with the aim to utilise higher technology incinerators which are more efficient and clean the waste gasses. Training also is needed on the safe use of incinerators in Sudan and putting the wrong materials into incinerators can lead to explosions which can be hazardous for operators or anyone standing nearby.

B - Other hazardous wastes

Other hazardous wastes include any unwanted material, the disposal of which poses a threat to the environment, i.e. it is explosive, flammable, oxidising, poisonous/infective, radioactive, corrosive and /or toxic. The National Strategic Plan for EH, 2015-19, notes that: *'Sources of hazardous waste in Sudan include hospitals, petroleum storage and refinery, metal mining, metal finishing, paint manufacture, vehicle servicing, tanneries, agriculture, electricity distribution, dry cleaning and others. So far in the country, there is no master plan for proper management of hazardous waste. Moreover, there is no legal framework to deal with this kind of waste, no inventory regarding the exact number and types of sources, number and types of hazardous waste generated by each source and the awareness of public towards hazardous waste is very low. Proper disposal of hazardous wastes does not exist in the country. However, in Khartoum state some efforts have been made for the containment of hazardous waste. A joint committee from the stakeholders has been formed, a hazardous waste containment site of 36 square meters has been demarcated and some amounts of hazardous wastes (e.g. asbestos) was transferred to the site and contained in concrete trenches'.* There is no institution responsible for all types of hazardous waste management in Sudan. The exception is for radioactive waste which is under the responsibility of the Sudan Atomic Energy Commission (SAEC).

Gaps in the legal framework for the management of hazardous wastes have led to unstable institutional responsibilities and confusion over responsibilities. For example, at the beginning of 2016 the MoH in Khartoum State was fully responsible for Health care wastes management, from the collection point to the

[61] Dahab, A. A. (2015) *Situation Assessment of EH in Health Facilities in Sudan, General Directorate of Primary Health Care*, Federal Ministry of Health, Sudan

[62] Dahab, A. A. (2016) *Report on the Status of water, sanitation and hygiene (WASH) and environmental health in health care facilities,* Federal Ministry of Health, Sudan

final disposal facility. Then before the end of the first half of the year health care wastes collection, transportation and final disposal has been shifted to the High Council of Environment, Urban and Rural Development. Unstable legislation has led to unstable policies and implementation and variations across States.

In addition it also highlights the huge challenge of electronic waste management: *'In general the challenges facing Sudan in e-waste management include: absence of infrastructure for appropriate management, absence of legislation dealing specifically with e-waste, absence of any framework for end-of-life (EoL) product take-back or implementation of extended producer responsibility (EPR). As a result, these wastes are buried, burnt in the open air, dumped into surface water bodies, send to the landfill with municipal waste, or collected by scavengers to extract valuable things in a very primitive way that posing their health to danger'.*

II.4.4 Vector control

Current situation:

Vector borne diseases are infectious diseases spread by intermediate organisms, such as insects and snails which transmit viruses, parasites and bacteria to humans. Sudan carries a disproportionate share of the global burden of vector-borne diseases. It has 0.5% of the world's population but 6% of its vector borne diseases. The main vector borne diseases in Sudan include malaria, Leishmaniasis, lymphatic filariasis, African trypanosomiasis, schistosmiasis and mosquito-borne arboviruses such as Yellow, Rift Valley and Dengue fevers[63]. Other S&H associated vectors include bedbugs, fleas, flies, cockroaches and lice.

A National Strategy exists for Integrated Vector Management (2014-18) and vector control is included in EH courses in universities in Sudan. The Continual Professional Development (CPD) Training Centre of the FMoH also provides training on vector control. WHO supports programmes on Malaria, Kala Azar / Leshmania, Yellow Fever and Bilharzia and it also supports a Medical Entomology training programme.

Some vector control activities are undertaken by INGOs and CBOs in outbreak situations and some equipment has been provided using humanitarian funding. The Italian Embassy is supporting a surveillance system in Red Sea State and entomological surveillance is applied in some localities, but many challenges are being faced.

Weaknesses in the current IVM systems include[64]:

- Inadequate entomological laboratories at State level.
- Inadequate trained staff in integrated vector management (IVM) and lack of funds at locality level.
- Inadequate functioning system and resources for routine maintenance / repair of vector control equipment.
- Inadequate numbers of research and studies to understand the vector species, patterns and sensitivity.
- Weak implementation of regular entomological surveillance activities, just focussing on spraying.
- Weak community engagement in vector control activities.
- Action on IVM is only reactive, not predictive or preventative and only done in emergencies.
- Low investment in routine vector control campaigns as the main prevention strategy.
- Gaps in simplified standard methods to measure and report on resistance to chemicals.
- Concerns over the health effects of the use of some insecticides.

Insecticide space-spraying is used at the beginning of outbreaks, but lack of funding has meant it is not possible for the surrounding areas to be covered as recommended by WHO. Evidence has shown that the effectiveness of surface spraying has decreased and hence methods have been modified to increase use of water treatments for standing water. Some indoor space spraying has been undertaken, but it is labour intensive and costly.

[63] WHO, Assessment of Vector Control System Capacity and Initiatives in Darfur States, February 2016

[64] From consultations and from: Mahgoub, H (2016) Vector Control and Water Safety, presentation at the *Consultative Workshop for development of the Sudan National Sanitation and Hygiene Strategic Framework,* Khartoum, March 2016, World Health Organisation

A study of IVM machines at locality level was undertaken in October 2015 by WHO[65]. It was undertaken in North, South, East, West and Central Darfur, Gadaref and Kassala. It found that there are 1,016 Hudson Pumps, but 42% are not functioning, of which most only need simple repair to be undertaken. 242 fogging machines are available of which 54% are not functioning, but of which most only need simple repairs.

Particular threats are also being faced by changing vector patterns, behaviours and geographical coverage, emerging and re-emerging diseases as well as the increased insecticide resistance.

II.4.5 Food safety

Current situation:

Food based illnesses may be caused by microbial contaminants, such as Salmonella spp, Campylobacter spp. and Escherichia coli 0157:H7, as well as from chemical contaminants. Chemical contaminants include natural toxins, such as mycotoxins and marine toxins, environmental contaminants and residues from the improper use of pesticides and veterinary medicines[66].

Weaknesses in the current food control systems:

- Very limited resources available for the implementation of the food control programme - limited access to vehicles and funds.
- Food control is not a high priority for Localities, action is more on a 'fire-fighting basis.
- Shortage of laboratory instruments, equipment and reagents and high cost of tests.
- Weak enforcement of laws and regulations. Processes for prosecution are time consuming and where fines are issued they are very low and hence do not act as a deterrent.
- Poor coordination between partners and stakeholders.
- Institutional framework for food safety is fragmented with responsibilities shared between different sectors and actors (public and private).
- Qualified staff are available but migration to other countries leads to 'brain drain'.

In Khartoum State at Locality level[67], there are 64 Public Health Inspectors, 129 Public Health Officers, 301 Sanitary Overseers, 557 Assistant Sanitary Overseers and 195 workers, which is a total staff of 1,246. These staff are responsible for providing food control of 36,224 food facilities (restaurants, factories, farms and shops). But there are no government vehicles to aid this number of staff to undertake their work, with all vehicles being hired for this purpose (74 hired vehicles, approximately 1 hired vehicle per 16 staff).

Poverty, illiteracy and poor behaviours and practices in food hygiene as well as the poor environmental sanitation situation in Sudan also pose significant challenges for food safety.

Approaches for food safety

A successful food control programmes requires:

- Well equipped laboratories for testing of food for human consumption and issuing Health Certificates;
- Qualified and experienced staff to undertake inspections, testing and enforcement;
- Logistics and finances to enable inspections and enforcement;
- Food safety information, education and communication processes;
- Legislation and enforcement.

The responsibilities for food control at each level include:

[65] WHO (2016) *Assessment of Vector Control System Capacity and Initiatives in Darfur States*, February 2016
[66] GoS, Federal Ministry of Health 92016) *EH Strategic Plan,* 2015-19
[67] Ahmed, A. B. (2016) Food safety and waste disposal in Khartoum State, presentation at the *Consultative Workshop for development of the Sudan National Sanitation and Hygiene Strategic Framework,* Khartoum, March 2016, Directorate General of Preventative Medicine, Directorate of Environmental Health, Khartoum State Ministry of Health

- **Federal** - Control of imported food; registration of processed foods; capacity building and technical support.
- **State** - Planning and training of staff; issuing standards and health requirements for food and beverage premises, factories, shops and production sites; technical support and consultations.
- **Locality** - Implementation of food safety program; inspections; taking actions to correct any violations; feedback and reporting.

II.4.6 Drinking water safety

Current situation:

Attaining acceptable drinking water quality is a challenge for Sudan. Pollution of surface water sources and on-site sanitation systems along with low groundwater tables has led to poor water quality, particularly in urban areas. Movement of IDPs to camp settings or on the outskirts of towns adding increased demand on existing water sources. Climate change along with the El Nino phenomenon and desertification are all also contributing to the depletion of underground water sources. Increased demand on existing sources, limited protection of sources and the use of sources by both humans and animals are all contributing to poor drinking water safety. The groundwater in some of the boreholes in Darfur has been dropping by an estimated 1 meter per year.

The DWSU and the Water Supply Utilities have a responsibility to undertake monitoring of water quality and MoH has a responsibility for water quality surveillance. Laboratories for water quality testing exist at State and Locality levels and human resources with skills in water quality testing and water quality testing exist in Sudan. Drinking water safety is taught as part of Public Health / EH and Environmental Engineering courses in Sudan. In addition the Drinking Water and Sanitation Unit (DWSU) of the MoWRE Training Centre (DWST) includes some courses on water quality, S&H[68]. The WHO, Central EH Agency (CEHA) has also provided training on drinking water safety.

In the 1980s, there was a strong system for mapping and monitoring groundwater sources, but over the years this system has become dysfunctional. Even in the areas affected by humanitarian emergencies where drilling continues to be supported, the recording of these boreholes to enter into a national database, and the monitoring of water levels or quality, has not been occurring.

WHO in Sudan has developed a monitoring system utilising data from the MoH for water quality surveillance. Refer to **Annex Section - IV.5** for further information.

Current weaknesses of systems to ensure drinking water safety in Sudan include:

- Only 35% of Localities have some form of drinking water surveillance system (end 2015).
- Lack of human resources at Locality level.
- Limited equipment and supplies at Locality level.
- Weakness of the reporting and monitoring system for water sources, quality and water levels at State and Locality levels.
- Low coverage of access to safe water.
- Common use of donkey cart systems to provide water.
- Use of open *hafir* water supply systems which are challenging to protect.

II.4.7 Surface water drainage and grey-water disposal and re-use

Current situation:

Sudan faces incidents of flooding during the rainy season during July to October. Challenges faced:

- Inadequate resources for constructing and maintaining adequate drainage system.

[68] Republic of Sudan, MoWRE, DWSU (no date) *Drinking Water and Sanitation Unit Training Centre (DWST), Short-Term and Long-Term Plan*

- The topography which can make drainage difficult - for example, in Khartoum the land is relatively flat and hence it is difficult to attain the required gradients for drainage.
- People dump solid waste into drains.
- Standing water from flooding events or ineffectively designed or maintained drains offer opportunities for mosquitoes to breed.
- Leaking water supply pipes lead to standing water used by mosquitoes to breed.

Construction of drainage in urban areas is currently the responsibility of the State Ministry of Urban Planning and Infrastructure (SMoUPI, or its equivalent), for large drains, the Locality for medium sized drains and the community / households for the smaller sized drains. Maintenance of the drainage system is the responsibility of Localities. Localities undertake a cleaning campaign just before the rains to remove refuse from the drains and to maintain drainage pipes, but this process is expensive and requires resources for staffing and logistics. It is estimated that about 20% of the city of Khartoum has a formal drainage system. In other cities it is expected to be less, but data is not available.

Limited attention is given to grey-water (such as bathing, cooking water or wastewater from water points) disposal or re-use. Some examples exist of grey-water being used for the production of bricks or for water for animals. The production of bricks around camps in Darfur has however led to dangerous holes that children may fall into, can lead to ponds of stagnant water and are also being used to dump solid wastes. More work is needed to ensure safety of such ventures.

Annex III - Cross-cutting issues

III.1 Introduction to cross-cutting issues

The Situation Analysis of S&H in Sudan section on cross-cutting issues provides background context to the Strategic Objectives and Strategies identified in the main body of the SNSFSF. It is structured as follows:

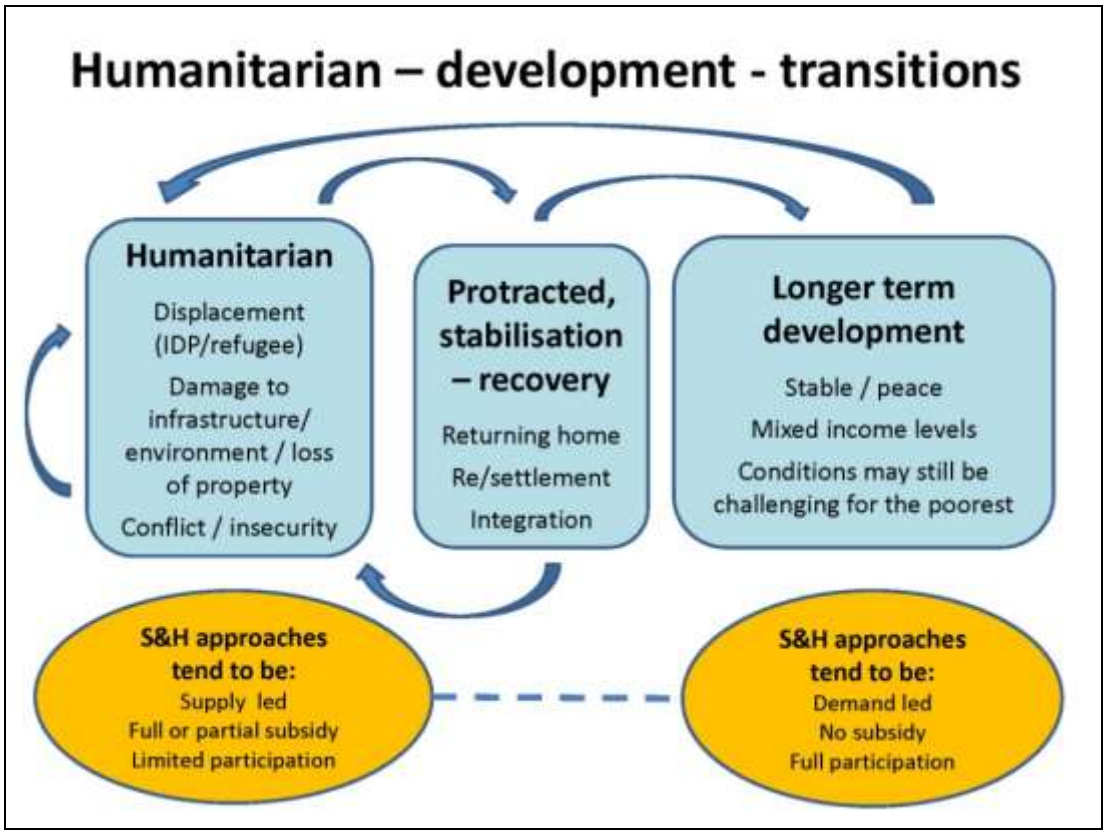
- **III.2** – Humanitarian – development transitions
- **III.3** – Gender, equity and vulnerability
- **III.4** – Sustainability, environment and climate change
- **III.5** – Private sector engagement

III.2 Humanitarian - development transitions

Current situation:

As noted in **Section 3.1** Sudan faces multiple humanitarian emergencies. The complexity and fluidity of humanitarian situations in Sudan was highlighted through discussions by sector stakeholders during the two consultative workshops. This fluidity and complexity poses multiple challenges for WASH responses which are represented in **Annex Fig 11** and **Annex Table 3**.

Annex Fig 11. Humanitarian - development transitions



Annex Table 3 - Challenges / complexities faced for S&H implementation in humanitarian contexts in Sudan[69]

Context	Challenges / complexities faced
General across various contexts	**Processes:** • Verification / registration of IDPs/refugees is not the WASH sectors role and takes time, whereas WASH is needed in a short time frame • Lack of clarity on who decides if an IDP camp is to remain as an IDP camp or is now a settled population and what time-frames should be associated with this? **Policies / approaches:** • Limited opportunities for capacity building and peer-to-peer learning - capacity building also needs to be continual due to turnover of staff • Donor driven nature of humanitarian aid - each donor has own requirements / conditions, so implementing partners are struggling to meet conditions • Use of different terminologies for latrines (household, communal, emergency) and lack of standardised designs for different phases of an emergency • No clear transitional approaches and methods from emergency and early recovery to development • Different approaches being used by different agencies including with respect to payments / subsidies - which can cause conflicts • Weakness in considering gender in humanitarian WASH programming (including that male and female communal latrines are not always separated)

[69] Established from discussions at the Khartoum and Darfur workshops and various documentation

	Services: • Challenges for cleaning and operation and maintenance of communal / shared latrines • Community consultation and participation is not always undertaken effectively • Weaknesses in solid waste management systems - collection and end disposal • Concerns about contamination of groundwater from pit latrines • Some soil types are difficult for construction of sub-structures • Weaknesses in considering child protection and the WASH needs of people with disabilities
Large numbers of newly arrived IDPs in camp context	• Lack of sanitation services and open defecation • Lack of water / low volumes • Lack of awareness of good WASH practices • Large number of users per latrine unit (over 100) which quickly become dirty • Site selection and planning - legal issues (land ownership); poor planning; not enough space • Poor coordination with other sectors - health, nutrition, shelter, NFI, food
Protracted IDP camp context with new arrivals	• Crowded conditions / layout of the camp / no space for new sanitation facilities • Limited community participation and contribution for S&H • Lack of awareness of good WASH practices for new arrivals / open defecation • Inadequate services and water volumes for increased numbers • Sense of dependency for long term IDPs - particularly concerning for children / youth who have grown up in the IDP camp • There are still vulnerable people in protracted contexts • Problems with animal faeces - in some camps people have one animal per person in the household and the animals live close to the family
IDPs living in urban context	• Overloading of existing services • No planning for where IDPs should live in urban areas • Increase in open defecation in or around urban areas • Pit latrines - problem for location; space; pollution of groundwater; flies • Difficult to identify IDPs and to collect information as the IDPs can be scattered and some living with family members
Returnees	• Need to consider the WASH needs of people already in the area when supporting returnees • No / inadequate tools or materials for construction • Security situation / conflicts • Sense of dependency after living as IDP • Lack of clear relationship / roles - returnees and the local authorities
Refugees in camp context	• Time frames for their stay • Communication with refugees due to language differences and understanding culture of refugees • Location for the settlement • Challenges with coordination across sectors • Lack of contribution / participation • Can bring disease / illnesses
Host communities in rural or urban contexts	• Host communities may not have WASH services or their services are of a lower standard than for the IDPs / refugees • Difficulty of determining realistic space needs for settlement for IDPs • Increased demand on local resources, including water / overcrowding for WASH services • Negative impacts of inadequate solid waste management on the host community • CATS/CLTS take time to implement and latrines may be of poor quality

Annex Section D - XVI - provides some examples of some successes in S&H from humanitarian responses in Sudan as shared by participants of the Darfur workshop.

Existing humanitarian strategies already provide some guidance on the transitions for approaches across transitions in context. See **Annex Table 4**.

Annex Table 4 - Transition strategies for WASH in existing humanitarian strategies

<table>
<tr><th></th><th>First Phase</th><th>Second Phase</th><th>Third Phase</th></tr>
<tr><td rowspan="2">WASH Sector Humanitarian Strategy, 2015 (draft)</td><td>6-12 months

Latrines: 1:50</td><td>After 6 to 12 months

Latrines: 1:20</td><td></td></tr>
<tr><td colspan="3">Provides strategic guidance on approaches based on contexts:
1. New IDPs & new refugees
2. Permanent IDPs & permanent refugees (IDPs who have settled for more than 5 years)
3. Settled communities & returnees
4. Nomads (moving nomads and settled nomad tribes)
5. Flood and outbreak affected in rural and urban contexts

Promotes CATS/CLTS for contexts 2, 3 and 4.</td></tr>
<tr><td rowspan="2">Sudan WASH Sector and Sudan Refugee Multi-Sector, Refugee Response Strategy, Aug 2015-Dec 2016 (final draft)</td><td>Emergency phase - first three months

Latrines:
• 1:50 (Sphere)
• 1: 20 (UNHCR)</td><td>Transition phase - above 3 months, under 1 year

Latrines:
• 1:50 (Sphere)
• 1: 20 (UNHCR)</td><td>Long term phase - over 1 year

Latrines 1:20;

40% have household latrines after 1 year; 1 latrine per household</td></tr>
<tr><td colspan="3">Provides useful tables with transitions across phases for:
• Sanitation - latrines; bath shelters; solid waste; vector control; drainage
• Hygiene promotion - includes activities and focus of activities (included menstrual hygiene under promotion; no mention of materials or disposal options) + how many hygiene promoters
• Institutional WASH - includes health centres; nutrition and feeding centres; schools and child-friendly spaces; market areas - no MHM mentioned; disabled access for latrines; training of cleaners on waste disposal / hygiene</td></tr>
</table>

III.3 Gender, equity and vulnerability

Current situation:

Gender - Observations on gender issues related to S&H in Sudan:

Gender relations - The gender relations, roles and responsibilities vary significantly in different areas of Sudan. For example in the Darfur region, women undertake more work responsibilities, are more able to engage in the same contexts as men and it is easier for them to speak in front of men. Whereas in Kassala in the east of Sudan, there is much greater separation between women and men and it is much more difficult for women's voice to be heard in community contexts.

Discussions during the Darfur workshop indicated that women take on most of the workload for S&H (rough estimation 90%). Women however are rarely in decision-making positions at community level, although some women are usually included as members of committees, sometimes to 50% of committee membership. Some women are however included in committees after being identified by the male leaders as 'their women'[70]. In the Darfur Consultative workshop only one woman Chair of a WASH Committee was known by participants.

Youth - The needs, skills and potential of youth are often overlooked, particularly of female youth. Youth are in the transition between child and adulthood and hence are not often consulted, but often have a lot of energy and good ideas and will be the leaders and parents of the future. Females reaching adolescence are often particularly overlooked because of their low status, gender roles and expectations, their lesser power and voice in the household, restricted freedoms of movement and increasing vulnerabilities to violence. It is

[70] Fogaroli S and Khiar, R (2015) *WASH Gender Review Report*, May 2015, UNICEF Sudan

Gender roles & engagement of women and girls in WASH projects

'Traditional gender roles are reproduced in WASH activities in all states: men are generally in charge of decision-making, water point operation and maintenance, financial resources management, digging, draining, building fences and latrines; women are in charge of promoting hygiene, especially by means of household visits, and collecting, transporting and burning garbage during cleaning campaigns. Male leaders can contribute to hygiene promotion too, especially in public places and to organize cleaning campaigns with young men. The advantage of this reproduction of traditional gender roles is that it capitalises on knowledge and skills developed by men and women to fulfil their traditional tasks. However, gender inequalities are reproduced, as women are excluded from decision-making and control over resources and the unequal distribution of unpaid reproductive work is not addressed. Moreover, despite the role of men as decision-makers in the household, men's awareness and responsibility for hygiene and health is not addressed enough to improve results in sanitation coverage and hygiene practices. Finally, greater availability of women in the community and their responsibility for water collection and use are not capitalised on, as women are rarely involved in water management, operation and maintenance'[71].

essential that stakeholders working on S&H start to consider the engagement of youth more strategically in their programmes, to build the leaders of the future and to educate the parents of the future.

Vulnerabilities to violence - Women and girls are facing vulnerabilities to violence through poor S&H[72]. This includes if they need to go for open defecation or to use public / communal facilities, in particular if they wait until it is dark for additional privacy (early morning or at night); and if they need to walk some distance to collect water. There has been a culture of shame in relation to violence and MICS data, indicates a certain level of acceptance of violence against women and girls in the home (see **Annex Section D - VIII**). But the situation is changing, with more women speaking out and UNICEF is also supporting a programme called 'Salaam' which focuses on psychosocial protection. It is critical for women and adolescent girls to be involved in designing solutions for S&H, to enable them to recommend design and siting features that will improve the usability of the facilities including for menstrual hygiene and improve their feelings of safety when using such facilities[73].

Menstrual hygiene - The issue of menstrual hygiene is an issue that has not been looked into or responded to in a significant way in Sudan, but which has significant implications for adolescent girls and women. Refer to **Annex Section B - II.2.2** for more details.

Data - There is very little disaggregated data available related to WASH.

Disability & incontinence -

Disability - People with disabilities and mobility limitations may face significant challenges in accessing S&H and water facilities of standard design. Some cannot squat and using a facility may involve crawling over faeces contaminated floors. Lack of accessibility of WASH facilities poses serious challenges to their dignity and health. There is general consensus that more capacity building is needed to help sector stakeholders to involve people with disabilities (PWD) and integrate their needs into S&H programmes and interventions. A few examples were shared of where individual organisations have supported accessible school latrines, but in general the issue of accessibility is not being considered, including in humanitarian responses. *"Most actors do not consider to involve PWD for all services, they are not considered well or ignored completely"* (humanitarian actor). Accessible school latrines are included in the action plan in the draft School Health Strategic Plan and PWD are usually exempt from charges for WASH services where they exist.

[71] Fogaroli S and Khiar, R (2015) *WASH Gender Review Report*, May 2015, UNICEF Sudan
[72] Fogaroli S and Khiar, R (2015) *WASH Gender Review Report*, May 2015, UNICEF Sudan
[73] There is an increasing availability of materials for guidance on considering vulnerabilities to violence in WASH programmes - examples: House, S. and Cavill, S. (2015) 'Making Sanitation and Hygiene Safer: Reducing Vulnerabilities to Violence', *Frontiers of CLTS: Innovations and Insights,* Issue 5, Brighton: IDS; and the *Violence, Gender & WASH Practitioner's Toolkit*: http://violence-WASH.lboro.ac.uk

Incontinence - The issue of incontinence is also one that has often been overlooked by the WASH sector, but which affects many more people that it is assumed and has serious implications for dignity, health and quality of life. The only example identified of support provided, was the provision of hygiene kits to women in hospitals / reproductive health kits. Refer to **Annex Section B - II.2.2** for more details.

Marginalised / minority / vulnerable groups - People who may be marginalised include: people with health related problems such as TB; people with disabilities; some people from certain ethnic groups or political groups in camp situations where their backgrounds are different to that of the camp leader. Children undertaking non-formal education, such as part of Holy Koran groups may also be overlooked for WASH services. Disagreements between pastoralists and farmers over access to land and water also make both groups potentially vulnerable to conflict and restrictions to access water supplies or to displacement. Work is on-going for peace building efforts, with particular engagement of the youth and women. There is a need to be aware of who is marginalised in each given situation and to design programmes and interventions to ensure they are involved and their needs are responded to and also to link in S&H related interventions to peace building efforts. Other groups who may be particularly vulnerable include: the poorest; newborns and children; older people; PWDs; people in restricted contexts such as prisons; people with chronic illnesses such as HIV or TB; people who scavenge for solid wastes; children who live on the streets; people affected by emergencies.

Efforts have been put into improving the school context for children through the UNICEF supported Child-Friendly Schools Initiative. Child potty's are also sometimes provided and some hygiene approaches have been designed to specifically involve or consider children (refer to **Annex Section B - II.2.2** for more details). But more attention is needed to consider the needs of children, including when designing public / shared latrine facilities.

Nomadic communities – Some nomadic communities in Sudan are mobile; often following similar routes, but not staying in the same locations. Some nomadic communities stay in some locations for 4-5 months. In this case the communities should be facilitated to construct their own latrines. But for the periods when they are moving, the main focus would be on: a) hygiene promotion; and b) the use of the dig and bury method for faecal disposal. Focal persons, often youth, are already identified for disease surveillance and for education. Hence it is proposed that the same focal people should also become the focal persons for sanitation and hygiene and supported with capacity building to enable them to undertake promotion of S&H within their communities.

People affected by emergencies - People affected by humanitarian emergencies are particularly vulnerable, especially when they are displaced from their home location and hence may lose many of their usual resources, livelihoods and coping mechanisms. Most WASH interventions in Sudan at present are focussed on humanitarian contexts, although today many have become protracted and hence discussions are on-going about transitioning such situations to longer term development. Refer to **Section 6.2** for more details.

Capacities of WASH sector stakeholders to consider gender - A Gender Review by UNICEF Sudan (2015)[74] highlighted that although there was generally a good awareness of gender issues by sector stakeholders, there was less confidence and knowledge of how to respond to these issues and incorporate them into daily work and programmes. Discussions with humanitarian stakeholders indicated that some have discussed gender as part of other trainings, but most had not been specifically trained on considering such issues. There is a clear need for capacity building in how to practically respond to issues such as gender, disability and vulnerability, including in involving women, adolescent girls and boys and people in vulnerable circumstances in WASH programmes; as well as to how to support the process of women's empowerment as part of the process in support of the National Women's Empowerment Policy, 2007.

[74] Fogaroli S and Khiar, R (2015) *WASH Gender Review Report*, May 2015, UNICEF Sudan

III.4 Sustainability, environment and climate change

Current situation:

Sustainability - Sustainability of S&H services, facilities and behaviours are critical for long term-benefit. Sustainability of services and facilities are affected by management, financial, environmental and social factors which are both internal and external to communities. **Annex Table 5** - provides an overview of these factors which can affect sustainability of WASH services.

Annex Table 5 - Factors affecting sustainability of WASH services[75]

External factors	Internal factors (within communities or service providers) or affected by project design
• Legislation, policies & political support • Efficiency of intermediate level actors - Government, NGOs, private sector • Availability of donors or funding sources • Availability of spares and materials • Standardisation of approaches across the sector • Water resource availability	• Quality of leadership • Gender divisions, inequity & social cohesion • Management capacities, baseline skills, education & capacities and an effective management system has been developed • Existence and enforcement of rules • Sense of ownership & legal ownership of facilities and services • Commitment to the project, willingness and ability to pay for the capital costs. • Existence of an effective management system and financing for O&M. • An effective mechanism for collecting and managing funds for recurrent costs. • The community or service provider has the willingness & ability to raise money for major rehabilitation and replacement. • Appropriate service level and technology. • Systems appropriate to livelihoods. • Environmental sustainability.
Additional factors affecting sustainability in vulnerable contexts	
Conflicts and natural disasters (such as flooding, drought earthquakes, tsunami), climate change and increased cyclic environmental stresses, can also lead to: displacement, death or migration of trained personnel, less income available to households, reduced availability of spare parts or supporting services, conflict damage of infrastructure including looting and destruction. All of which can also impact on the sustainability of services.	

Sustainability of household, shared and public latrines - The sustainability of latrines is a particular challenge, particularly for public or shared latrines, where there is usually less willingness to undertake cleaning tasks on a voluntary basis. Household latrines tend to be more sustainable, except where the quality of construction is poor and repairs are not undertaken, or when the pit fills up and households are not willing to have it emptied or to build a replacement latrine. The availability of pit emptying services can prolong the lives of latrines, but pit emptying is mostly feasible for lined pits and also needs to be paid for. Wherever possible, household latrines are preferable to shared latrines for household use, because of the challenges of maintaining shared latrines. Where shared latrines are necessary, such as in humanitarian contexts, limiting sharing to a maximum of 3 families may assist in improving the chances of effective cleaning and O&M. Where latrines are public or shared by larger numbers of people, then a system of paid attendants for cleaning and maintenance will be necessary. Institutions including schools need a management system and budget for the management of S&H facilities and dedicated staff to be responsible. Some examples have been seen of the private sector succeeding in managing public latrines, but challenges with poor service have also been observed. The increased supervision of private operators is needed.

Sustainability of hygiene behaviours - More knowledge is required on the effectiveness of hygiene promotion approaches and sustainability of hygiene behaviours over time and the motivating and enabling

[75] Adapted from: Schouten T. & Moriarty P. (2003) *Community Water, Community Management, From systems to service in rural areas,* Practical Action, in: Action Contre La Faim (2007) *How to Make WASH Projects Sustainable and Successfully Disengage in Vulnerable Contexts*, ACF-International Network

factors for the same. This is an area where social marketing research could assist in providing lessons and evidence to be integrated back where hygiene promotion interventions. Increasing the use of enforcement and increasing penalties for the same, is also a useful tool, particularly in relation to public food hygiene. However at present inspectors tend to be underfunded and penalties are not large enough to act as a deterrent. Sustaining good hygiene and infection control practices in health facilities is a particularly challenging issue, with high risks for non-compliance due to increased risks of infection, disease and death. More attention will be required in this area over the coming years, with increased training and monitoring roles by the Public Health Officers responsible for EH in health facilities.

Sustainability of solid waste, faecal sludge management and vector control services - The sustainability of solid waste, faecal sludge management and vector control services operated by Localities, Administrative Units (Municipalities) or the private sector depend on the financial revenues that can be generated to cover costs as well as effective management. Currently solid waste management services which exist are highly subsidised by the GoS. There is a need to increase tariffs from users particularly for SWM, but the challenge is that if people pay for the service they expect the service to work effectively. Hence the progression needs to be incremental. It is also critical that work is done to instil more of a 'maintenance culture' than exists at present. JICA is paying attention particularly in support both the KSCC and the water sector to both build their skills and capacities in the area of O&M.

Environment & climate change - Environmental health interventions are those that protect public health from the negative impacts of wastes in the environment. However when environmental health interventions are not functioning well, the result is a damaged environment and risks to health. This is seen quite visibly by poor SWM through piles of garbage in urban areas, burning piles of refuse on the sides of the street, blocked drains and vermin; or through poor management of health care wastes, resulting in dangerous situations for children playing in the waste, or waste pickers scavenging through the waste. The management of large landfill sites and the end disposal of hazardous wastes all pose particular risks. Hence the importance of the leadership of the MoENRPD in this area.

In addition the lack of effective treatment of sewage sludge or the contents of pit latrines also poses high level of risk to the population. Open defecation, pit latrines that enter into the groundwater table and effluents from septic tanks and sewage treatment works, where treatment is only partial, also all pose risks to groundwater and surface water sources. Whilst in an ideal situation all cities would have sewage networks and fully functioning sewage treatment works with tertiary treatment; such systems require a high level of investment and management and have a high level of operation and maintenance costs. Hence for the foreseeable future most cities will still remain with a large proportion of its land area covered by on-site systems. Step-by-step improvements will be the target, considering opportunities to cover small portions of cities using private investment opportunities as well as GoS and foreign investment.

Much of Sudan is covered by arid lands and desert where water resources are limited. Global warming and human pressures are resulting in increased degradation of the land and water resources, leading to increased vulnerability to further climate change and increased risk of disasters. Droughts, flooding and changing patterns of infectious diseases are all likely. In particular cholera is known to have a cyclic pattern in line with changing environmental conditions and diseases such as malaria and dengue and waterborne and zoonotic diseases are also expected to increase. The above are likely to impact on resource based conflicts and population displacements, which pose significant S&H challenges.

Emergency preparedness - With increasing risks from climate change and risk associated increase in resource based conflicts and natural disasters including increased from outbreaks, there is an urgent need to strengthen emergency preparedness, including public health related risk monitoring. One example of this would be the strengthen the use of the WHO supported disaster risk monitoring tools and to strengthen the predictive vector related surveillance systems.

III.5 Private sector engagement

Current situation:

Globally there has been an increase in engagement of the private sector in S&H, particularly along the value chain related to wastes. Private sector engagement in S&H in Sudan is currently limited. An example of this is the limited access to water tankers in Sartoni, North Darfur where there has been a massive displacement of people in 2016. There has been competition for the few tankers which exist between three key operational agencies, which are paying different sums and not coordinating on the price.

Current challenges for private businesses to engage in S&H in Sudan:

- Some private operators start up businesses without knowledge of how to run a business or technical experience for the area they are operating in.
- Some businesses start operating but find it challenging as money transfer is difficult and also there can be blocks on the importation of some equipment because of economic sanctions.

Some examples do exist however of successful private sector engagement in S&H in Sudan, such as:

- Some private sector organisations provide SWM services
- Private operators of suction tankers
- Private operators of water tankers
- Small scale trades persons and construction companies
- The involvement of private companies in promoting soap, engaging in global hand-washing day and in putting S&H messages on their packages
- Private consultancies

In addition the international private sector has been invited to start up recycling businesses in Khartoum.

The following are perceived advantages and disadvantages of the private sector in S&H Sudan.

Annex Table 6 - Potential advantages and disadvantages of engaging the private sector in S&H in Sudan

Advantages	Disadvantages
• The use of contracts can improve quality as payment is not made until the services are received satisfactorily • The use of tenders can reduce the price • They bring a range of skills and expertise • They can be innovative and bring new ideas • They can have strong marketing expertise • They can be sustainable if profitable • Corporate Social Responsibility can lead to additional funding for S&H • They could potentially provide business training for small entrepreneurs	• They may face challenges to establish businesses that are profitable / sustainable • Their main objective is profit and not the service they provide • They may not be incentivised to work in lower income areas as they may perceive less profit • May not be interested in working in rural or more dispersed areas due to a similar customer base • Challenges can be faced in regulating the private sector as it can affect the market dynamism • Their charges may be too high for the poorest • They may not have access to capital for start-up • Small businesses may not have the funds to market their products • Informal businesses may not be able to attract credit • Some activities may not be adequately profitable to sustain a business on its own, so they need to establish several businesses

Discussions during the Darfur consultative workshop indicated unanimous agreement that Sudan should investigate how to strengthen and encourage the private sector to engage in S&H in Sudan.

Opportunities for the private sector

Annex Table 7 - provides an overview of the areas in which the private sector could potentially engage in S&H in Sudan.

Annex Table 7 - Potential areas for engagement of the private sector in S&H[76]

Provision of services:
• Full/partial management of sewerage systems
• Pit emptying
• Masons
• Community based enterprises (youth/women/other):
  ○ Solid waste management
  ○ Recycling + making products
  ○ Composting
 	
Supply of products:
• Small scale independent suppliers – latrine products; HWTS items; bed nets; vector chemicals; jerry cans; soaps; menstrual hygiene materials
• Sani-Marts – shops that specifically market and sell sanitation products
• House to house hygiene promoters – selling hygiene products – soaps; water treatment chemicals
	Social marketing, research, promotion:
	• Public-private partnerships for hand-washing – Promotion of hand-washing with soap
	• Media – TV / radio – promotion of good hygiene and sanitation practices
	• Consultancy / training / advice / research – learning about motivations / cultural beliefs / focus groups
	
	Finance:
	• Banks - Credit / micro-credit provision

Annex IV - Situation analysis – building blocks

IV.1 Introduction to the building blocks

The Situation Analysis of S&H in Sudan section on the 'Building Blocks' provides background context to the Strategic Objectives and Strategies identified in the main body of the SNSFSF. It is structured as follows:

- **IV.2** – Legal and policy framework
- **IV.3** - Institutional responsibilities
- **IV.4** – Financing sanitation and hygiene
- **IV.5** – Planning, monitoring, review and learning
- **IV.6** – Building capacity

IV.2 Legal and policy framework

Current situation:

The sub-sections which follow provide an overview of the key legal and policy documents for each component of S&H. A detailed table listing key legal, policy and associated documents can also be seen in **Annex Section D – XI**.

IV.2.1 National policies and strategies

The National Council for Strategic Planning developed a 25-year strategy in 2007, which includes S&H under the strategies for social services, health and drinking water. It focuses on creating a healthy environment, preventing pollution, reducing environmental refuse disposal, treatment of wastes, reducing pollution of water supplies and extending sewerage networks in cities.

[76] Identified mainly from the Darfur consultative workshop

The Ministry of International Cooperation is currently working on preparing a new 5-year national development plan to start in 2017. In alignment with this timeline a number of key sector policies and strategies are also due for revision.

IV.2.2 Water/WASH sector - Development focus

Key development focussed WASH sector legal and policy related documents of particular relevance to S&H:

- Ministry of Water Resources and Electricity & Federal Ministry of Health (2014, draft) *National Policy of Drinking Water, Sanitation and Hygiene, Feb 2014* (and its previous version in 2010)
- Republic of Sudan (2011) *WASH Sector National Strategic Plan, 2012-16* - and associated State WASH strategic plans

The most recent policies and strategies have a main focus on the excreta disposal and hygiene promotion elements of S&H, although environmental sanitation / SWM, wastewater and food hygiene are also mentioned. The 2010 version of the draft Policy for Water Supply and Environmental Sanitation had a broader focus on the range of different elements of S&H, but it is still in draft form (dated 2014).

WASH Sector Strategic Plan, 2012-16

This proposes that S&H strategies for rural communities shall concentrate on six components:

1. *Package approach, that is addressing sanitation for all based on the ODF settlements concept, and hygiene simultaneously in households, schools and health units.*
2. *Community based hygiene and sanitation promotion.*
3. *Safe water handling and use*
4. *Latrine access and use.*
5. *Hand-washing.*
6. *Food hygiene and keeping a clean home environment.*

In relation to the urban environment:

In terms of Urban Water and Waste Water treatment, the situation is more complex and less defined than in rural areas... Most towns do not have a proper sewerage system and rely on individual septic tanks and traditional improved latrines... Urban sanitation shall aim to use on-site disposal through septic tanks as well as sewerage network systems where viable, for collection and safe disposal of wastewater from urban areas. Solid waste management shall also be an urban sanitation priority.

Other key S&H related commitments, reports of strategic events, assessments, and plans include:

- Republic of Sudan (2009) *Khartoum Declaration*
- Republic of Sudan (2014) *Statement of Commitments for 2014 Sanitation and Water for All High Level Mission*
- Federal Ministry of Health and Ministry of Water Resources and Electricity (2014) *National Sanitation Scaling-up Workshop,* Khartoum, 23-24 June 2014
- Federal Ministry of Health & Ministry of Water Resources and Electricity (Aug 2014, zero draft) *Strategic Framework for Sanitation Scaling up in Sudan*
- Federal Ministry of Health (2015) *Country Sanitation Action Plan*
- Fogaroli S and Khiar, R (2015) *WASH Gender Review Report*, May 2015, UNICEF Sudan

Technical guidelines also exist for latrines developed by the MoH (no date) and separate guidelines for latrines at household level, school and rural health facilities levels developed by the MoWRE (2009).

IV.2.3 Health sector, environmental health services and environmental protection - Development focus

The key development focussed health sector related legal and policy related documents of particular relevance to S&H:

- Republic of Sudan (2009) *Environmental Health Act of 2009, Order Articles* [translation]
- Republic of Sudan (2008) *Public Health Law, 2008*
- Republic of Sudan, FMoH, Directorate of Primary Health Care, Environmental Health & Food Control Department (2015) *National Environmental Health Strategic Plan, 2015-2019*
- Republic of Sudan, FMoH (2012) *Health Sector Strategic Plan, 2012-16,* Final Draft, 7 November 2012
- Republic of Sudan, FMoH (no date) *25 Years Strategic Plan for Health Sector*
- Republic of Sudan, FMoH, Directorate of Public Health and Emergency, Health Promotion and Community Based Initiatives Directorate (2012) *Health Promotion Strategic Plan*, 2008-12
- UNICEF (2013, draft 1) *Ashuffa'a Al soghar*, *Communication Initiative Strategy*

The **National Environmental Health Strategic Plan, 2015-19** is a particularly key strategy for S&H, as it covers most of the components of S&H and includes action plans for each component. The SNSHSF has been developed to support this strategy, but taking forward some areas which were not covered in so much detail, particularly in the areas of excreta disposal, hygiene promotion and vector control.

The **Health Promotion Strategic Plan, 2012-16**, is also a core strategy of relevance to S&H in Sudan. It provides strategic guidance for health promotion for specific target groups such as under-five children, young people and adolescents, women and mothers and older people. It also covers contexts such as schools and colleges, healthy workplaces, market places, cities, towns and villages, health services and worship places. The ***Ashuffa'a Al Soghar***, which focuses on health promotion to support the 'little children' is also an important HP related strategy and is one of the HP approaches used by the MoH. Refer to **Section 5.2.2** for more details.

In addition legal, policy and strategic guidance is available for specific S&H components of EH such as:

- National Public Health Act, 2008
- Environmental Protection Law, 2008
- Nuclear Energy Law, 2005
- Hazardous Wastes Regulation, 2014
- Food Control Act, 1973
- Criminal Procedures Act, 1991
- National Policy for Health Care Wastes (draft)
- Hazardous Wastes in Health Facilities Guidelines (draft)
- National Nutrition Policy and Key Strategies, 2008-2012
- National Strategy for Scaling up Midwifery, 2010[77]
- National Integrated Vector Management Strategy, 2014-18
- Drinking water safety By-law, 2014
- Plus a range of food control related regulations

Particular gaps include on the area of hazardous wastes where both the legislation and institutional framework are weak.

[77] Mentions they need to be strong in health, nutrition and hygiene. Strategies may also exist for Emergency Obstetric Care (EmOC) which should also include elements of S&H.

IV.2.4 School health - Development focus

School HP/EH/WASH is briefly mentioned in a number of WASH and Health sector policies and strategies. However the most comprehensive and up-to-date strategic guidance is included in:

- Republic of Sudan, Ministry of General Education and Federal Ministry of Health (2016, draft) *The National School Health Strategy*, MoE, FMoH, UNICEF Sudan
- Republic of Sudan, Ministry of General Education and Federal Ministry of Health (2016, draft) *National Guidelines for Implementation of an Effective School Health Programme,* MoE, FMoH, UNICEF Sudan

The strategy focuses on the 8 components of the Health Promoting Schools (HPS) Approach. It includes strategies for health promotion, facilities and operation and maintenance. It does not provide guidance on menstrual hygiene management (MHM), except to have one indicator for the presence of sanitary pads in schools.

In addition two technical guidelines exist for latrines in schools, one by the FMoH[78] and one by the MoWRE[79]. These however currently have different ratios for pupils to latrine units. The FMoH guideline (no date) indicates a ratio of: 35-40 students per latrine for girls and 60-100 students per latrine for boys. The MoWRE guideline mainly indicates a ratio of: 30 students per latrine for girls and 50 for boys. The School Health Strategy, 2016-2020 (draft) does not specify a required target ratio. The two sets of technical guidelines only focus on latrines and not guidelines for water supplies, hand-washing, hygiene promotion or much on the operation and management of all WASH facilities. They also do not include designs for accessibility for children and adults with disabilities.

For more details on School Health refer to **Annex Section B – IV.2.4**.

IV.2.5 WASH sector - Humanitarian focus

Key WASH related humanitarian strategic documents:

- WASH Sector (2015) *Sudan WASH Improvement Agenda*, 2015-17
- No author (2015) *WASH Sector Humanitarian Strategy*, Draft 2015
- Sudan WASH Sector and Sudan Refugee Multi-Sector (2015) *Refugee Response Strategy* (August 2015-December 2016), Final draft, 11 August 2015
- WASH SAG (2015) *Protracted Displacement Strategy for Darfur: A Multi-sectoral approach to change* - Draft WASH Sector Submission, First draft 10 Sept 2015, WASH SAG approved, 2 Nov 2015
- UNICEF (2014) *Capacity Development Framework, A 3-year Capacity Development Plan*, October 2014
- FMoH (no date) *Manual of Environmental Health in Emergency*

A process is also underway to review the existing Sudan technical WASH guidelines and consider their relevance for the humanitarian sector, with the aim to develop humanitarian WASH technical guidelines. Refer to **Section 6.2** and **Annex Section - III.2** for more details on transitions in approaches between phases.

[78] The Federal Ministry of Health, Department of EH and Food Control, Sanitation Program (no date) *Technical Guidelines for Construction of Latrines*
[79] Public Water Corporation (MIWR-GONU), MWRI-GOSS, UNICEF (2009) *Technical Guidelines for the Construction and Management of School Latrines, A manual for field staff and practitioners*, April 2009

Sudan WASH Improvement Agenda

The above provide strategic direction for humanitarian programming and transitions. Key strategies:

- **Better targeting and prioritisation** - needs based instead of target based
- **Phasing support and approaches against phases / transitions:**
  - Humanitarian strategy suggests: 6-12 months between first and second phases of emergency;
  - Refugee strategy suggests: first phase, 3 months; transitional phase, 3 months to 1 year; long term, above 1 year
- **Increasing value for money**
- **Investing in inter-sectoral information management**
- **Building capacities for emergency preparedness and response**
- **Capacity building of national NGOs and enabling environment systems**

IV.3 Institutional responsibilities for sanitation and hygiene

Current situation:

IV.3.1 Institutions responsible for sanitation and hygiene - Cross-sectoral overview

Sanitation and hygiene is a cross-sectoral issue, with responsibilities falling across multiple sectors and Ministries. This is positive in terms of shared responsibility of this critical issue, but also poses challenges for co-ordination for S&H and having institutions which are prepared to champion and advocate for increased resources. The key institutions and stakeholders with responsibilities for S&H can be seen in overview in **Annex Fig 12** below.

IV.3.2 Lead accountable institution for sanitation and hygiene

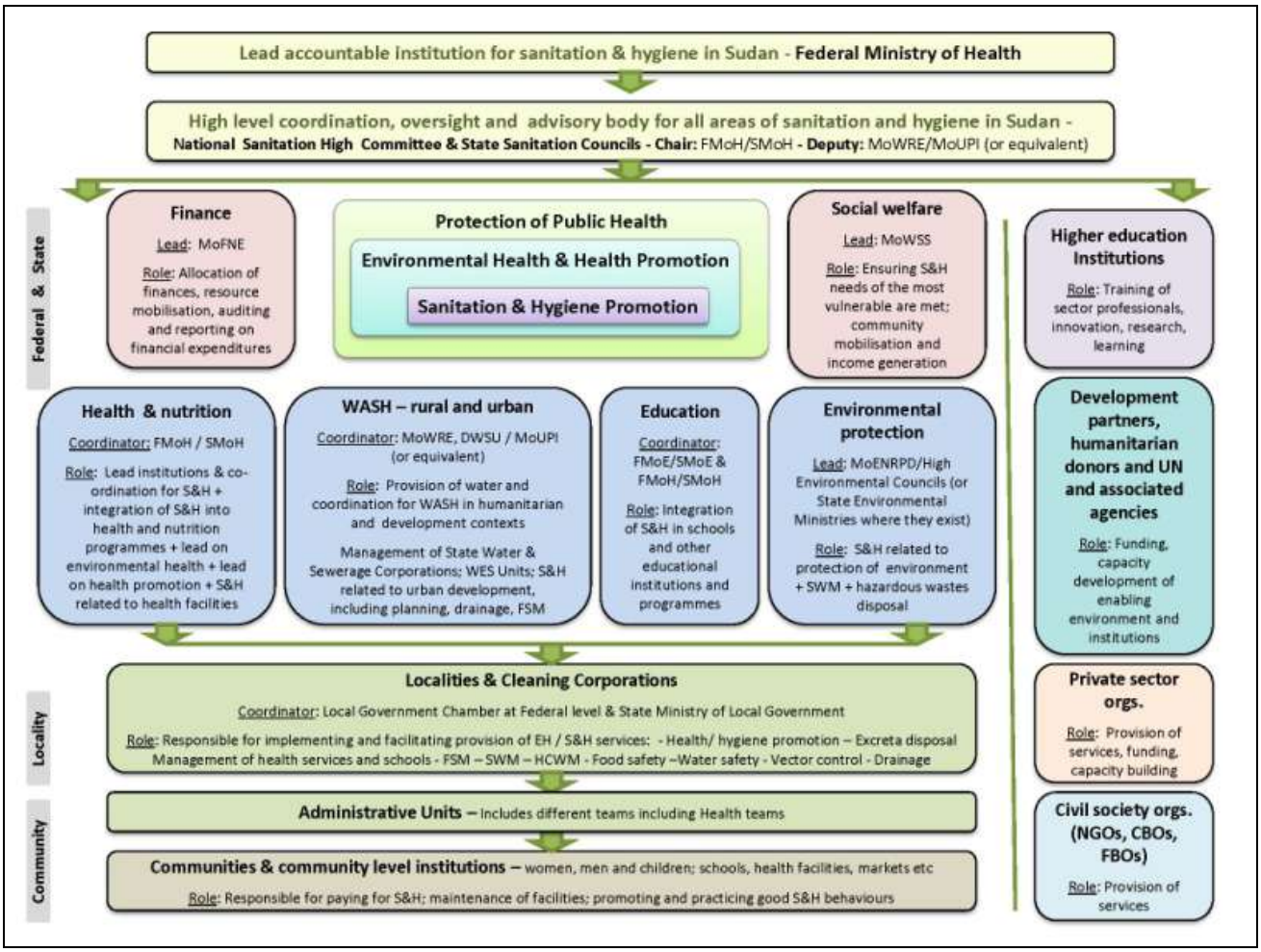
Global discussions have recognised the complexity of responsibilities and in signing the **eThekwini Declaration** in 2008, governments have pledged to ensure that there is one principle accountable institution for S&H and one coordinating body.

The FMoH has been identified as the principle accountable institution for S&H in Sudan. The process of identification has been a gradual process between 2008 after the signing of the eThekwini Declaration and the Khartoum Declaration in 2009, to 2014 when the FMoH formally confirmed its willingness to take on this leadership role for S&H. This leadership role was stated in the Sanitation and Water for All (SWA) Commitments, submitted by Sudan to the SWA High Level Meeting in 2014.

A range of Ministries have specific responsibilities for components of sanitation and hygiene, including the MoH, MoWRE, MoE, Ministry of the Environment, Natural Resources and Physical Development (MoENRPD) and the State level Ministry of Urban Planning & Infrastructure (SMoUPI). The Ministry of Welfare and Social Services (MoWSS) and the Ministry of Finance and National Economics (MoFNE) also have supporting roles. The Localities and Administrative Units (Municipalities) hold the highest level of responsibility for implementing S&H across Sudan and other actors such as the private sector, civil society organisations and higher education research institutions, UN, development partners and humanitarian donors all have contributing roles.

Whilst several Ministries have responsibilities for components of S&H in Sudan, the MoH has the broadest range of responsibilities. It is responsible for Public Health, for Environmental Health and Health Promotion in Sudan. This incorporates excreta disposal, hygiene promotion, solid waste management, health care wastes management, vector control, food safety and drinking water safety. They have policy and strategic roles in all of these areas, which cut across the areas in which other Ministries also have responsibility: MoWRE for water supply; MoE for school Health/EH/WASH; MoENRPD for the environment and solid waste

Annex Fig 12. Overview of institutional responsibilities for S&H across sectors



management; and SMoUPI for faecal sludge management. The clarification of its role as the lead institution and its commitment to take on this role, is a positive step forward for scaling up S&H in Sudan and also supports the GoS global commitments.

Refer to **Annex Section D – X** - for an overview of the timeline and discussions and decisions which have led to the FMoH taking on the leadership role for S&H in Sudan and for the establishment of the National Sanitation High Committee (NSHC).

IV.3.3 One coordinating body for sanitation and hygiene

The high level **National Sanitation High Committee** (NSHC) was formed in 2014. It is chaired by the Director of Environmental Health of the FMoH and has members from a number of Ministries with key responsibilities for S&H, Administrative Units (Municipalities) and Localities, cleaning corporations, academic institutions, UN and CSO partners and the private sector.

State Sanitation Councils (SSCs) have so far been formed to-date in all States (16) except for Central and North Darfur. 7 States have been approved by the Governor (White Nile; Blue Nile; Red Sea; Kassala; North Kordofan; East Darfur and West Darfur). Another 8 are under a process of approval by the State Governments. The SSCs are mostly chaired by the State Minister for Health.

The NSHC and SSCs meet every 3 months. They also have a sub-committee to follow decisions, which meets more regularly as needed.

Names for the coordinating bodies for S&H in Sudan

Variations in names have been used for the coordinating bodies for S&H in Sudan. The standard names to be used for the committees / councils are:

- National Sanitation High Committee (NSHC)
- State Sanitation Council (SSC)

The NSHC's key responsibilities are:

1. To strengthen coordination and participation of partners related to sanitation at all levels and coordinate between National and State Sanitation Committees/Councils;
2. Working with sector partners to raise the priority of sanitation;
3. To support a national mechanism to ensure financial support for sanitation;
4. Ensure strategies are developed to increase sanitation and health promotion and review technical documentation, strategies and plans;
5. To coordinate and cooperate with the legislative institutions to ensure there is a mechanism to activate and laws and regulations to support sanitation;
6. Capacity building of communities for the ending of open defecation in Sudan;
7. Ensure implementation and monitoring of progress on sanitation and health promotion, including in line with the water activities plans.

Refer to **Annex Section D - XII** for the Terms of Reference for the NSHC and a list of members.

IV.3.4 Other coordination or advisory bodies with responsibilities for sanitation and hygiene

Other coordination or advisory bodies with responsibilities for S&H.

WASH Sector (humanitarian) coordination mechanism:

- Coordinates stakeholders engaged in WASH - Lead: MoWRE/DWSU and co-leads: UNICEF and FMoH. Has the following sub-groups:
  - **Sector Advisory Group** (SAG)
  - **Peer Review Group** (PRG)
  - **TWG on S&H** (Chair: MoH/EH Dept) - see the ToR in **Annex Section - XII.3**
  - **TWG on Water** (Chair: MoWRE/DWSU)

- **School Health Multi-Sectoral Coordination Councils (SHCC):**
  - Established at National, State and Locality levels.
  - National SHCC is chaired by the Undersecretaries of Education and Health on a 6 month rotating basis
  - Responsible for overseeing the progress of school health
- **National Public Health Coordination Council:**
  - To make decisions on behalf of the Minister for Health in line with the implementation of the National Public Health Act, 2008 – which specifically covers: air, drinking water and vector control; health care, hazardous solid and liquid wastes and environmental health assessments
- **High Council for Environment and Natural Resources** – Federal level:
  - Responsible for oversight for implementation of the Environmental Protection Act, 2001, including ensuring environmental assessments are carried out, environmental policies are updated and the establishment of penalties for violations. The Act includes provision for the protection of water sources, air, food, soil and vegetation.
- **Higher Council for Environment and Natural Resources (HCENR)** - for Khartoum State:
  - Has responsibilities for protecting the environment, includes responsibilities for SWM and health care and hazardous wastes management.
- **National Food Registration Committee and National Food Supplement Committee**
  - Responsibilities for food registration and approval of food supplements.

- **National Pesticides Council**
    - Responsible for approval of pesticides and pest control products including those used in vector control and responsibility for obsolete pesticides.

Refer to **Annex Section D – IV.3.5** for a summary of the other agencies / Councils responsible for the Environment by State. The Environmental Health Law, 2009, also includes a provision to set up a National Council on Environmental Health, but this has not yet been established.

As noted in the National WASH Sector Strategic Plan, 2012-16, there is currently no WASH Sector independent regulatory system. The setting up of a National Commission for Water and Sanitation at National level is proposed in the strategic plan *'with representatives from the Ministry of Irrigation and Water Resources, Ministry of Health, Ministry of Education, Ministry of International Cooperation, Ministry of Environment, Ministry of Finance, PWSC and other key sector partners, such as development partners and associations of NGOs and private sector, to coordinate, supervise, harmonize, monitor and evaluate sector performance and decisions making'*.

There is also a **National Women's Council** which is active as part of the NSHC.

In addition there has also been one meeting of **WASH sector development partners.** This was facilitated by UNICEF and the African Development Bank (AfDB) with attendees: DFID, ECHO, EU, JICA, AfDB, UNICEF, WHO. This meeting brought together development focussed donors with the aim of harmonising approaches to water, sanitation and hygiene to establish a common front for development. It is planned to try and establish a more regular forum.

IV.3.5 Responsibilities for sanitation and hygiene - Government of Sudan institutions and communities

A table which details responsibilities of GoS institutions at Federal, State and Locality levels in the different components of S&H can be found in **Annex Section D - XIV**. From this overview the range of institutions with responsibilities in S&H is clear, as well as the institutions with the broadest range of responsibilities for S&H. These are the FMoH, SMoH, Administrative Units (Municipalities) and Localities.

In summary the key areas of responsibility of GoS institutions are:

Federal level:

- **FMoH** - Lead accountable institution for S&H in Sudan. Chairs the NSHC. Leads responsibilities for all elements of EH (excreta disposal, SWM, HCWM, vector control, food safety, drinking water safety), Health Promotion and EH in health facilities. It also provides links to stakeholders working on nutrition and integrated management of childhood illnesses. It co-Chairs the School Health Multi-Sectoral Coordination Council at Federal level and chairs the S&H TWG of the WASH Sector (humanitarian) coordination mechanism. It has responsibility for providing guidance and technical support related to sanitation and hygiene.
- **MoWRE, Drinking Water and Sanitation Unit (DWSU)**[80] - Leads the co-ordination of the WASH Sector (humanitarian) with co-lead of UNICEF. Leads for the provision of water supply in rural and peri-urban areas (WES Coordination Unit) and urban areas and for technical design of sewerage infrastructure (other departments of the DWSU).
- **MoE** - Lead for HP/EH/WASH in schools. Co-Chairs the School Health Multi-Sectoral Coordination Council at Federal level.
- **Ministry of Agriculture** – Has a role in integrated vector control management, in the use of sewage sludge / use of Ecosan outputs and in pesticide management.

[80] The DWSU used to be known as the Public Water Corporation until 2012.

- **MoENRPD** - Responsible for protecting the environment; for the planning, supervision and monitoring of SWM services and landfills; for environmental impact assessments; and has some responsibilities for hazardous wastes management.
- **MoWSS** - Responsible for advising other Ministries and other stakeholders in the integration of considerations related to vulnerable groups into their work; for ensuring that programmes supporting vulnerable groups incorporate good WASH practices.
- **MoFNE** - Responsible for allocation of finances from government budgets for EH/S&H services; raising funds for EH/S&H; monitoring budgets and expenditure; and audits of finances.

State level:

- **SMoH** - Lead Ministry for S&H in the State. Chairs the State Sanitation Committee. Lead responsibilities for all elements of EH (excreta disposal, SWM, HCWM, vector control, food safety, drinking water safety), Health Promotion and EH in health facilities. It also provides links to stakeholders working on nutrition and integrated management of childhood illnesses. Co-Chairs the School Health Multi-Sectoral Coordination Council at State level. Supports the MoWRE in coordination of the WASH Sector (humanitarian).
- **State Ministry of Urban Development and Infrastructure (MoUDPI) / Construction / Public Utilities:**
    - In Khartoum manages the **Khartoum State Water Corporation** and **Khartoum State Sewerage Corporation**. Responsible for planning of key urban infrastructure, such as: urban drainage; sewerage networks and treatment facilities; end disposal sites for faecal sludge and sewage; and SWM landfill sites.
    - **State Water Corporations, WES Project** - Co-ordinates the WASH Sector (humanitarian). Leads for the provision of water supply in rural and peri-urban areas (WES Coordination Unit).
- **SMoE** - Lead for HP/EH/WASH in schools. Co-Chairs the School Health Multi-Sectoral Coordination Council at State level.

The responsibility for environmental protection and associated issues is complicated by the fact that only a few States have environmental related institutions. Refer to the table which follows.

Annex Table 8 - Government Environmental Institutions at Federal and State levels

No	State	Name of the environment agency / Council
1	High Council for Environment and Natural Resources	Federal Institution
2	Red Sea State	Ministry of Tourism and Environment
3	North Darfur	Ministry of Culture and Environment
4	North Kordofan	High Council of Environment (under process)
5	Khartoum	High Council of Environment and Urban Promotion

Locality & Administrative Area (Municipal):

- **Locality -** Responsible for the provision, supervision, capacity building, regulation, monitoring and enforcement related to all EH/S&H services in the area of the Locality / Municipality (health promotion, excreta disposal, SWM, HCWM, vector control, food safety, drinking water safety). Coordination of stakeholders working in the Locality.
- **Administrative Area (Municipal)** - Responsible for the provision, supervision, capacity building, regulation, monitoring and enforcement related to all EH/S&H services in the area of the Administrative Unit (Municipal) (health promotion, excreta disposal, SWM, HCWM, vector control, food safety, drinking water safety). Responsible for collecting taxes and payments for SWM services. Coordination of stakeholders working in the area of the Administrative Unit (Municipal).

- **Solid waste / Cleaning corporations** - Responsible for management of SWM and HCWM services from transfer sites to end disposal and management of landfill sites; and for awareness raising on good SWM practices.

Community level:

- The community is responsible for the initiation of S&H schemes and projects (except for sewerage systems) and to actively participate and ideally lead the planning, implementation, monitoring and evaluation (M&E), operation and maintenance (O&M) and replacement of these schemes. It is responsible for bearing all of the costs of the management and O&M of these schemes and facilities and participate in capacity building related to the same. Plus to protect the services or facilities from pollution and ensure equitable access and use. In some communities a Sanitation Action Group exists responsible for CATS/CLTS and community action.

IV.3.6 Institutional responsibilities for S&H - other stakeholders

- **National / local CSOs (NGOs, FBOs, CBOs, Sudan Red Crescent Society)** - Undertake a significant portion of the implementation of S&H services and programmes in humanitarian and development contexts. NGOs sometimes act as the co-lead for WASH sector coordination with the State Water Corporation and the SMoH at State level. Expressed interest to be more involved in GoS led strategic planning and associated activities.
- **International CSOs (NGOs, FBOs, CBOs, Red Crescent Movement)** - Fund and support local partners in the implementation of S&H services and programmes in humanitarian and development contexts. Provide capacity building, supervision and monitoring. Involved in some GoS led strategic planning and associated activities.
- **United Nations and associated inter-governmental Agencies** (IOM, UNICEF, WHO, UNOPS, UN-Habitat, UNEP, UNHCR) - Support the GoS in developing policies and strategies and in capacity development related to S&H at the levels of enabling environment, institutional and individual levels. Undertake evidence-based advocacy to position S&H high on the development and humanitarian agenda among government Ministries, Departments and Agencies (MDAs) and donors. Fund and support the GoS, national and international CSOs in the implementation of EH/S&H activities in both humanitarian and development contexts. Sometimes acts as the co-lead for WASH sector coordination with the State Water Corporation and the SMoH at State level.
- **Humanitarian donors and Development Partners (donors with focus on development context)** - Funding of S&H service provision in humanitarian and development contexts; support for capacity development at enabling environment, institutional and individual levels. Refer to **Annex Section D - XV** for more details.
- **Private sector** - Support for a range of services related to all components of EH/S&H, such as: masons, desludging trucks, sale of sanitation and hygiene products, marketing and awareness raising on S&H issues and research. Refer to **Annex Section B - III.4** - for more details.
- **Higher education research institutions** - Training the professionals of the future for EH, HP and all elements of S&H. Innovation, research, studies and advisory services. Collaboration between the HE research institutions and the MoH and other stakeholders working in S&H in areas of work placements for students, research, assessments, monitoring and evaluation. Refer to **Annex Section B – IV.6.1** for more details.

IV.4 Financing sanitation and hygiene

Current situation:

It is estimated that for every 1 USD spent on sanitation that 2 USD is gained and that Sudan loses 2.1% of its GDP annually due to poor sanitation. This translates to a loss of USD 490 million / year or USD 32.8 per capita per year[81]. These costs are estimated only on the basis of health and time savings, so they will in reality be higher as S&H have multiple other benefits. Investing in S&H therefore makes very good economic sense.

But even with this stark economic benefit, the finance required for scaling up and sustaining sanitation and hygiene across Sudan is minimal against the need. The GoS committed through its signing of the eThekwini Declaration in 2008 that it would work towards spending 0.5% of GDP on S&H. The commitment was revised 2014 with new SWA commitment: *The Ministry of Finance and National Economy with support of Ministry of Health to progressively increase budgetary allocation for sanitation from 0.01% of GDP in 2014 up to 0.05% of GDP in 2018 with the 2014 allocation made from the reserve funds*. But in 2016 the GoS still does not allocate much finance for S&H at Federal or State level. In 2014, it was noted at the National Sanitation Scaling up Workshop that: *"The Minister confirmed that, the environmental sanitation did [not] receive any significant financial resources from federal level and that needs to be reversed"*[82]. In 2015 the MoFNE allocated SDG 1 million to the EH Directorate of the FMoH.

Challenges faced in getting finance allocated to S&H:

- Many competing priorities
- In the Water sector, funding is often prioritised towards water rather than S&H
- In the MoH, funding is often prioritised towards curative rather than preventative health
- In the Education sector, finance is more readily spent on class rooms than on S&H facilities
- Decisions on finances for Locality level are made by the Governor at State Level and the Commissioner at Locality level. Usually funding is not prioritised for S&H and health promotion teams, in particular, are often highly under-funded. The Governor and Commissioner positions also change every two years, so even if advocacy is undertaken to increase allocations, any increases may not be sustained.

Financing options for S&H:

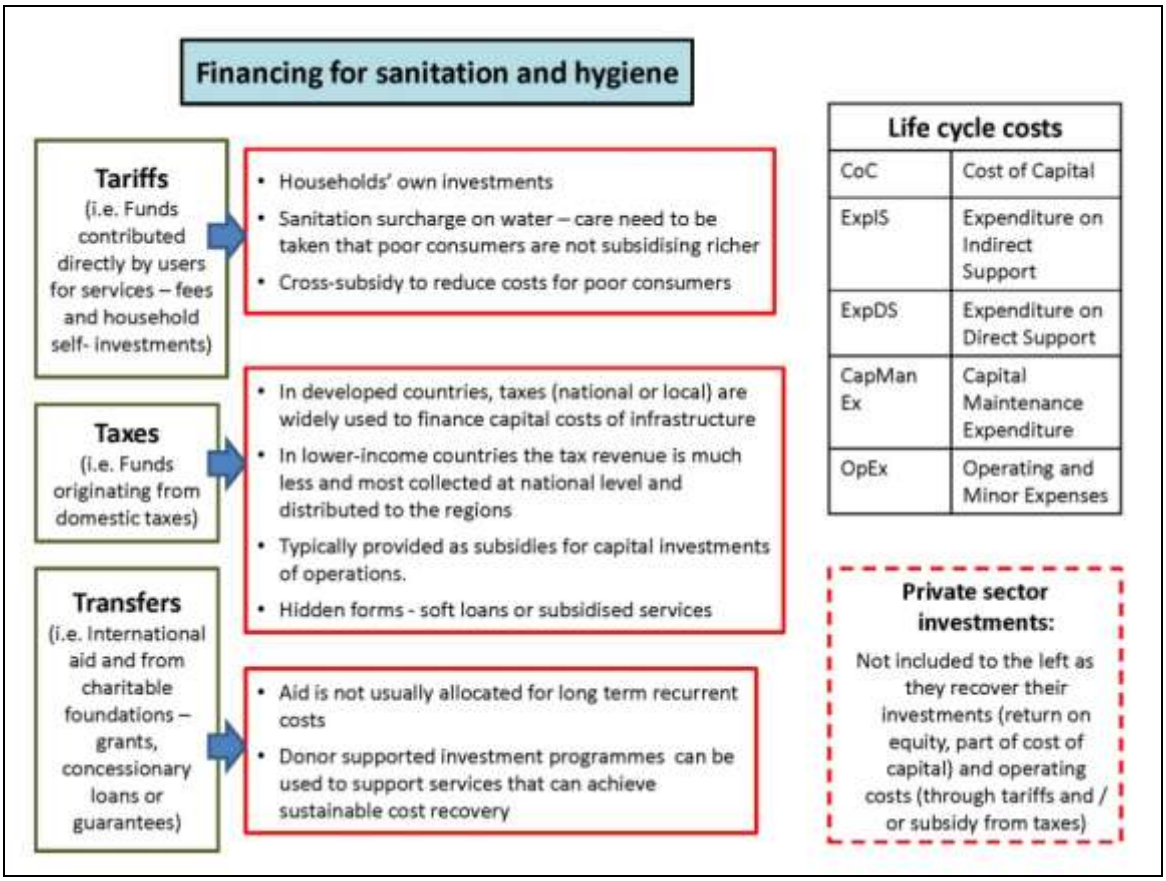
Annex Figure 13 - provides an overview of the components of life cycle costs and the typical sources of finance for sanitation and hygiene in the global context. **Annex Table 9** - highlights examples of how on-site sanitation and hygiene has been financed in the global context. These may also provide opportunities for Sudan.

Annex Table 9 - Examples of possible sources of finance for on-site sanitation from the global context[83]

• Households use own labour and materials • Householders pay from income or savings • Loans or micro-credit • Sharing the costs with other households • Building a shared toilet • Toilet subsidy – part of the costs covered by the government or other actors • Payments from re-use of excreta or recycling solid wastes • Connecting to commercial services	• Public / government investment – using taxes, tariffs or other sources of income • Public / government – CBO/NGO/UN cost sharing • Software provided by government / CBO / NGO • Company and private donations • NGO loans to community groups • Charging per use or service • Charging subscriptions • Cross-subsidies – weighted or social tariffs

[81] Sanitation and Water for All (2012) *Sudan - Briefing: Economic Impact of Water and Sanitation*
[82] The Federal Minister for Health, H.E H.EDUC. Bahr Idris Abu Garda, stated in: FMoH and MoWRE, DWSU (2014) *National Sanitation Scaling-up Workshop, Khartoum*, 23-24 June 2014
[83] Sijbesma, C (2011) *Sanitation financing models for the urban poor*, Thematic Overview Paper 25, International Water and Sanitation Centre;

Annex Fig 13. Life cycle cost elements and sources of finance for sanitation and hygiene[84]



Cost sharing responsibilities

The National WASH Strategic Plan, 2012-16 and the National Policy of Drinking Water, Sanitation and Hygiene allocates the following cost sharing responsibilities for WASH based on area of responsibilities:

- **Rural water supply** - The government, communities and other stakeholders shall cover the capital investments; beneficiary and consumer groups will cover the O&M costs through the introduction of appropriate tariff system.
- **Urban water supply** - Capital investment (CAPEX) shall be covered by government and other stakeholders. O&M costs (OPEX) and replacement costs (CAPMANEX) shall be borne by the urban consumers through equitable tariff structures and service tax.
- **Rural sanitation** - Investment in rural sanitation services is typically a household responsibility, though government and development agencies will build local (private) sector capacity to put on the market various sanitary options for sale. *Mahalias* and CBOs, under overall regulation by the state, may at local level decide to (cross) subsidize disadvantaged households that may not be able to bear the full investment costs. The management and related costs of sanitary facilities in rural areas is at the full cost of the users. There where sanitary facilities need regular emptying by external (private) operators, rules, regulations and a tariff system will be instated.
-

[84] Sijbesma, C (2011) *Sanitation financing models for the urban poor*, Thematic Overview Paper 25, International Water and Sanitation Centre; Tremolet, S, Kolsky, P and Perez, E (2010) *Financing on-site sanitation for the poor; A six country comparative analysis*, WSP and The World Bank; WSUP (2003) *Financing water and sanitation for the poor: six key solutions,* Discussion Paper, WSUP and IRC; and Fonseca, C et al (2011) *Life-cycle costs approach, Costing sustainable services,* Briefing Note 1a, Nov 2011, IRC International Water and Sanitation Centre

- **Urban sanitation** - In urban sanitation, especially where more complex collective sanitary technology is introduced, (collective septic tanks, various forms of sewerage infrastructure), consumers will contribute to coverage of the costs through a tariff system.
- **Hygiene promotion** - Overarching awareness raising, hygiene promotion and promoting hygiene behaviour change that benefits both water usage practices and sanitation, will remain the responsibility of government, which may outsource or subcontract such assignments to qualified development agencies, whom in their turn will have the responsibility to build sustained and thus structural local (non) (government) capacity to ensure on-going hygiene promotion and campaigns, particularly also at schools.

In addition:

- **Institutional S&H** – The FMoH, the MoE and the Administrative Units (Municipalities) and Localities are responsible for capital costs of construction for public institutional S&H facilities. Private institutions are responsible for the construction of their facilities. The schools, health facilities or other institutions are responsible for the costs of on-going operation and maintenance of the facilities and for undertaking hygiene promotion.

Annex Section D - XV - provides an overview of some of the current donor funded programmes in humanitarian and development contexts, that have a S&H element. Donors funding S&H in Sudan include: African Development Bank (AfDB); Department for International Development (DFID), UK Government; European Humanitarian Aid and Civil Protection Department, European Union (ECHO); Government of Qatar; Government of Saudi Arabia; International Office of Migration (IOM); Japanese International Cooperation Agency (JICA); Office of Foreign Disaster Assistance (OFDA), USAID; United Nations Children's Fund (UNICEF); United Nations High Commissioner for refugees (UNHCR); and World Health Organisation (WHO).

There is an urgent need to increase the sources of finance for S&H from GoS budgets, scaling up as well as through investigating new sources and channels of funding.

IV.5 Planning, monitoring, review and learning

Current situation:

National action planning:

A number of action plans have been developed incorporating S&H over the past few years:

- State WASH Sector Strategic Plans, 2011
- Sanitation Action Plan, 2014
- EH Strategic Plan, 2015-2019
- School Health Promotion Strategic Plan, 2016 - 2020 (draft)
- WASH Sector (humanitarian) Improvement Agenda, 2015
- UNICEF supported Capacity Development Framework (humanitarian), 2016
- This Sudan National S&H Strategic Framework, 2016 (this document)

National MIS and M&E systems and regular data collection related to S&H:

A number of national management information systems, monitoring and evaluation systems and sources of regular data collection already exist which incorporate some form of information on S&H. Some utilise Geographic Information Systems (GIS) which helps with mapping and analysis. The existing national MIS & M&E systems and key data sources are summarised in **Annex Table 10**.

Annex Table 10 - Existing S&H related MIS and M&E systems & associated key data sources

Institution	Type of systems	Description
FMoH	Internal MIS systems & national surveys	• **Health Sector Management Information System (HMIS)** – including a database and reporting system for the health sector, the nutrition sector and sub-sectors such as WASH, for S&H sector • **Environmental Health Mapping** – the system takes information from the database annually, for monthly reports, for analysis and for environmental mapping • **Household level data collected from national surveys** (such as the Sudan Household Survey; Public Health Centre Baseline Data; MICS / Simple Spatial Sampling Method, S3M)
DWSU, MoWRE	Monitoring systems	• **WES M&E system** for the sector (development supported by UNICEF) • **Water resources monitoring system** (supported by WHO)
MoE	Internal MIS	• **Education Management Information System** (EMIS)
Khartoum State Cleaning Corporation	Information Management System	• **KSCC Information Management System** – uses data from its services and has a database is used to prepare a weekly report
WHO	Supported & managed M&E systems	• **Water Quality Matrix** • **Health Resources Availability Mapping System** (HeRAMS) - includes solid waste management in health facilities. • **Incident Tracking System** (ITS) - focuses on disasters and includes sanitation (excreta disposal and solid waste) and hygiene
UNICEF	Internal M&E system	• Collects and verifies data from the WES, MoH, NGOs and other WASH partners' M&E systems for reporting on progress against outputs on UNICEF supported programmes
WASH Sector (humanitarian)		• 4Ws mapping • Information provided in monthly reports and in coordination meetings

Humanitarian actors reported using Knowledge, Attitude & Practice (KAP) assessments and undertaking observations, interviews and Focus Group Discussions (FGDs) as part of their monitoring and evaluation of the effectiveness of hygiene interventions.

The Humanitarian Aid Commission (HAC) are also responsible to monitor all humanitarian action and the Ministry of International Cooperation (MIC) all development projects and undertake M&E related to all sectors.

The comprehensive and coherent monitoring and evaluation of S&H in Sudan faces a range of challenges. Issues that were raised during consultation on the status of the M&E system for S&H included:

- The Ministry of Health struggles with having many partners, including UNICEF, WHO and others all of whom require different data
- Internally in the MoH the MIS system is also challenging as the formats keep changing (four times in the past year) and do not function effectively
- The Population Council has a comprehensive database, but the MoH is only collecting data from surveys - need to consider if data collection could be linked to strengthen routine data collection
- UNICEF internal M&E system is not on-line and has lots of sheets to complete
- Limited knowledge and capacities on M&E
- How realistic the data is, is also not known

Feeding into global monitoring systems:

Sudan engages in the activities of the SWA and AfricaSan conferences providing updates on progress. Its national data is also analysed by the JMP and GLASS and incorporated into their global analyses. Refer to **Annex Section D - VII** for more details. A Country Status Overview was also prepared for Sudan in 2010[85] and a WASH Sector Bottleneck Analysis (WASH-BAT) was undertaken in 2013 at all levels and at sub-national level in 2015.

Review and learning:

The first annual review for the S&H components of UNICEF supported WASH programme was undertaken in December 2015.

Gaps in sector experience sharing and opportunities for learning were identified as key gaps in the Capacity Building Needs Assessment that was undertaken in 2015[86]. In addition capacity building in M&E was identified as a major gap. A specific training in M&E is planned for 2006. Refer to **Annex Section B – IV.6** for more details. In addition an Annual Humanitarian Sector Review is planned for January or February 2017 with a retreat to prepare for it in September / October 2016.

A WASH National Gender Review was prepared in 2015[87]. It identified the progress, strengths and challenges in mainstreaming gender and achieving gender equality results in the Sudan WASH sector, as well as throughout UNICEF as an institution.

IV.6 Building capacity for scaling up sanitation and hygiene in Sudan

Current situation:

IV.6.1 Building capacity of professionals of the future

There are currently 8 universities which run EH courses to degree level or above under Schools of Public Health. These are: University of Khartoum; Alzaeem Alazhari University (Khartoum); Bahari University (Khartoum); Shandi Uni – River Nile State; Alqazeria University - Gezira; Alemam Almahadi University - White Nile; Kordofan University - North Kordofan; and in West Kordofan. They cover all areas of S&H and EH. In addition there are several more universities which are considering to start new courses.

School of Public Health - Khartoum University - departments and courses related to S&H:

- Dept. of Environmental Health - food control; sanitary engineering; waste mgt (SWM and Hazardous); occupational health; excreta disposal; environmental impact assessment (EIA); water supply and treatment
- Dept. of Epidemiology - includes vector control; and also including a new course environmental epidemiology
- Dept. of Food Hygiene
- Dept. of Health Education

In addition there are also university courses in Environmental Engineering and in Environmental Studies. A voluntary Environmental Health Association also exists and colleges are also connected to the universities.

These universities train many of the S&H professionals of the future. Both Khartoum and Bahari University each have over a hundred Degree level students graduating from its Public Health courses every year undertaking modules in all of the subjects above. They also have approximately 60 Masters Students

[85] AMCOW (2010) *Water Supply and Sanitation in Northern Sudan, Turning Finance into Services for 2015 and Beyond, An AMCOW Country Status Overview*
[86] Blason, A, Eissa, A, Ito-Pellegri, G and Nardo, E (2014) *Capacity Development Comprehensive Assessment for WASH Staff in Sudan, Final Report (draft version)*, Sept 23, 2014, RedR UK and UNICEF
[87] Fogaroli S and Khiar, R (2015) *WASH Gender Review Report*, May 2015, UNICEF Sudan

graduating per year. One of the challenges facing the universities is a large increase in numbers of students, but not the associated funding which has remained at a level adequate for less than half of the current student number. This substantially impacts on their ability to support the practical elements of courses.

Efforts are made to arrange practical field work experience as part of the courses. Groups of 10-15 students undertake field work / work experience at the same time in the same venue, due to the large size of the group and limitations in lecturers to supervise the groups. The size of the groups poses challenges for the employer, and also the students to effectively experience the workplace or the community contexts during their studies.

Staff representatives from some of the above universities are members of the NSHC and participate in sectoral strategic activities. Some are also engaged in practical research related to the field of S&H.

It is recommended that there is a need to increase coordination and engagement between the universities and operational agencies and institutions for the benefit of all parties. Refer to the strategies in Section 7.6 for more details.

IV.6.2 FMoH Centre for Professional Development

The FMoH Centre for Professional Development (CPD) provides capacity development for health cadre of different status. There a centre in Khartoum State that trains the trainers. The training is based on an EH manual in the following areas: Vector control, HCWM, SWM, Air quality, Food control, Sanitation and EH in emergencies. Infection control is included in the training for curative health. Practical training on vector control, with a particular focus on malaria and training on drinking water safety is undertaken in Sinnar State. This is supported by WHO.

IV.6.3 MoWRE, DWSU Training Centres (DWST)

The national DWST was established in 2007 with the support of JICA and over time DWSTs have also been established in a number of States. Courses are run on management, administration and technical related subjects and professionals have been travelling to Morocco on an intermittent basis for additional training. Most of the technical courses run by the DWST focus on water supply, but three courses are run on: water quality, on sanitation and on hygiene[88].

IV.6.4 Capacity building supported by sector agencies

A wide range of capacity development has been supported by sector agencies - UN agencies, development partners and INGOs. This is at the enabling environment, institutional and individual levels. A few examples of the S&H related capacity building supported include:

- WHO and UNICEF have supported the FMoH, MoWRE and MoE in developing various S&H/EH related policies, strategies and guidelines. The AfDB is just about to start an institutional capacity building project with the Water Sector, which includes an element of focus on sanitation.
- DFID has supported Port Sudan with a Master Plan and SIP for WASH.
- UNICEF has been supporting the establishment of Sanitation Teams with logistical equipment at State level.
- JICA has provided support to establish the DWST training centres as well as providing the KSCC with a fleet of new SWM vehicles and a maintenance workshop.
- The WHO, regional Centre for Environmental Health Actions (CEHA) has supported the MoH at various levels to strengthen their EH procedures at health facilities, has provided training on drinking water safety and supported a range of capacity building related to vector control.

[88] Republic of Sudan, MoWRE, DWSU (no date) *Drinking Water and Sanitation Unit Training Centre (DWST), Short-Term and Long-Term Pla*n

- RedR has been providing a range of training for humanitarian professionals in areas such as emergency WASH, logistics, management, monitoring and evaluation, and the essentials of humanitarian practice.
- JICA is supporting training on maintenance for SWM professionals from the KSCC.
- JICA is supporting the establishment of an urban water monitoring system.
- A framework for building capacity on CATS/CLTS in Sudan is being funded by UNICEF and implemented by Plan International.

IV.6.5 Building capacity of the WASH Sector (humanitarian)

A WASH Sector Capacity Improvement Agenda[89] has been developed for the period 2015-17. It has a 4-pillar, 2-tier approach: 4 pillars: Improving the enabling environment and improving the WASH culture through: Clear and compelling direction; solid structure; robust system/mechanism; tailor-made support; at: 2 tiers: strategic and programmatic levels. This agenda also has an integrated implementation plan.

A capacity development assessment for humanitarian WASH staff was also undertaken in 2014 by RedR with the support of UNICEF[90]. Particular observations of relevance to S&H include:

- In total in Sudan there were reported to be 4,000 NGOs working across sectors, 2% of which are INGOs. Although not all were active or have adequate capacity to implement. In the 12 States included in the assessment, there were a reported 75 INGOs and 147 National NGOs working in the WASH sector.
- The biggest learning needs related to sanitation stated by surveyed organisations included: hygiene promotion and behaviour change strategies (72%); management of emergency sanitation (60%); management of infrastructures in rural communities (51%); sanitation marketing (41%); SWM (34%); how to do better assessments and KAP surveys (20.9%). The need for training on the design and construction of appropriate latrines for different types of soils was also apparent.
- Models of training preferred were: demonstrations, on-the job support and secondment rather than short training courses.
- Learning needs other than WASH included: proposal and report writing (37.2%), M&E (34.8%), needs assessment (27.6%) and disaster risk reduction (18.9%). WASH Managers report their needs are: project design/proposal writing (79%), project cycle management (53%), M&E (45%) and coordination and communication (38%).
- Opportunities for INGOs and NNGOs:
    - 33% of staff from INGOs reported having training opportunities in the past 12 months
    - 14% of respondents from NNGOs had the same opportunity
- Disciplines who had had the opportunity to be trained in the past 12 months:
    - 18% of staff in management positions
    - 11% of staff with and engineering background
    - 1.3% of staff working on hygiene promotion and community mobilisation. The training that the HP and community mobilisation staff had had was CLTS and Sphere.

The national contact list for the WASH sector (humanitarian, July 2016) indicates a total of 26 INGs and 30 National NGOs as well as the Sudan Red Crescent Society and the International Committee of the Red Cross.

Challenges faced by NNGOs related to capacity building were reported to include:

1. No funds for capacity building (staff capacity building is not priority for donors and the national NGO itself) (35%)

[89] WASH Sector (2015) *Sudan WASH Improvement Agenda*, An approach to Improved Sector Performance, Aug 2015-Dec 2017
[90] Blason, A, Eissa, A, Ito-Pellegri, G. Nardo, E (2014) *Capacity Development Comprehensive Assessment for WASH Staff in Sudan*, Final Report (draft version), 23 Sept, 2014

2. Non availability of training centres (28%)
3. No capacity building plan (24.5%)
4. *"No time given we are working in emergency situations"* (17.9%)
5. Short length of projects and contracts resulting in high turnover of the staff (13.8%)
6. No follow up and no impact of the training on performance evaluation (5.3%)
7. Security relates issues (movement restrictions) (5.3%)
8. Others causes like: *"some time the organization sends staff who are not related to the field", "organizations' lack of interest", "lack of specific learning events".*

They also often struggle with logistics. One NNGO noted that it had only 1 vehicle for 35 staff working across sectors. NNGOs recommended that it would be useful if they are invited to more coordination, learning and training events.

3-year Capacity Development Plan for WASH Sector (humanitarian) - A 3 year capacity development plan has been developed for the WASH sector funded by UNICEF (Oct 2014)[91]. Examples of activities for Year 1 of relevance to S&H are: the development of this SNSHSF; the updating of technical guidelines; M&E training; establishment of spaces for experience exchange and associations of agencies; better dissemination of resources; capacity building on coordination; and training of emergency WASH trainers.

[91] UNICEF (2014) *WASH Sector Capacity Development Framework, A 3-Year Capacity Development Plan,* October 2014

Annex Section C - Action plans

Annex V - Action Plans

V.1 Introduction to the Action Plans

This 5-year action plan supports the implementation of the Sudan National Sanitation and Hygiene Strategic Framework (SNSHSF). They aim to provide an overview of the key actions for S&H in Sudan that will be championed and monitored by the National Sanitation High Committee for the scaling up of S&H across Sudan.

Only priority actions have been included. For most these have been limited to five for each component of S&H. They do not attempt to replicate the complete detailed action plans identified in component specific strategic plans.

V.2 Action plans

The initial draft estimation for the budget for the 5-year action plan is: USD 99,107,225

Action Plan 1 - Promotion of household excreta disposal – USD 3,165,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	Establish, launch and maintain national sanitation campaign	Federal, State and Locality	X	X	X	X	X	FMoH and NSHC	FMoH with support from all WASH partners	250,000
2	Develop technical guidelines for CATS/CLTS and ODF verification and monitoring guidelines	Federal	X					FMoH	FMoH with support from Plan International & UNICEF	50,000
3	Develop technical guidelines for excreta disposal technologies and processes in emergencies	Federal	X					FMoH	UNICEF, WHO & RedR	125,000
4	Scale up CATS/CLTS approach across Sudan through building capacities	States & Localities	X	X	X	X	X	FMoH	Plan International & UNICEF	625,000
5	States to map sector roles and responsibilities of sector partners for S&H and develop S&H action plan	States	X					SMoH	All WASH partners working in the State	180,000
6	Complete trials of CATS/CLTS in urban areas, document and disseminate	States & Locality	X	X				FMoH & UNICEF	North Darfur and Central Darfur SMoH, UNICEF and Implementing partners	150,000
7	Increase opportunities for peer-to-peer facilitator learning on CATS/CLTS with particular focus on quality aspects (vulnerable; gender; sustainability; upgrading) and issues such as use of community rewards	Federal, States & Locality	X	X	X	X	X	FMoH & UNICEF	All WASH partners working in the State	360,000

8	Establish opportunities for peer-to-peer learning for Natural Leaders	Locality	X	X	X	X	X	SMoH & Localities	All WASH partners working in the localities	180,000
9	Undertake research into social norms, behaviours, motivators, skills etc and opportunities / models for sanitation marketing and prepare SM strategy.	Federal		X				FMoH & UNICEF	FMoH, research institutions with UNICEF support	225,000
10	Undertake SM trials, document and disseminate	State & Locality		X	X	X	X	FMoH & UNICEF	FMoH, SMoH, research institutions, and implementing partners with UNICEF support	75,000
11	Undertake research into micro-finance options, disseminate.	Federal		X	X	X	X	FMoH & UNICEF	FMoH, research institutions, with UNICEF support	45,000
12	Scale up efforts for SM across Sudan	State & Locality			X	X	X	SMoH	All WASH partners	540,000
13	Increase enforcement for ODF practice in urban areas	Municipal -ities	X	X	X	X	X	Administ-rative Units (Municipal)		360,000

Also refer to the action plans included in:

- Republic of Sudan, FMoH, Directorate of Primary Health Care, Environmental Health & Food Control Department (2015) *National Environmental Health Strategic Plan, 2015-19*.
- No author (no date) *Framework for Building Capacity on Community Approaches to Total Sanitation (CATS/CLTS) in Sudan*

Action Plan 2 - Hygiene promotion - USD 1,221,000

	Action	**Level**	**Yr1**	**Yr2**	**Yr3**	**Yr4**	**Yr5**	**Responsible for leadership**	**Responsible for implementation**	**Estimated budget (USD)**
1	Advocacy for sustained increase in funding for logistics, materials and on-going costs for HP in Localities	Federal, State & Locality	X	X	X	X	X	FMoH	Federal, State and Locality Government and & all WASH partners	450,000

2	Discuss and agree across sectors the standard policy on the payment or incentives for community hygiene / health promoters.	Federal	X	X				FMoH	All WASH partners	10,000
3	Identify and establish mechanisms to integrate HP into core activities across sectors	Federal & State	X	X	X	X	X	FMoH	FMoH with WHO and UNICEF support	75,000
4	Undertake qualitative research into menstrual hygiene, incontinence and WASH for people with disabilities	Federal	X	X				FMoH	FMoH with research institutions, INGO, WHO and UNICEF support	250,000
5	Update focus areas for household hygiene promotion – after learning on new areas (Menstrual hygiene; incontinence; disability)	Federal			X			FMoH	NSHC With support of UNICEF & other partners	36,000
6	Establish opportunities for peer learning for hygiene promotion stakeholders	Federal & State	X	X	X	X	X	FMoH	All WASH partners	125,000
7	Review current methodologies for HP and consider if new approaches should be trialled	Federal, State & Locality	X	X				FMoH	NSHC With support of UNICEF & other partners	150,000
8	Increase efforts to monitor and evaluate hygiene promotion approaches being used in both humanitarian and development contexts. Involve global institutions to support capacity building of Sudan HE institutions in this task	Federal, State & Locality	X	X	X	X	X	FMoH	Research institutions & other WASH partners	125,000

Also refer to the action plans included in:

- Republic of Sudan, FMoH, Directorate of Public Health and Emergency, Health Promotion and Community Based Initiatives Directorate (2012) *Health Promotion Strategic Plan*, 2008-12
- Republic of Sudan, FMoH, Directorate of Primary Health Care, Environmental Health & Food Control Department (2015) *National Environmental Health Strategic Plan, 2015-19*.

Action Plan 3 - S&H for health facilities – USD 10,712,105

	Action	Level	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	To review and update the legislative framework and guidance for EH in health care facilities including accreditation, auditing and monitoring systems	Federal	X	X				FMoH	FMoH with WHO and UNICEF support	75,000
2	Develop technical guidelines for WASH in Health Care Facilities and facilitate their rollout in health care facilities.	Federal	x							150,000
3	Increase the availability of evidence based information for WASH in health care facilities (such as through reports such as the SARA report for Sudan)	Federal, State & Locality	x	X	X	X	X	FMoH & SMoH	WHO & UNICEF	50,000
4	Advocacy for increased budget allocations for EH in health facilities including capital and on-going operation and maintenance costs	Federal, State & Locality	X	X	X	X	X	FMoH & SMoH	FMoH & SMoH with WHO and UNICEF support	75,000
5	Recruitment and training of Public Health Officers to work on EH in	Federal, State & Locality	X	X	X	X	X	FMoH & SMoH	FMoH & SMoH with WHO and UNICEF	3,562,105

	health care facilities across Sudan								support	
6	Awareness raising with health staff, administrative and support staff on their role in EH in health facilities	Locality	X	X	X	X	X	FMoH & SMoH	SMoH with NGO, WHO and UNICEF support	1,800,000
7	Build / improve excreta disposal, water supply and hand-washing facilities in health facilities	Locality	X	X	X	X	X	Locality	SMoH with NGO, WHO and UNICEF support	5,000,000

Also refer to the action plans included in:

- **Action Plan 18** – Heath care and hazardous wastes management.
- Republic of Sudan, FMoH, Directorate of Primary Health Care, Environmental Health & Food Control Department (2015) *National Environmental Health Strategic Plan, 2015-19*.
- Republic of Sudan, FMoH, Directorate of Public Health and Emergency, Health Promotion and Community Based Initiatives Directorate (2012) *Health Promotion Strategic Plan*, 2008-12

Action Plan 4 - S&H for school and other educational facilities – USD 57,103,150

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	Develop a road map / plan to increase school WASH coverage and establish reliable school WASH data as part of EMIS	Federal	X					FMoE, FMoH	FMoE, FMoH, SMoE, SMoH, Localities with Education sector partners, WHO and UNICEF support	350,000
2	Undertake School WASH Mapping – to establish situation across States and Localities	Federal, State & Locality		X				FMoE, FMoH	FMoE, FMoH, SMoE, SMoH, Localities with Education sector partners, research institutions, WHO and UNICEF support	450,000
3	Advocacy for increased government commitments and increased finances for capital investment as well	Federal, State & Locality	X	X	X			FMoE, FMoH	FMoE, FMoH, SMoE, SMoH, Localities with Education sector partners, WHO and UNICEF support	75,000

	as on-going commitments for O&M for school EH/WASH									
4	Review school guidance for the management of WASH and the curriculum for its content related to WASH (including MHM) and revise/update	Federal	X	X				FMoE, FMoH	FMoE, FMoH with Education sector partners, UNCESO, WHO and UNICEF support	200,000
5	Training of school teachers responsible for school WASH	State & Locality	X	X	X	X	X	FMoE, FMoH, Localities	FMoE, FMoH, SMoE, SMoH, Localities with Education sector partners, WHO and UNICEF support	1,450,000
6	Undertake qualitative research into menstrual hygiene in schools in Sudan with recommendations	Federal		X	X			FMoE, FMoH	FMoE, FMoH and research institutions with UNICEF support	450,000
7	Establish school health committees and school health clubs and develop operation and maintenance systems including funding allocations in 5,321 school	Localities	X	X	X	X	X	SMoE & SMoH & Localities	SMoE & SMoH & Localities with the support from NGOs implementing school WASH and UNICEF	798,150
8	Construct, rehabilitate, improve school WASH facilities (latrines, hand-washing, SWM, MHM, food safety) ensuring in 5,321 schools respond to gender needs, are accessible for people with disabilities and for nomadic educational facilities	Localities	X	X	X	X	X	SMoE & SMoH & Localities	SMoE & SMoH & Localities with the support from NGOs implementing school WASH and UNICEF	53,210,000

9	Investigate the possibility of using the 3 Star approach, SLTS or other complementary approaches for WASH in Schools; and the potential for establishing a reward system for progress	Federal	X	X				FMoE, FMoH	SMoE & SMoH & Localities with the support from NGOs implementing school WASH and UNICEF	120,000

Also refer to the action plan included in:

- Republic of Sudan, Ministry of General Education and Federal Ministry of Health (2016, draft) *National School Health Strategy*, MoE, FMoH, UNICEF Sudan.
- Republic of Sudan, FMoH, Directorate of Public Health and Emergency, Health Promotion and Community Based Initiatives Directorate (2012) *Health Promotion Strategic Plan*, 2008-12

Action Plan 5 - S&H for religious institutions, workplaces, community centres and highways – USD 730,000

	Action	**Level**	**Yr1**	**Yr2**	**Yr3**	**Yr4**	**Yr5**	**Responsible for leadership**	**Responsible for implementation**	**Estimated budget (USD)**
1	Review and strengthen current legislation and regulations for occupational health and EH/S&H (including MHM) in the workplace.	Federal	X	X				FMoH & SMoH	FMoH & SMoH with the support from WHO and ILO	85,000
2	Clarify the responsibilities of religious institutions and community centres and similar other public facilities for EH/S&H	Federal	X	X				FMoH & SMoH	FMoH and NSHC	45,000
3	Provide training sessions for employers on their responsibilities for occupational and EH services (including MHM) in the workplace.	State & Locality	X	X	X	X	X	SMoH	FMoH & SMoH with the support from WHO and ILO	360,000
4	Review current provision of latrines and hygiene facilities on highways and investigate requiring private fuel station	State & Locality		X	X	X	X	SMoH & Locality		240,000

	operators to provide or manage sanitary facilities for public use									

Also refer to the action plan included in: Republic of Sudan, FMoH, Directorate of Public Health and Emergency, Health Promotion and Community Based Initiatives Directorate (2012) *Health Promotion Strategic Plan*, 2008-12

Action Plan 6 - S&H for markets, slaughter houses and food related premises – USD 1,216,000

	Action	**Level**	**Yr1**	**Yr2**	**Yr3**	**Yr4**	**Yr5**	**Responsible for leadership**	**Responsible for implementation**	**Estimated budget (USD)**
1	Assess the existing public S&H facilities at markets and investigate options for public-private partnerships for operation of facilities that are non-functional	Localities	X	X	X			Localities	Localities	300,000
2	Develop a strategy on private sector engagement through PPP models on Public WASH services and performance monitoring plan (also incorporating waste management)	Federal	x	x					Federal & SMoH & Localities	250,000
3	Develop appropriate strategic guidelines for Public WASH services and possibly adopt or produce manuals for public toilet construction, O&M, regulatory arrangements.	Federal	x	x				FMoH		150,000
4	Establish a compulsory hygiene training and certification system for all food operatives	Federal		X				FMoH	SMoH & Localities	100,000
5	Undertake advocacy for increased resource allocation for awareness raising sessions with food operatives	State & Locality	X	X	X	X	X	State & Locality	State & Locality with WHO support	66,000

6	Increase food inspections and enforcement	Locality	X	X	X	X	X	State & Locality	Localities	200,000
7	Evaluation of slaughter house status and condition across Sudan with recommendations for action	Federal	X	X				FMoH	FMoH, SMoH	150,000

Also refer to the action plans included in:

- **Action Plan 11** – Food safety
- Republic of Sudan, FMoH, Directorate of Primary Health Care, Environmental Health & Food Control Department (2015) *National Environmental Health Strategic Plan, 2015-19*.
- Republic of Sudan, FMoH, Directorate of Public Health and Emergency, Health Promotion and Community Based Initiatives Directorate (2012) *Health Promotion Strategic Plan*, 2008-12

Action Plan 7 - Faecal sludge management – USD 550,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	Undertake a detailed study in urban areas of faecal sludge management, including from on-site and sewerage systems, to make recommendations related to the value chain, finance and technical solutions	Federal		X				SMoUDI	SMoUDI & SMoH	350,000
2	Capacity building of the private sector to improve desludging services and improve methods and control related to end disposal	Federal & State		X	X	X	X	MoWRE FMoH SMoUDI	& research institution supported by development partners and the private sector (consultancy)	75,000
3	Capacity building of the private sector to improve desludging services and improve methods and control related to end disposal	Federal & State		X	X	X	X	MoWRE, FMoH and SMoUDI	SMoUDI	75,000
	To investigate funding sources for increasing sewerage networks and treatment facilities for urban areas	Federal		X	X	X	X	MoWRE and SMoDUI		125,000

Action Plan 8 - Solid waste management – USD 1,350,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	Review legislation and institutional responsibilities for SWM, strengthen and increase enforcement for breaches	Federal & State	X	X				FMoH With support of WHO	FMoH, Universities, Private sector (consultancy)	55,000
2	Detailed Solid Waste Management study for selected urban area and state capitals (infrastructure - collection, conveyance, treatment, disposal, recycling, reuse, recovery), capital investment, management, tariffs, private sector engagement)	Federal & State	x	x						300,000
3	Increase awareness raising on practices and enforcement with politicians, decision makers and the general population	Federal, State & Locality		X	X	X	X	FMoH HP Directorate Corporations Localities	Corporations Localities	180,000
4	Undertake research on the costs for effective SWM with proposal for increasing fees, use of the private sector and other solutions to increase sustainability of services	Federal, State & Locality	X	X				FMoH & KSCC With the support of UNEP, WHO and other interested partners	FMoH, Universities, Private sector (consultancy)	300,000

5	Research into the small scale private sector, community based systems and improved options for waste pickers with recommendations on options to respond to gaps in services	Federal, State & Locality	X	X				FMoH, Localities With the support of UNEP, WHO and other interested partners	FMoH, Universities, Private sector (consultancy)	250,000
6	Study on good practices and recommendations for increasing waste minimisation, recycling and re-use and increased engagement with the private sector.	Federal			X	X		KSCC, FMoH, MoENRPD With the support of UNEP, WHO and other interested partners	KSCC, FMoH, MoENRPD, Universities, Private sector (consultancy)	320,000

Also refer to the action plans included in:

- Republic of Sudan, FMoH, Directorate of Primary Health Care, Environmental Health & Food Control Department (2015) *National Environmental Health Strategic Plan, 2015-19*.
- KSCC Strategic Plan

Action Plan 9 - Health care and hazardous wastes management – USD 560,000

	Action	**Level**	**Yr1**	**Yr2**	**Yr3**	**Yr4**	**Yr5**	**Responsible for leadership**	**Responsible for implementation**	**Estimated budget (USD)**
1	Review and strengthen the legislative and institutional framework for the management of hazardous wastes	Federal		X				MoENRPD & FMoH	MoENRPD & FMoH	65,000
2	To establish a national responsible body for the management of hazardous wastes	Federal		X				MoENRPD & FMoH	MoENRPD & FMoH	150,000
3	Improve data on hazardous wastes including HCWM (in alignment with SARA report)	Federal, State & locality		X	X	X	X	FMoH & MoENRPD	SMoH & Localities	100,000

4	Undertake an assessment of traditional incinerators used in health care facilities for efficiency and emissions	Federal, State & Facility	X	X				FMoH	Universities	200,000
5	Review / strengthen simple and basic guidance on the separation, handling and disposal of health care wastes and provide capacity building on the same	Federal	X					FMoH	FMoH	45,000

Also refer to the action plans included in: Republic of Sudan, FMoH, Directorate of Primary Health Care, Environmental Health & Food Control Department (2015) *National Environmental Health Strategic Plan, 2015-19*.

Action Plan 10 - Integrated management of vectors – USD 2,660,000

	Action	**Level**	**Yr1**	**Yr2**	**Yr3**	**Yr4**	**Yr5**	**Responsible for leadership**	**Responsible for implementation**	**Estimated budget (USD)**
1	Establish mechanism for strengthening collaboration and partnerships on IVM - such as forming a TWG under NSHC	Federal & State	X					FMoH	FMoH, SMoH with the support of WHO	140,000
2	Undertake extensive entomological survey across all States of Sudan.	Federal & State		X				FMoH	SMoH with the support of FMoH and WHO	780,000
3	Develop IVM strategies for each State / Locality.	State & Locality			X	X		FMoH	SMoH & Locality with the support of FMoH and WHO	180,000
4	Strengthen IVM capacities at State and locality level - laboratories, logistics, equipment, training.	State & Locality	X	X	X	X	X	FMoH	SMoH & Locality with the support of FMoH and WHO	360,000
5	Develop and implement a strengthened vector control campaign to engage communities in vector control prevention activities.	State & Locality			X	X	X	FMoH	SMoH & Locality	1,200,000

Action Plan 11 - Food safety – USD 2,410,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	Review current legislative and institutional framework for food control	Federal, State & Locality	X					FMoH	FMoH	75,000
2	Capacity building of food control system at Locality level - training, increasing inspections and enforcement	Locality		X	X	X	X	FMoH & SMoH	FMoH & SMoH	360,000
3	Strengthen capacity of food control laboratories at Locality level and undertake advocacy to increase on-going funding	Locality		X	X	X	X	FMoH & SMoH	FMoH & SMoH	1,800,000
4	Review system and size of fines, and need fine payments to support food control system	Federal, State & Locality		X				FMoH & SMoH	FMoH & SMoH	125,000
5	Awareness raising for businesses on their responsibilities for food and beverage safety	Locality		X	X	X	X	Locality	FMoH, SMoH & Locality	720,000

Also refer to the action plans included in:

- **Action Plan 6** – S&H for markets, slaughter houses and food related premises
- Republic of Sudan, FMoH, Directorate of Primary Health Care, Environmental Health & Food Control Department (2015) *National Environmental Health Strategic Plan, 2015-19*.

Action Plan 12 - Drinking water safety – USD 1,870,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	Capacity building of water surveillance staff at State and Locality	State & Locality	X	X				FMoH	DWST with support of WHO	360,000

	levels									
2	Develop water safety plans at State and Locality levels	State & Locality		X	X			FMoH	SMoH	180,000
3	Strengthen water quality and groundwater level surveillance systems at State and Locality levels, feeding into national database	Federal, State & Locality		X	X	X	X	SMoH	Locality	390,000
4	Capacity building of community level actors	Locality			X	X	X	SMoH	SMoH & Locality	940,000

Action Plan 13 - Surface water drainage – USD 500,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	Mapping of flood risks and existing drainage networks as part of city planning processes.	State & Locality		X	X	X	X	MoWRE	SMoUDI	3,600,000

Action Plan 14 - Strengthening the humanitarian - development transition – USD 805,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	Clarification on time-frames or conditions for transitioning of approaches, with cross-sectoral coordination bodies	Federal & State	X					WASH Sector (humanitarian) coordinators - MoWRE / MoH / UNICEF	WASH sector actors (humanitarian)	75,000
2	Agree standard payment rates for hygiene promoters, solid waste collectors and for other roles	Federal, State & Locality	X					FMoH and NSHC	All partners implementing WASH (humanitarian)	55,000

3	Awareness raising with humanitarian actors on strategies for humanitarian and transitional contexts	Federal, State & Locality	X	X	X	X	X	FMoH & WASH Sector (humanitarian) coordinators	WASH Sector (humanitarian) coordinators	125,000
4	Monitoring of strategies for humanitarian and transitional contexts	Federal, State & Locality	X	X	X	X	X	FMoH & WASH Sector (humanitarian) coordinators	SMoH, Localities, WASH sector actors (humanitarian)	175,000
5	Develop increased opportunities for sharing of good humanitarian practices and peer-to-peer learning	Federal, State & Locality	X	X	X	X	X	FMoH & WASH Sector (humanitarian) coordinators	WASH Sector (humanitarian) coordinators WASH sector actors	375,000

Also refer to the action plans in: UNICEF (2014) *WASH Sector Capacity Development Framework, A 3-Year Capacity Development Plan,* October 2014, for a more detailed plan for capacity building for the humanitarian WASH sector.

Action Plan 15 - Gender, equity and vulnerability – USD 625,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	Build capacities of S&H stakeholders to be able to practically consider gender, equity, and vulnerability in their work	Federal, State & Locality	X	X				FMoH	FMoH with the support from UNICEF, WHO, AfDB and INGO's	200,000
2	Investigate how to better involve Women's and Youth organisations in WASH programming and interventions	Federal, State & Locality	X					FMoH, Sudan Women's Union and MoWSS	All WASH implementing partners	125,000
3	Develop practical guidance and disseminate on how to improve accessibility of S&H facilities for PWD and others with mobility limitations	Federal	X	X				FMoH	FMoH with the support from UNICEF, WHO, AfDB and INGO's	175,000
4	Investigate how to better engage with the Ministry of	Federal & State	X					FMOH and NSHC	FMoH with the support from UNICEF	125,000

	Welfare and Social Services to build the capacity of S&H actors in issues related to gender, equity and vulnerability									

Also refer to the recommended actions in: Fogaroli S and Khiar, R (2015) *WASH Gender Review Report*, May 2015, UNICEF Sudan

Action Plan 16 - Sustainability, environment and climate change – USD 700,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	Research into sustainability of S&H services and behaviours and impacts, including gender and equity related analysis, and responses to climate change.	Federal	X	X				FMOH and MoE	FMoH and MoE with the support from UNICEF, WHO and UNEP	350,000
2	Strengthen emergency preparedness systems and capacity across all areas of S&H.	Federal,	X	X	X	X	X	MoWRE, FMoH and WASH Sector (humanitarian) coordinators	SMoUPI, SMoH & co-leads for coordination	200,000
3	Increase capacity for environmental assessment and monitoring in relation to urban S&H services.	Federal, State			X	X	X	MoENRPD	Environmental related Councils or Ministries	150,,000

Also refer to the action plans included in: Republic of Sudan, FMoH, Directorate of Primary Health Care, Environmental Health & Food Control Department (2015) *National Environmental Health Strategic Plan, 2015-19*.

Action Plan 17 - Private sector engagement – USD 2,705,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	Undertake study of private sector opportunities for S&H in Sudan identifying constraints and actions	Federal		X	X			FMoH	FMoH with support from UNICEF and INGO's	225,000

2	Investigate finance and micro-finance opportunities and undertake trials	Federal, State and Locality		X	X			FMoH	FMoH with support from UNICEF and INGO's	300,000
3	Provide capacity building to SMEs in priority areas	Localities		X	X	X	X	SMoH	SMoH and WASH partner's working in the State	1,880,000
4	Raise awareness of opportunities for the private sector to engage in S&H	Federal, State and Locality			X	X	X	FMoH	FMoH with support from UNICEF and INGO's	150,000
5	Provide opportunities for the private sector to have peer-to-peer learning whether at local, national or international levels	Federal, State and Locality			X	X	X	FMoH with Ministry of Trade and Trade Associations	FMoH with support from all WASH partners	150,000

Action Plan 18 - Legal and policy framework for S&H in Sudan – USD 260,000

	Action	**Level**	**Yr1**	**Yr2**	**Yr3**	**Yr4**	**Yr5**	**Responsible for leadership**	**Responsible for implementation**	**Estimated budget (USD)**
1	Review, finalise and endorse the legal and policy framework for S&H in Sudan ensuring that all elements of S&H are covered in alignment with the components in the SNSHSF	Federal & State	X	X				FMoH, Ministry of Justices and Parliament	FMoH with the support of UNICEF, WHO , AfDB and other WASH partners and donors	150,000
2	Continue discussions on transitional phases, assessment processes and approaches to be used by phase	Federal	X	X				WASH Sector (humanitarian)	WASH Sector (humanitarian)	60,000
3	Printing and dissemination of the revised legal and policy documents	Federal		x				FMoH	FMoH with the support of UNICEF, WHO, and AfDB	50,000

Action Plan 19 - Institutional responsibilities for S&H in Sudan – USD 655,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	To review the legal status of the responsibilities of key institutions and stakeholders related to S&H in Sudan.	Federal & State	X	X				FMoH, Ministry of Cabinet, Ministry of Justice and Parliament	All Ministries linked to S&H and NSHC	125,000
2	Disseminate the responsibilities as indicated in the SNSHSF as an interim to updating the legislation.	Federal, State and Locality	X	X	X			Ministry of Cabinet, Ministry of Justice and Parliament	All Ministries linked to S&H and NSHC	175,000
3	To improve opportunities for engagement of CSOs in government led coordination and policy strategic processes	Federal, State and Locality	X	X	X	X	X	NSHC, FMoH, MoSW, MoIC	All Ministries linked to S&H and NSHC	225,000
4	MoWRE and FMoH to convene an annual WASH Sector Forum to enhance overall sector performance and engaging all sector actors.							MoWRE and FMoH	MoWRE, FMoH, MOFNE and MoIC with support from UNICEF, WHO and AfDB	130,000

Action Plan 20 - Finance for S&H – USD 560,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	To start involving the MoFNE in all National and State key events related to S&H to build their understanding of S&H and its value	Federal & State	X	X	X	X	X	FMoH	MoFNE	60,,000
2	To engage with the President's Office / Governor's Office and Commissioner's Office to increase and sustain government finances allocated for S&H	Federal, State and Locality	X	X	X	X	X	FMoH & MoFNE	President's Office Governor's Office Commissioner's Office	75,000

3	To prepare a Business Case and Sector Investment Plan for S&H in Sudan	Federal		X	X			FMoH & MoFNE	FMoH with UNICEF and WHO	300,000
4	To investigate new sources of funding and new mechanisms of financing including across sectors, with the private sector, microfinance and cross-subsidies	Federal, State & Locality		X	X			FMoH & MoFNE	FMoH & MoFNE, MoSW, all partners implementing WASH and donors	125,000

Action Plan 21 - Management Information and M&E Systems for S&H – USD 1,565,000

	Action	**Level**	**Yr1**	**Yr2**	**Yr3**	**Yr4**	**Yr5**	**Responsible for leadership**	**Responsible for implementation**	**Estimated budget (USD)**
1	Undertake a comprehensive study and analysis to consider all existing MIS/M&E systems of relevance to S&H and make recommendations for a more streamlined system	Federal	X					FMoH	FMoH with the support from UNICEF, WHO and AfDB	450,000
2	Establish and test an improved, streamlined national and gender-sensitive system for M&E for sanitation & hygiene	Federal, State & Locality		X	X	X	X	FMoH	FMoH with the support from UNICEF, WHO and AfDB	475,000
3	Capacity building in M&E skills	Federal	X		X		X	MoWRE	FMoH with the support from UNICEF and AfDB	225,000
4	MoE to strengthen the sanitation, hygiene and water components of its MIS		X					MoE	MoE with the support from UNICEF	215,000
5	Establish regular opportunities for experience sharing between stakeholders working on S&H	Federal & State	X	X	X	X	X	FMoH	All partners implementing WASH	200,000

Action Plan 22 - Capacity development for S&H – USD 7,185,000

	Action	Level	Yr1	Yr2	Yr3	Yr4	Yr5	Responsible for leadership	Responsible for implementation	Estimated budget (USD)
1	Develop a strategy to increase engagement between higher education institutions and operational agencies and institutions on S&H/EH	Federal and State	X					FMoH , and NSHC	FMoH with the support from UNICEF, WHO and AfDB	225,000
2	Implement the Sector Improvement Framework for the humanitarian WASH Sector	Federal, State & Locality	X	X				MoWRE, FMoH and WASH sector coordinator	All partners implementing WASH	200,000
3	Implement the UNICEF supported 3-year Capacity Development Plan for the humanitarian sector	Federal, State & Locality	X	X	X			MoWRE ,FMoH and WASH sector coordinator	MoWRE and FMoH with the support from UNICEF, JICA and AfDB	3,000,000
4	Build institutional capacity of Sanitation Teams at State and Locality levels	State & Locality	X	X	X			FMOH	All partners implementing WASH	3,760,000

Also refer to the action plans in:

- Other component specific action plans for component specific capacity building.
- WASH Sector (2015) *Sudan WASH Improvement Agenda*, 2015-17
- The UNICEF (2014) *WASH Sector Capacity Development Framework, A 3-Year Capacity Development Plan,* October 2014, for a more detailed plan for capacity building for the humanitarian WASH sector.

Total – USD 99,107,255

Annex Section D - Supporting information

Annex VI - JMP emerging post MDGs definitions - Green Paper, Oct 2015

The following has been taken from the WHO & UNICEF (2015, draft) *JMP Green Paper: Global monitoring of water, sanitation and hygiene post-2015*, Joint Monitoring Programme, WHO & UNICEF

Annex Table 11 - Emerging JMP definitions - sanitation

Normative definition	Indicator
Basic sanitation: Improved sanitation facilities are those that effectively separate excreta from human contact, and ensure that excreta do not re-enter the immediate household environment. Improved sanitation facilities include: • A pit latrine with a superstructure, and a platform or squatting slab constructed of durable material. A variety of latrine types can fall under this category, including composting latrines, pour-flush latrines, and ventilation improved pit latrines (VIPs). • A flush toilet connected to a septic tank or a sewer (small bore or conventional). A basic sanitation service is considered as access to an improved sanitation facility which is not shared by two or more households.	• Percentage of population using an improved sanitation facility, not shared among 2 or more households. • Percentage of households in which the improved sanitation facility is used by all members of household (including men and women, boys and girls, elderly, people with disabilities) whenever needed.
Open defecation: Defecation in which excreta of adults or children are deposited (directly or after being covered by a layer of earth) in the bush, a field, a beach, or other open area; are discharged into a drainage channel, river, sea, or other water body; or are wrapped in temporary material and discarded.	• Percentage of population that practices open defecation. • Percentage of children under 5 whose stools are hygienically disposed of.

Annex Table 12 - Emerging JMP ladder - sanitation (excreta disposal) at home

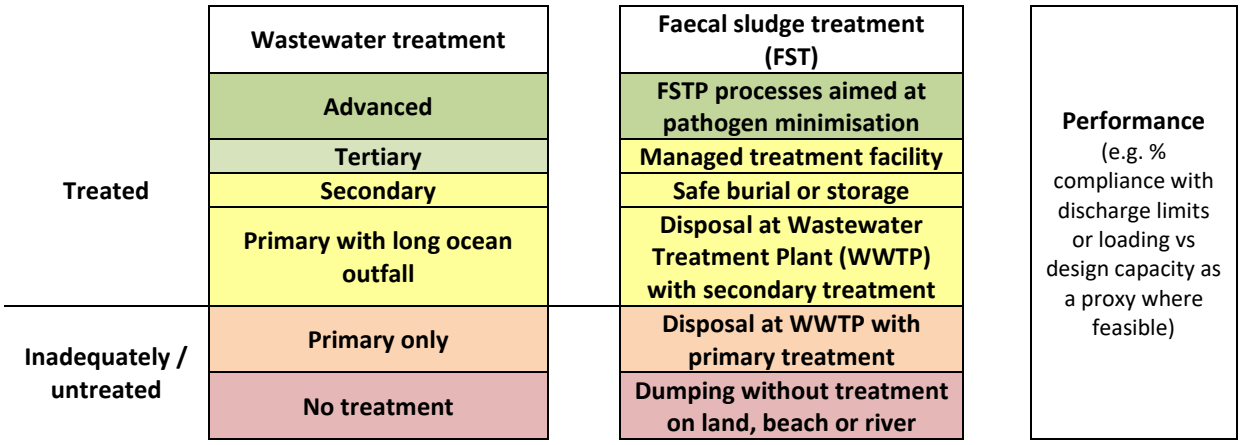
Service Level	Indicator
Sustainable	Percentage of population using a safely-managed sanitation facility that reliably provides expected levels of service, and is subject to robust regulation and a verified risk management plan
Safely-managed	Percentage of population using a basic sanitation facility where excreta are safely disposed in-situ or safely transported and treated off-site
Basic	Percentage of population using an improved sanitation facility (see list1) not shared with other households
Shared	Percentage of population using an improved sanitation facility shared with other households
Unimproved	Percentage of population using a sanitation facility that does not hygienically separate human excreta from human contact or is shared with other households
No service (Open defecation)	Percentage of the population practicing open defecation (defecating in bushes, fields, open water

List 1 - Basic sanitation facilities are not shared and of the following types: flush or pour flush toilets to sewer systems, septic tanks or pit latrines, ventilated improved pit latrines, pit latrines with a slab, and composting toilets.

Wastewater

A new global monitoring programme called GEMI is being developed under the UN-Water umbrella to provide integrated monitoring of water and sanitation related SDG targets: GEMI focuses developing monitoring mechanisms for SDG targets 6.3 through 6.6 that were not monitored at the global level under the MDGs.

Annex Fig 14. Wastewater treatment ladders proposed by GEMI



Annex Table 13 - Emerging JMP definition - hygiene facilities

Normative definition	Indicator
Basic handwashing facilities: are those where handwashing facilities, with soap and water, are available in or near sanitation facilities and where food is prepared or consumed.	Percentage of households with soap and water at a handwashing facility commonly used by family members.

Annex Table 14 - Emerging ladder - reporting to JMP for hygiene facilities

Level	Indicator
Basic	Hand washing facility with soap and water in the household
Unimproved	Hand washing facility without soap or water
No facility	No hand washing facility

Annex Table 15 - Emerging JMP definitions - drinking water

Normative definition	Indicator
Basic drinking water: An improved drinking water facility is defined as a source or delivery point that by nature of its construction, or through active intervention, is protected from outside contamination, in particular from contamination with faecal matter. The following are considered as improved drinking water facilities: piped drinking water supply on premises; public taps/stand posts; tube well/ borehole; protected dug well; protected spring; rainwater. Packaged water is considered improved if households use an improved water facility for other domestic purposes. Households are considered to have a basic drinking water service when they use an improved facility with a total collection time of 30 minutes or less for a roundtrip, including queuing.	• Percentage of population using an improved drinking water facility with a total collection time of 30 minutes or less for a roundtrip including queuing.

Annex Table 16 - Emerging JMP ladder - reporting to JMP for drinking water service

Service Level	Indicator
Sustainable	Percentage of population using a safely-managed drinking water source that reliably provides expected levels of service, and is subject to robust regulation and a verified risk management plan
Safely-managed	Percentage of population using an improved drinking water source which is on premises, available when needed, and free of faecal and priority chemical contamination.
Basic	Percentage of population using an improved drinking water source (see list1) with a total collection time of no more than 30 minutes for a roundtrip including queuing.
Unimproved	Percentage of population using a drinking water source that does not adequately protects the source from outside contamination, particularly faecal matter or is not easily accessed (> 30 minutes collection time).
No service (Surface water)	Percentage of population using surface water (river, dam, lake, pond, stream, canal, irrigation channel).

List 1 - Basic drinking water sources are those with a total collection time of no more than 30 minutes and of the following types: piped water into dwelling, yard or plot, public taps or standpipes, boreholes or tubewells, protected dug wells, protected springs and rainwater. Packaged water is considered basic if households using a basic water source for other domestic purposes.

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Annex Table 17 - Emerging JMP definitions - institutional WASH

Normative definition	Indicator
Basic drinking water service in schools: Water from an improved source on or near premises capable of delivering sufficient water at all times for drinking, personal hygiene and, where appropriate, food preparation, cleaning and laundry. Five litres per capita per day (lpcpd) are available for non-residential schoolchildren and staff in non-residential and day schools; and 20 lpcpd are available for all residential schoolchildren and staff in boarding schools. Additional quantities of water may be required depending on sanitation facilities (e.g. pour flush or flush toilets). Drinking water points are accessible to all users, including those with disabilities, throughout the school day.	• Percentage of primary and secondary schools with an improved drinking water source on or near premises and water points accessible to all users during school hours.
Basic drinking water service in health facilities: Water from an improved source on premises capable of delivering the minimum quantity of water that is required for different situations in the health care setting as defined by WHO. Drinking water points are accessible to all users, including those with disabilities, throughout the day.	• Percentage of health facilities with an improved drinking water source on premises and water points accessible to all users at all times.
Basic sanitation services in schools and health facilities: are those that effectively separate excreta from human contact, and ensure that excreta do not re-enter the immediate environment. This means improved sanitation facilities which: • are located in close proximity to the school or health facility; • are accessible to all users, including adults and children, the elderly, and those with physical disabilities; • provide separate facilities for males and females (boys and girls at school), and for adults and children; • at schools, provide at least one toilet per 25 girls and at least one toilet for female school staff, as well as a minimum of one toilet plus one urinal (or 50 cm of urinal wall) per 50 boys, and at least one toilet for male school	• Percentage of primary and secondary schools with improved sanitation facilities, separately available for males and females on or near premises (at least one toilet for every 25 girls, at least one toilet for female school staff, a minimum of one toilet and one urinal for every 50 boys and at least one toilet for male school staff). • Percentage of health facilities with improved sanitation facilities, separately available for males and females on or near premises (at least one toilet for every 20 users at inpatient centres, at least four

staff; • at in-patient health centres, include at least one toilet per 20 users; • at out-patient health centres, include at least four toilets - one each for staff, female patients, male patients, and child patients.	toilets – one each for staff, female, male and child patients – at outpatient centres).
Basic handwashing facilities in schools and health facilities: Handwashing facilities, with soap and water, available in or near sanitation facilities, where food is prepared or consumed, and in patient care areas.	• Percentage of primary and secondary schools with a handwashing facility with soap and water in or near sanitation facilities. • Percentage of primary and secondary schools with a handwashing facility with soap and water near food preparation areas.
Basic menstrual hygiene management facilities in schools and health facilities: Separate sanitation facilities for females that provide privacy; soap, water and space for washing hands, private parts and clothes; and places for changing and disposing of materials used for managing menstruation	• Percentage of primary and secondary schools with basic separated sanitation facilities for females that provide privacy; soap, water and space for washing hands, private parts and clothes; and places for changing and disposing of materials used for managing

Annex Table 18 - Emerging ladders - for JMP global reporting of progress on water, S&H in schools and health facilities

Drinking water	Sanitation	Hand-washing	Menstrual hygiene
Basic	Basic	Basic	Basic
Unimproved	Unimproved	Unimproved	Unimproved
No service	No service	No facility	No facility

Annex VII - Global & Sudan sanitation and hygiene movements, goals and declarations

VII.1 Global sanitation and hygiene movements and goals

AfricaSan, eThekwini and Ngor Declarations - AfricaSan is an initiative of the African Ministers Council on Water (AMCOW) established in recognition of the lack of attention that has been given to S&H. Conferences have been held in 2002 (AfricaSan 1 - Johannesburg, South Africa), 2008 (AfricaSan 2 - Durban, South Africa), 2011 (AfricaSan 3 - Kigali, Rwanda) and 2015 (AfricaSan 4, Dakar, Senegal) and has progressed over the years from being a Conference to becoming a pan-African movement with a blend of political support, technical advice and knowledge exchange. It has lobbied to influence S&H targets, to make a better case for S&H and to improve sectoral performance, and is attended by Ministers responsible for sanitation and key agencies working in sanitation and water in Africa. In 2008, during the International Year of Sanitation, the conference produced a Ministerial statement called the **eThekwini Declaration**. Key commitments included to ensure that one, principal, accountable institution takes clear leadership of the national sanitation portfolio, and to establish one coordinating body with specific responsibility for S&H; as well as to establish specific public sector budget allocations for S&H, with aspiration that this should be a minimum of 0.5% of GDP. The **Ngor Declaration** was signed in 2015 and included core commitments to focus on: the poorest; the most marginalised and unserved, reducing inequalities; ensuring strong leadership and coordination at all levels to build and sustain governance for S&H across sectors, especially the water, health, nutrition, education, gender and environments; and to ensure inclusive, safely managed sanitation services and functioning hand-washing facilities in public institutions and spaces. For the full eThekwini and Ngor Declarations refer to **Annex II.2** and **3**.

Sanitation and Water for All (SWA) - The Sanitation and Water for All (SWA) is a world-wide, multi-stakeholder movement that brings together national governments, civil society organisations, the private sector, research and learning institutions and external support agencies, to work towards a vision of sanitation, hygiene and water for all, always and everywhere. Partners take action to catalyse political leadership, improve accountability and use scarce resources more effectively. High level meetings bringing together Ministers and other senior government officials have occurred in 2009, 2012, 2014 and 2016. The next meeting will be held in Washington DC, USA in 2017. In the 2016 SWA meeting in Addis Ababa, Ethiopia, partners agreed on the importance of establishing strong 'building blocks' consisting of: sector policy and strategy; institutional arrangements; sector financing; planning, monitoring and review; and capacity development.

Sustainable Development Goals (SDGs) - The SDGs established in 2015, aim to ensure water and sanitation for all, 100 percent of the world's population, by 2030. The SDGs encompass a human rights approach and have a strong focus on gender equality. They also acknowledge the importance of increased integration across sectoral areas and promote an approach that balances sustainable development and economic, social and environmental considerations. A major focus is on combating inequalities, ensuring that no-one is left behind, aiming to reach the furthest behind first and paying particular attention to the voices of the most vulnerable. For Goal 6 which is focussed on water resources and drinking water supply and sanitation, this goal now specifically mentions hygiene as well as water and sanitation, unlike the previous Millennium Development Goals (MDGs). There is a specific focus on women and girls and those in vulnerable situations as well as on water resources, wastewater and water quality protection. It also has an increased focus on capacity building and the participation of local communities.

Main SDG for S&H:

Goal 6: 'Ensure the availability and sustainable management of sanitation and water for all'.

- 6.2 - By 2030, achieve access to adequate and equitable S&H for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.
- 6.3 - By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally.
- 6.a - By 2030, expand international cooperation and capacity building support to developing countries in water and sanitation-related activities and programmes, including... wastewater treatment, recycling and reuse technologies.
- 6.b - Support and strengthen the participation of local communities in improving water and sanitation management.

Improving S&H also contributes to the following other goals: 1 (end poverty); 2 (food security and nutrition); 3 (healthy lives and well-being); 4 (inclusive and quality education); 5 (gender equality and empowerment of women and girls); 8 (economic growth and employment); 9 (resilient infrastructure and sustainable industrialisation); 10 (reduce inequality between countries); and 11 (safe and sustainable cities).

VII.2 eThekwini Declaration 2008

We, the Ministers and Heads of Delegations responsible for sanitation and hygiene from 32 African countries, together with senior civil servants, local government officials, professionals from sector institutions, academia, civil society, development partners, and the private sector under the auspices of the African Ministers' Council on Water and Sanitation (AMCOW), and the other co-hosts of AfricaSan at the Second African Conference on Hygiene and Sanitation in Durban, South Africa, February 18–20, 2008:

- *Recognizing* that approximately 589 million people, more than 60% of Africa's population currently do not have access to safe sanitation;
- *Mindful* that an estimated 1 million Africans die every year from sanitation, hygiene and drinking water-related diseases, and that improving sanitation reduces disease burden and improves household and national economic development;
- *Welcoming* the International Year of Sanitation, 2008 which seeks to boost the importance of sanitation and draw attention to the fact that sanitation is critical to economic development and poverty reduction;
- *Noting* that the associated human, social, health, environmental and infrastructural costs of inadequate sanitation are a major economic burden on African economies; that an investment in sanitation positively impacts related development targets;
- *Recognizing* that sustainable access to sanitation is one of the Millennium Development Goal targets, and that many Governments have set their own goals for both sanitation and hygiene;
- *Recognizing* that AMCOW has committed itself to lead Africa towards achievement of the water and sanitation MDGs;

Do hereby pledge ourselves to the following "eThekwini commitments on sanitation":

1. To **bring the messages, outcomes and commitments made at AfricaSan 2008 to the attention of the African Union** at its 2008 Heads of State and Government Summit to raise the profile of sanitation and hygiene on the continent;
2. To **support the leadership of AMCOW** to track the implementation of the eThekwini Declaration and prepare a detailed report on progress in mid 2010, when AMCOW will provisionally host a follow up AfricaSan event;
3. To establish, review, update and adopt national sanitation and hygiene policies within 12 months of AfricaSan 2008; establish one national plan for accelerating progress to meet national sanitation goals and the MDGs by 2015, and take the necessary steps to ensure national sanitation programs are on track to meet these goals;
4. To **increase the profile of sanitation and hygiene** in Poverty Reduction Strategy Papers and other relevant strategy related processes;
5. To **ensure that one, principal, accountable institution takes clear leadership** of the national sanitation portfolio; **establish one coordinating body** with specific responsibility for sanitation and hygiene, involving all stakeholders, including but not limited to those responsible for finance, health, water, education, gender, and local government;
6. To **establish specific public sector budget allocations** for sanitation and hygiene programs. Our aspiration is that these allocations should be a minimum of 0.5% of GDP for sanitation and hygiene;
7. To **use effective and sustainable approaches**, such as household and community led initiatives, marketing for behavior change, educational programs, and caring for the environment, which make a specific impact upon the poor, women, children, youth and the unserved;
8. To **develop and implement sanitation information, monitoring systems and tools** to track progress at local and national levels and to work with global and regional bodies to produce a regular regional report on Africa's sanitation status, the first of which to be published by mid-2010;
9. To **recognize the gender and youth aspects** of sanitation and hygiene, and involve women in all decision making levels so that policy, strategy and practice reflect gender sensitive approaches to sanitation and hygiene;
10. To **build and strengthen capacity** for sanitation and hygiene implementation, including research and development, and support knowledge exchange and partnership development;
11. To **give special attention** to countries or areas which are emerging from conflict or natural disasters.

We further call on:

1. *Development banks, external support agencies and the private sector* to increase their support to our efforts provide financial and technical assistance for sanitation and hygiene promotion and improve aid co-ordination in Africa.
2. The *African Union* to support AfricaSan 2008 and its follow up process, to recognize this Declaration and to provide leadership as well as practical support in operationalizing these commitments;
3. *Regional and national actors* to make use of the opportunities provided by the UN International Year of Sanitation 2008 to scale up efforts in sanitation and hygiene.

VII.3 Ngor Declaration, 2015

Developed by African Ministers responsible for Sanitation and Hygiene at AfricanSan 4, Senegal in May, 2015

Vision: To achieve universal access to adequate and sustainable sanitation and hygiene services and eliminate open defecation by 2030.

To realise the vision, governments commit to:

1. Focus on the poorest, most marginalised and unserved aimed at progressively eliminating inequalities in access and use and implement national and local strategies with an emphasis on equity and sustainability.
2. Mobilise support and resources at the highest political level for sanitation and hygiene to disproportionately prioritise sanitation and hygiene in national development plans.
3. Establish and track sanitation and hygiene budget lines that consistently increase annually to reach a minimum of 0.5% GDP by 2020.
4. Ensure strong leadership and coordination at all levels to build and sustain governance for sanitation and hygiene across sectors especially water, health, nutrition, education, gender and the environment.
5. Develop and fund strategies to bridge the sanitation and hygiene human resource capacity gap at all levels.
6. Ensure inclusive, safely-managed sanitation services and functional hand-washing facilities in public institutions and spaces.
7. Progressively eliminate untreated waste, encouraging its productive use.
8. Enable and engage the private sector in developing innovative sanitation and hygiene products and services especially for the marginalised and unserved.
9. Establish government-led monitoring, reporting, evaluation, learning and review systems.
10. Enable continued active engagement with AMCOW's AfricaSan process.

We further call on:

1. **All people living in Africa**, especially the youth, to utilise and maintain sanitation and hygiene services with propriety and dignity.
2. **African Ministers' Council on Water (AMCOW)** to prioritise and facilitate adequate resourcing for sanitation and hygiene by mobilising dedicated, substantive new sources of financing.
3. **AMCOW** to facilitate the establishment and management of systems and processes for performance monitoring and accountability against the Ngor Declaration.
4. **Training institutions** in Africa to strengthen local capacity to deliver appropriate services in line with demand.
5. **Research institutions in Africa** to strengthen the evidence base and develop innovative locally appropriate solutions.
6. **Civil society** in Africa to forge a cohesive, coherent and transparent vision and strategy to work with all stakeholders to achieve the Ngor declaration.
7. **Traditional institutions, religious leaders and faith based organisations** to strongly support equitable sanitation and hygiene activities in their communities.
8. **The private sector** to increase its engagement in the entire sanitation and hygiene value chain to improve innovation and efficiency.

9. **Development banks, donors and partners** to increase their support to government led efforts for universal access to sanitation and hygiene and to match this financial support with responsible and accountable.

VII.4 Sanitation and Water for All Commitments

Annex Tables 19 and **20** provide an overview of Sudan's progress against its 2014 SWA commitments.

Annex Table 19 - Scoring for progress against the 2014 SWA Commitments

Score	Colour	Explanation
1	Red	No progress / barriers
2	Yellow	Progress, but slow
3	Purple	Good progress
4	Green	Almost complete
5	Blue	Complete

Annex Table 20 - Sudan Sanitation and Water for All High Level Commitments, 2014[92]

HLM Commitment 2014	Status of progress, April 2015	Indicators of progress
Financing - Progressively increase budgetary allocation for sanitation from 0.01% of GDP in 2014 up to 0.05% of GDP in 2018 with the 2014 allocation made from the reserve funds.	Progress, but slow	Annual budget allocation to sanitation as a proportion of the GDP
Visibility - Scale up elimination of open defecation ensuring that up to 2 million people live in open defecation free (ODF) communities by April 2016.	Progress, but slow	Number of people living in open defecation free (ODF) communities
Monitoring Systems- Complete a sector bottleneck analysis initiated in 2013, ensuring the design by December 2015 of a framework for monitoring equitable and sustainable delivery of WASH services.	Progress, but slow	Framework for monitoring equitable and sustainable delivery of WASH services
Coordination and Alignment - MoH as the principal accountable institution, to take clear leadership, and in collaboration with sector stakeholders, establish at national level and in at least 14 states by December 2015, a high level coordinating body with specific responsibility for S&H.	Almost complete	High level coordinating bodies for sanitation at national and state levels
Coordination and Alignment - MoWRE, as the principal sector accountable institution, in collaboration with sector stakeholders, to establish a high level coordinating body for the WASH Sector and institute an annual WASH Sector forum by December 2014.	Progress, but slow	Sector high level coordination body with annual forums key agenda

[92] Habila, O (2015) *Strategic Issues for Scaling up, S&H in Sudan*, Presentation at the GoS-UNICEF Programme Annual Review and Planning Meeting, National Health Insurance Fund, Khartoum, 13-14 Dec 2015

VII.5 Khartoum Declaration

Annex Tables 21 and 22 - provide an overview of the key commitments made in the Khartoum Declaration, 2009, and scoring against progress by 2015.

Annex Table 21 - Scoring for progress against the Khartoum declaration

Score	Colour	Explanation
1	Red	Limited or no progress
2	Yellow	Some progress
3	Green	Good progress

Annex Table 22 - Progress against the Khartoum declaration, 2009 (assessed 2015)[93]

Commitment	Score	Indicator of progress
1. To bring the messages, outcomes and commitments made at the National Sanitation Workshop to the attention of our colleagues, partners and wider community to raise the profile of S&H in Sudan	1	Awareness of the Declaration evident at national, state and locality institutions
2. To ensure that an accountable institution takes clear leadership of the national sanitation portfolio; establish one coordinating body with responsibility for S&H involving all stakeholders	2	There is a recognised lead institution and operational coordinating body for sanitation
3. Manifest commitment to S&H through consensus on key problems and solutions based on country and regional learning and establishment of one-costed and actionable national plan on sanitation by July 2010	1	National and state level plans are available
4. To increase sanitation coverage we recognise the importance of evidence based community led approaches for the achievement of open defecation free rural and semi-urban communities. As a matter of urgency at least 10 ODF communities/villages shall be evolved in each state over the next 12 months and used as a demonstration for scaling up	1	Number of ODF communities in each state at the end of 2010
5. To initiate a process of joint and participatory learning on appropriate, safe and sustainable technology, monitoring and extension in full partnership with the Natural Leaders emerging from the ODF communities/villages	1	Appropriate S&H technology and monitoring systems in use
6. To ensure school based WASH interventions are prioritized and an integral component of FMoH, SMoH, WASH and Education policies, states plans and budgets	1	WASH in Schools in policies, plans and budgets of relevant national and state level institutions

[93] Habila, O (2015) *Strategic Issues for Scaling up, S&H in Sudan*, Presentation at the GoS-UNICEF Programme Annual Review and Planning Meeting, National Health Insurance Fund, Khartoum, 13-14 Dec 2015

Annex VIII - MICS data, 2014

The following table provides an overview of key MICS data of relevance to WASH in Sudan and referred to within this strategic framework.

Annex Table 23 - Key data of relevance to WASH from Multi-Cluster Survey, 2014[94]

	Unit	Value	Notes on disparities
Child mortality and health			
Infant mortality rate (IMR)	Per 1,000 live births	52	Higher probability of dying (IMR): • In rural areas (72.8) vs urban areas (56.5) • For child in poorest quintile (84) versus richest (39) • East Darfur (111.7) versus Northern (29.9)
Under-five mortality rate (U5MR)	Per 1,000 live births	68	
Low birth weight	%		Variations: • Highest low birth weight North Darfur (47.5%) and East Darfur (41.4%) compared with River Nile (17.2%) and Khartoum (22.2%)
Nutrition			
U-5 underweight	%	33	Variations: • Malnutrition is higher in rural rather than urban areas
U-5 stunted (too short)	%	38.2	
U-5 wasted (too thin)	%	16.3	
Place and assistance at delivery / birth			
Assistance at delivery in 2 years prior to survey	%	80	Variations: • Assistance of midwife (55%); doctors (19.2%); TBAs (18%) • Urban (92.9%), rural (71.9%) • Central Darfur (37.5%) to Northern (99%)
Delivery at a health facility	%	27.7	Variations: • Public facilities (26.1%), private (1.6%) • Delivery at home (71.3%) • Urban (45.2%), rural (12.5%)
Literacy and education			
Adult literacy of young women	%	59.8	Variations: • Women urban (79.8%), rural (50%) • Literate women (age 15-24) - urban (92.2%), rural (31.2%)
Attendance at first year of primary school by children at entry age	%	36.8	Variations: • By State, examples: Northern (73.6%), Western Kordofan (13.4%) • Urban (56.6%), rural (29.5%) • Richest (77.6%), poorest households (14.5%)
Attendance of children at school	%		• Children of primary school age (76.4%) • Children of secondary school age (28.4%)
Gender parity index in primary and secondary school			• Primary school (0.98) - almost equal girls and boys • Secondary school (1.07) - more boys than girls
Child protection			
Young women married at 15-19 years	%	21.2	Variations: • Urban (11.2%), rural (26.0%) • Khartoum (12%), Blue Nile (29.9%) • Women with primary education (27.5%), with higher education (2.4%)
FGM/Cutting - women aged 15-49 years	%	87	Variations: • Without formal education (76.8%), women with higher

[94] Sudan MICS, 2014

			education (91.8%) • More common in rural areas • More prevalent for women in wealthy households • Women aged 45-49 (91.8%), women aged 15-19 (81.7%)
Belief by women that their husbands are justified to beat their wives	%	34	• Agreed in one of 5 situations - if she goes out without telling him, if she neglects the children, if she argues with him, if she refuses sex with him, and if she burns the food
Children age 10-14 years who are orphans	%	0.3	
Water and sanitation			
Access to improved sanitation facility (not shared)	%	32.9	• Improved considered to be - flush or pour flush to a piped sewer system, septic tank or pit latrine; VIP pit latrine, pit latrine with slab, composting toilet. <u>Variations - data below refers to improved (both shared and not shared)</u>: • Improved both shared and not shared (40.9%) • Urban (69.3%), rural (28.2%) • West Kordofan (11.6%) to Northern (95%) • Poorest quintile (6.2%), richest (91.9%)
Practice open defecation (no facility, bush, field)	%	29.2	<u>Variations</u>: • Urban (5%), rural (40%) • Khartoum State (1.7%) to Kassala State (44.9%)
Type of sanitation facility used and whether it is shared	%		• Improved sanitation facility (40.9%) - of which approximately 32.9% not shared and 7.6% shared • Unimproved sanitation facility (29.8%) - of which approximately 24% not shared and 5.9% shared • Open defecation (29.2%) <u>Variations</u>: • Likely to share - urban (11.6%), rural (5.8%) • Khartoum State (15.6%), West Kordofan (0.7%)
Children age 0-2 years whose last stools were disposed of safely	%	53	• Safely = stool put into pit latrine or the child using a toilet • Unsafe = includes disposing diapers in solid waste due to concerns about the disposal of the solid waste <u>Variations:</u> • Urban (78.3%), rural (43.4%) • Mothers no education (36.5%), secondary or higher education (81.2%) • Richest (81.6%), poorest (22.9%)
Households with a specific place for hand washing	%	40.9	• No place (46.1%), permission not granted to observe (17.5%)
Specific place + water and soap or other cleansing agent are present	%	25.8	<u>Variations</u>: • Only water available (0.8%), only soap available (1.3%) • Urban (34%), rural (21.8%)
Households with soap or other cleaning agent	%	55.4	
Access to improved water sources	%	68.0	• Improved considered to be - piped water (into dwelling, compound, yard or plot, to neighbour, public tap/standpipe), tube-well/borehole, protected well, protected spring and rainwater collection. Bottled water is considered improved only if the household is using an improved source for handwashing and cooking. <u>Variations:</u> • Urban (78.3%), rural (63.5%)
Access to unimproved water sources and using	%	4.1	• Effective methods considered - boiling water, adding bleach or chlorine, using a water filter, using solar

appropriate water treatment method			disinfection Variation: • Urban (3.7%), rural (4.2%) • Poorest (2.9%), richest (7.0%)
Time to source of drinking water	%		Of the 100% of people asked: • Improved &: Water on premises (41.1%); < 30 min (10.7); >30 min (14.5%); Don't know (1.7%) • Unimproved &: Water on premises (2.3%); < 30 min (8.3%); > 30 min (16.9%); Don't know (4.5%)
Households with access to both improved drinking water and improved sanitation	%	28.2	Variations: • Poorest quintile (3.4%) to richest quintile (75.1%) • Household head with no education (17.2%), with secondary or higher education (64.5%)

Annex IX - Bottlenecks

IX.1 Bottlenecks - Enabling factors for rural sanitation

Annex Tables 24 & 25 - identify scores for the bottlenecks for enabling factors for rural sanitation at Federal, State, Locality and community levels in 2013.

Annex Table 24 - Bottlenecks for rural sanitation in Sudan (2013)

National level – enabling factors		State level – enabling factors		Locality level – enabling factors	
Legal framework	0.8	Policy	3.6	Expansion and maintenance plan	1.9
Policy	2.6	Targets	2.3	Management practices	2.1
Targets	2.3	Social norms	1.1	Capacity development	2.9
Social norms	1.8	Institutional leadership	3.2	Financial management procedures	5
Institutional leadership	1.7	Stakeholder coordination	1.3	Tools for improving service delivery	2.3
Stakeholder coordination	0.9	Investment plan	0	Service monitoring and evaluation	1.6
Investment plan	0	Programming	2.1	Financial sustainable services	2.7
Programming	2.4	Annual review	1.9	Environmental sustainability	2.2
Annual review	1.6	Sector and service monitoring	1.2	Service affordability and availability	6
Sector and service monitoring	0.9	Analysis of equity	0.2	Supply-chain and services	5.7
Analysis of equity	1.1	Budget and expenditure adequacy	0.9		
Budget and expenditure adequacy	1.2	National budgeting and accounting structure and coverage	1	**Community level – enabling factors**	
National budgeting and accounting structure and coverage	0.6	Budget utilisation	1.9	Social norms	2.5
Budget utilisation	1.5	Decentralisation	2.8	Local participation	2.6
Decentralisation	2.1	Promotion and scaling up of services	1.9	Service management community run services	1.4
Promotion and scaling up of services	1.4	Private sector development	1.2	Affordable financing	5
Private sector development	0.9	Supply-chain and services	0.7		
Supply-chain and services	1.7				

Annex Table 25 - Scoring for bottleneck analysis of enabling factors for rural sanitation

Score	Colour	Explanation
0.0-3.0	Red	Major bottleneck
3.1-5.3	Yellow	Minor bottleneck
5.4-6.0	Green	Not a significant bottleneck

IX.2 Bottlenecks - School WASH

Annex Tables 26 and 27 - provide an overview of the bottlenecks identified in relation to School WASH in 2012[95]. This bottleneck analysis uses a different scoring system to the ones in the previous Annexes, but the same colour traffic light indicators.

Annex Table 26 - Scoring for bottleneck analysis for school WASH

Score	Colour	Explanation
0 - 49%	Red	Major bottleneck
50 - 74%	Yellow	Minor bottleneck
75 - 100%	Green	Not a significant bottleneck

Annex Table 27 - Bottleneck analysis of School WASH, 2012[96]

Category	Determinant	Indicators	Source of information	Existing situation (%)
Enabling environment	Social norms	All children are using toilets	KAP survey 2009	50.0%
	Legal framework	National legislation on WASH in Schools standards (including regional targets, gradual improvements, inclusiveness, privacy and dignity for children) and monitoring systems are in place	Technical standards and guidelines; stakeholders analysis	25.0%
	Policy framework (existence/application of critical policies)	Government/education sector policy incorporates WASH in Schools; budget allocated for increasing access, operation and maintenance of facilities and hygiene education	WASH and education policies	30.0%
	Budget/expenditure	Availability of a multi-sectoral budget for WASH in Schools (capital and recurrent costs) as a percentage of the national allocation; budget allocation by community	State strategic plans and documents	0.0%
	Accountability	Presence of a lead government department at the Federal level to plan, budget, draw strategies, coordinate and follow up WASH in Schools	Stakeholders analysis	20.0%
Supply	Availability of essential commodities/inputs	% of schools having access to functional WASH facilities, including hand-washing stands, toilets and drinking water (point-of-use water treatment) as per national standards and guidelines	Strategy documents	37.0%
	Availability of human resources	% of schools with trained teachers on hygiene promotion in schools and dedicated staff for operation and maintenance of WASH facilities	Questionnaire; KAP survey 2009	10.0%

[95] UNICEF Sudan (2012) *WASH in Schools Distance-Learning Course: Learnings from the Field 2012*
[96] UNICEF Sudan (2012) *WASH in Schools Distance-Learning Course: Learnings from the Field 2012*

	Geographical access	Disparities among states and within states among rural, urban and nomadic schools	KAP survey 2009	20.0%
Demand	Budget for operation and maintenance	% of schools with operation and maintenance budget	KAP survey 2009	0.0%
	Gender-segregated facilities	% of schools with separate latrines for boys and girls	KAP survey 2009	75.0%
Quality	Environmental sanitation	% of school environmental sanitation in good condition	KAP survey 2009	11.8%
	Hand-washing facilities	% of hand-washing facilities in good condition	KAP survey 2010	21.4%

Annex X - Timeline for discussions and decisions related to identifying lead accountable institution for S&H and establishing coordination

The following table provides a timeline of discussions and decisions leading to the FMoH taking the leadership role for S&H and the establishment of the National Sanitation High Committee.

Annex Table 28 - Timeline of discussions and decisions leading to the FMoH taking the leadership role for S&H and for the establishment of the NSHC

Year	Reference	Reference to the need for a single accountable institution to take responsibility for S&H and the role of the MoH
2008	AfricaSan (2008) *The eThekwini Declaration and AfricaSan Action Plan*, AfricaSan 2008, 2nd African Conference on Sanitation and Hygiene	**The eThekwini declaration, 2008, states:** *'We, the Ministers and Heads of Delegations responsible for sanitation and hygiene from 32 African countries...'* and then moves on to the commitments. The signatory for Sudan was Dr Tabitha Botros Shokai, Federal Minister of Health. The pledge included no 5 *'To ensure that one, principal, accountable institution takes leadership of the national sanitation portfolio; establish one coordinating body with specific responsibility for sanitation and hygiene, involving all stakeholders, including but not limited to those responsible for finance, health, water, education, gender and local government'.*
2009	GoS (2009) *EH Act of 2009, Order Articles* [translation]	Specifies that the Minister of Health may issue regulations necessary to implement the provisions of this law and orders.
2009	Khartoum Declaration	**Pledge by 6 Ministers:** Federal Minister of Health (as the first signee), the Federal Minister of Irrigation and Water Resources, the Federal Minister of Education, the Federal Minister of Environment & Physical Development, the Federal Minister of Religious Guidance & Endowments and the Federal Minister of the Chamber Federal Governance of Sudan. **Commitment:** *2. To ensure that an accountable institution takes clear leadership of the national sanitation portfolio; establish one coordinating body with responsibility for S&H involving all stakeholders*
2013	GoS, MoWRE, Drinking Water and Sanitation Unit and UNICEF (2013) *WASH Joint Programme, WASH Sector, Bottleneck Analysis Workshop, Summary Report*, Khartoum, Sudan, 3-7 November 2013	**Main sector bottlenecks:** ***B - Absence of Sanitation Clear Leadership:*** *'Absence of lead agency for sanitation at national and sub-national levels is one of the major issues that affecting the sector as there is no agency responsible for planning, implementation, monitoring and following up with the federal government with regard to sanitation promotion. Currently there is a direction to give ministry of health the lead role in sanitation promotion'.* ***Bottleneck Removal Activity:*** *'Conduct advocacy campaigns focusing on sanitation leadership. Enhance FMOH /Sector partners' capacity to develop sanitation/hygiene legal framework'.* **Responsible body:** FMOH & DWSU/ UNICEF
2014	Sanitation and Water for All - High Level Commitments	**Commitment:** ***Coordination and Alignment: '****The Ministry of Health, as the principal accountable institution, to take clear leadership and, in collaboration with sector stakeholders, establish at national level and in at least 14 states by December 2015, a high level coordinating body with specific responsibility for S&H'.*

2014	FMoH and MoWRE, DWSU (2014) *National Sanitation Scaling-up Workshop, Khartoum*, 23-24 June 2014	*'FMoH has taken the role of the sanitation sub-sector lead'.* The Federal Minister for Health, H.E H.EDUC. Bahr Idris Abu Garda, stated *"He also mentioned that the Federal Ministry of Health has taken major steps to lead the sector and facilitate coordination among all partners".*
2014	MoWRE & FMoH (2014, draft) *National Policy of Drinking Water, Sanitation and Hygiene*	**Page 11:** 7.7 *'The Federal Ministry of Health is the institution responsible for sanitation and health improvement'.*

Annex XI - Coordination / advisory bodies and legal and policy framework for S&H in Sudan

The following table provides an overview of the coordination, advisory or decision-making bodies and the legal and policy framework for each of the components of S&H in Sudan.

Annex Table 29 - Co-ordinating, advisory or decision-making bodies and legal and policy framework for components of S&H in Sudan

	Coordinating, advisory or decision making bodies	Laws	Regulations	Policies, strategies, plans, guidelines
National cross-sectoral				
National strategies and plans				• Twenty-five year national strategy, 2007
Women, gender				• Women Empowerment Policy, 2007
Household				
Excreta disposal	• **National Sanitation High Committee** • **Public Health National Coordination Council**	• EH Law, 2009 • National Public Health Act, 2008		• National WASH Policy, 2010 & 2014 (drafts) • National EH Strategic Plan, 2015-19 • National WASH Strategic Plan, 2012-16 • WASH Sector State Strategic Plans, 2011-15 • Strategic Framework for Sanitation Scaling up in Sudan, 2014 (draft) • Framework for Building Capacity on CATS/CLTS in Sudan (no date) • WASH Sector Humanitarian Strategy, 2015 • WASH sector and Sudan refugee multi-sector refugee response strategy, 2015 (draft) • Sudan WASH Sector (humanitarian) Improvement Agenda, 2015-17 • MoH Technical Guidelines for Construction of Latrines (no date) • MoWRE Technical guidelines for household latrines, 2009
Hygiene promotion	• **National Sanitation High Committee** • **Public Health National Coordination Council**	• EH Law, 2009 • National Public Health Act, 2008		• National EH Strategic Plan, 2015-19 • National WASH Strategic Plan, 2012-16 • National Health Sector Strategic Plan, 2012-16 • Health Promotion Strategic Plan, 2012-16 • Ashuffa'a Al Soghar Communication Initiative Strategy, 2013 (draft) • National Nutrition Policy & Key Strategies, 2008-12

				• WASH Sector Humanitarian Strategy, 2015 (draft) • WASH sector and Sudan refugee multi-sector refugee response strategy, 2015 (draft) • Sudan WASH Sector (humanitarian) Improvement Agenda, 2015-17
Institutional & public				
Health facilities *(refer below for HCWM)*	• **National Sanitation High Committee** • **Public Health National Coordination Council**	• EH Law, 2009 • National Public Health Act, 2008		• National EH Strategic Plan, 2015-19 • National Health Sector Strategic Plan, 2012-16 • National WASH Strategic Plan, 2012-16 • WASH Sector Humanitarian Strategy, 2015 (draft) • WASH sector and Sudan refugee multi-sector refugee response strategy, 2015 (draft) • MoH Technical guidelines for construction of latrines (no date) • MoWRE Technical guidelines for rural health institution latrines, 2009
Schools & educational	• **National Sanitation High Committee** • **School Health Multi-Sectoral Coordination Councils (SHCC)** - at National, State and Locality levels - chaired by both undersecretaries of Education and Health, rotating chair. With 8 sub-committees including for WASH. • **Public Health National Coordination Council**	• EH Law, 2009 • National Public Health Act, 2008 • Education Law, 2008		• National School Health Strategy, 2016-20 (draft) • National School Health Programme Implementation Guidelines, 2016-20 (draft) • National WASH Policy, 2010 & 2014 (drafts) • National EH Strategic Plan, 2015-19 • National WASH Strategic Plan, 2012-16 • WASH sector and Sudan refugee multi-sector refugee response strategy, 2015 (draft) • MoH Technical Guidelines for Construction of Latrines (no date) • MoWRE Technical guidelines for school latrines, 2009
Religious institutions, workplaces, community centres, highways	• **National Sanitation High Committee** • **Public Health National Coordination Council**	• EH Law, 2009 • National Public Health Act, 2008		• National EH Strategic Plan, 2015-19 • WASH sector and Sudan refugee multi-sector refugee response strategy, 2015 (draft) • MoH Technical Guidelines for Construction of Latrines (no date)
Markets, food premises, slaughter houses	• **National Sanitation High Committee** • **Public Health National**	• EH Law, 2009 • National Public Health Act, 2008		• National EH Strategic Plan, 2015-19 • WASH sector and Sudan refugee multi-sector refugee response strategy, 2015 (draft)

	Coordination Council	• Food Control Law, 1973		• MoH Technical guidelines for construction of latrines (no date)
EH services				
Faecal sludge management	• **National Sanitation High Committee** • **Public Health National Coordination Council**	• EH Law, 2009		• National EH Strategic Plan, 2015-19
Solid waste management (general, not hazardous)	• **National Sanitation High Committee** • **Public Health National Coordination Council** • <u>In Khartoum State</u>: **Higher Council for Environment and Natural Resources (HCENR)** • For other States see **Annex Section D – 4.3.5**	• Environmental Protection Law, 2001 • National Public Health Act, 2008 • EH Law, 2009		• National EH Strategic Plan, 2015-19 • WASH Sector Humanitarian Strategy, 2015 (draft) • WASH sector and Sudan refugee multi-sector refugee response strategy, 2015 (draft) • National guidelines for SWM (no date) <u>For Khartoum State</u>: • Khartoum Cleaning Corporation Strategic Plan(no date) • Khartoum State Government Waste Management Master Plan, 2013
Health care and hazardous waste management	• **Council of Drugs and Poisoning** (make decisions on all devises for treatment in health facilities including incinerators, Chaired by Director E.H. FMoH) • **National Sanitation High Committee** • **Public Health National Coordination Council**	• Environmental Protection Law, 2001 • Nuclear Energy Law, 2005 • National Public Health Act, 2008 • EH Law, 2009 • Hazardous Wastes for Health Facilities By-Law, 2014 • Khartoum Law on Health Care Waste, 2005	• FMoH, Health Care-Waste Regulation, 2005 • FMoH, Hazardous Waste Regulation, 2014	• National Policy for Health Care Wastes (no date, draft) • National EH Strategic Plan, 2015-19 • HCW Project Plan for 6 States (no date) • WASH sector and Sudan refugee multi-sector refugee response strategy, 2015 (draft) • Hazardous Wastes in Health Facilities Guidelines (no date, draft)
Vector control	• **National Sanitation High Committee** • **National Pesticides Council** - responsible for obsolete pesticides & products (chaired by	• EH Law, 2009 • National Public Health Act, 2008		• National Strategy for Integrated Vector Management, 2014-18 • National EH Strategic Plan, 2015-19 • WASH Sector Humanitarian Strategy, 2015 (draft) • WASH sector and Sudan refugee multi-sector refugee response strategy, 2015 (draft)

	MoAgriculture; DG EH is a member) • **Public Health National Coordination Council**			
Food safety	• **National Sanitation High Committee** • **Public Health National Coordination Council** • **National Food Registration Committee** (registering local and imported food) • **National Food Supplement Committee** (approval of all food supplements) • **Sudanese Standard Metrology Organisation (SSMO)** (setting standards and specifications, MoH is a member of this committee for health related aspects)	• Food Control Act 1973 (Federal) • EH Act 2009 (Federal) • National Public Health Act, 2008 • Criminal Procedures Act 1991 (Federal) • Prohibition the Use of Potassium Bromate in Bread and Food Act 2004 (Khartoum State) • Public Health Protection Act 1999 (Khartoum State) • Local Government Act 2007 (Khartoum State)	• Health Requirements Regulation 1977 (Federal). • Restriction the Handling of Food Preservatives Regulation 1977 (Federal). • Registration of Packed Food Regulation 1978 (Federal). • Food Control (Inspection, Sampling and Analysis) Regulation 1980 (Federal) • Public Health Regulation 2002 (Khartoum State)	• EH Strategic Plan, 2015-19 • WASH sector and Sudan refugee multi-sector refugee response strategy, 2015 (draft)
Drinking water safety	• **National Sanitation High Committee** • **Public Health National Coordination Council**	• EH Act 2009 • National Public Health Act, 2008 • Drinking water safety by-law, 2014	• Drinking water safety Regulation, 2014 • Sudan Specification for Drinking	• EH Strategic Plan, 2015-19 • WASH sector and Sudan refugee multi-sector refugee response strategy, 2015 (draft) • Water chlorination protocol (no date)

			Water, 2008	
Surface water drainage and wastewater management	• **National Sanitation High Committee** • **Public Health National Coordination Council**	• EH Act 2009 • National Public Health Act, 2008		

Annex XII -National Sanitation High Committee & WASH Sector (humanitarian) TWG on sanitation and hygiene

XII.1 Terms of Reference for the National Sanitation High Committee [97]

The National Sanitation High Committee (NSHC) was formed by the Under Secretary Minister of Health[98]. The committee's responsibilities are:-

1. Work with sector partners and the relevant authorities to put environmental sanitation as a priority in the agenda within the countries priorities.
2. Capacity building of the community and support the comprehensive sanitation led society to reach communities free from open defecation and work to ensure the toilet for each family in Sudan.
3. Strengthen coordination in the field of environmental sanitation at all levels.
4. Ensure support and coordination with sector partners and their participation in all information related to the activity.
5. Ensure the existence of a national mechanism to ensure financial support to support environmental sanitation.
6. Ensure strategies that help to increase the availability and use of sanitation and health promotion.
7. Coordination and cooperation with the legislative institutions to ensure there is a mechanism to activate the laws and regulations that support the issue of environmental sanitation.
8. Review of technical documentation, Strategies and plans for environmental sanitation.
9. Ensure the implementation of all environmental sanitation, monitoring and ensuring the levels of hygiene and sanitation strategies according to the agreed water activities plan.
10. Coordination with State Sanitation Committee at the State level the availability and exchange of information in all the activities and the results of environmental sanitation.

A sub-committee exists to follow decisions taken by the committee. It's members are: FMoH (EH & HP), Plan Sudan, MoE; Universities of Khartoum and Bahari, MoFNE and the Women's Union.

[97] Azrag Dahab, A (2015) *Situation Assessment of EH in Health Facilities in Sudan, General Directorate of Primary Health Care*, Federal Ministry of Health, Sudan

[98] MoH, Administrative Decision No.41 2014

XII.2 Institutional membership of the NSHC

Annex Table 30 - Institutional membership of the NSHC

1	Director of Environmental Health Department	Chair
2	National Project Coordinator WES – MoWRE	Deputy
3	Director of Environmental Sanitation Department	Secretary
4	Director of Emergency and Humanitarian Aid	Member
5	Representative of the International Health Administration MoH	Member
6	Sanitation Manager WES- MoWRE	Member
7	Director of Environmental Health Department Khartoum State	Member
8	Director of the Long civil administration - the Ministry of Local Government	Member
9	Sudanese Red Crescent Society	Member
10	Representative of the Women's Union	Member
11	A representative of civil society organizations	Member
12	Representative of the Federation of Chambers of Commerce and Industrial	Member
13	Representative of the Sudani Telecommunications Company	Member
14	Representative of the Zain Telecommunications Company	Member
15	Representative of the MTN Telecommunications Company	Member
16	Representative of the Ministry of Finance and National Economy	Member
17	Representative of the Strategic Planning Council	Member
18	Representative of the Ministry of Social Welfare and Social Security	Member
19	Representative of the Ministry of Information	Member
20	Representative of the Department School Health - student activity - the MoEd	Member
21	Representative of Humanitarian Aid Commotion	Member
22	Representative of Ministry of Youth and Sports	Member
23	Representative of Legislative Council	Member
24	Representative of the National of Statistics	Member
25	Representative of the Department of Media for Development UNICEF	Member
26	Representative of Faculty of Public Health UoK	Member
27	Ahfad University Representative	Member
28	Plan Sudan Representative	Member
29	Representative of UoBahri	Member

XII.3 ToR for WASH Sector (humanitarian) TWG on S&H

The technical working group (TWG) is a WASH sector support group formed in order to create, elaborate or/and discuss and prepare for the WASH Sector Coordination the following issues/topics/themes:

1. To provide specific or thematic technical support to WASH humanitarian sector for emergency response, early recovery and transition;
2. To support in the harmonization, unification and alignment of WASH approaches, guidelines, training curricula, standards and designs (drawings, technical specifications and BoQs) to give recommendations or/and to suggest for endorsement by the WASH Sector;
3. To monitor adherence to agreed standards, approaches, curricula and technical guidelines by WASH sector partners including setting benchmarks, reward and punishment systems for monitoring adherence;
4. To periodically review WASH guidelines (already in place) and recommend practical changes where applicable for the endorsement by the WASH Sector;
5. Initiate, participate, evaluate or review alternative and innovative technical concepts, processes and solutions, and to make recommendations for endorsement by the WASH Sector;
6. Importantly, discuss practical and appropriate community approaches to operation and maintenance of WASH facilities especially in protracted IDP situations;
7. Embark on immediate harmonization of hygiene and sanitation approaches for different settings (Protracted caseload, recent displacement, new displacement, refugees and settled/host communities);
8. Develop a context specific standard activity based costing for the year;
9. To sensitize, support and ensure that WASH technical standards are understood, followed, used and adopted by other sector partners, when implementing part of WASH projects or having projects with WASH components (for example: WASH in institutions -WASH in Schools, WASH in Health and Nutrition Centers, etc.)

Annex XIII - Organograms of key institutions with responsibilities for sanitation and hygiene in Sudan

The following are **organograms of key institutions with responsibilities for S&H in Sudan.**

Ministry of Education

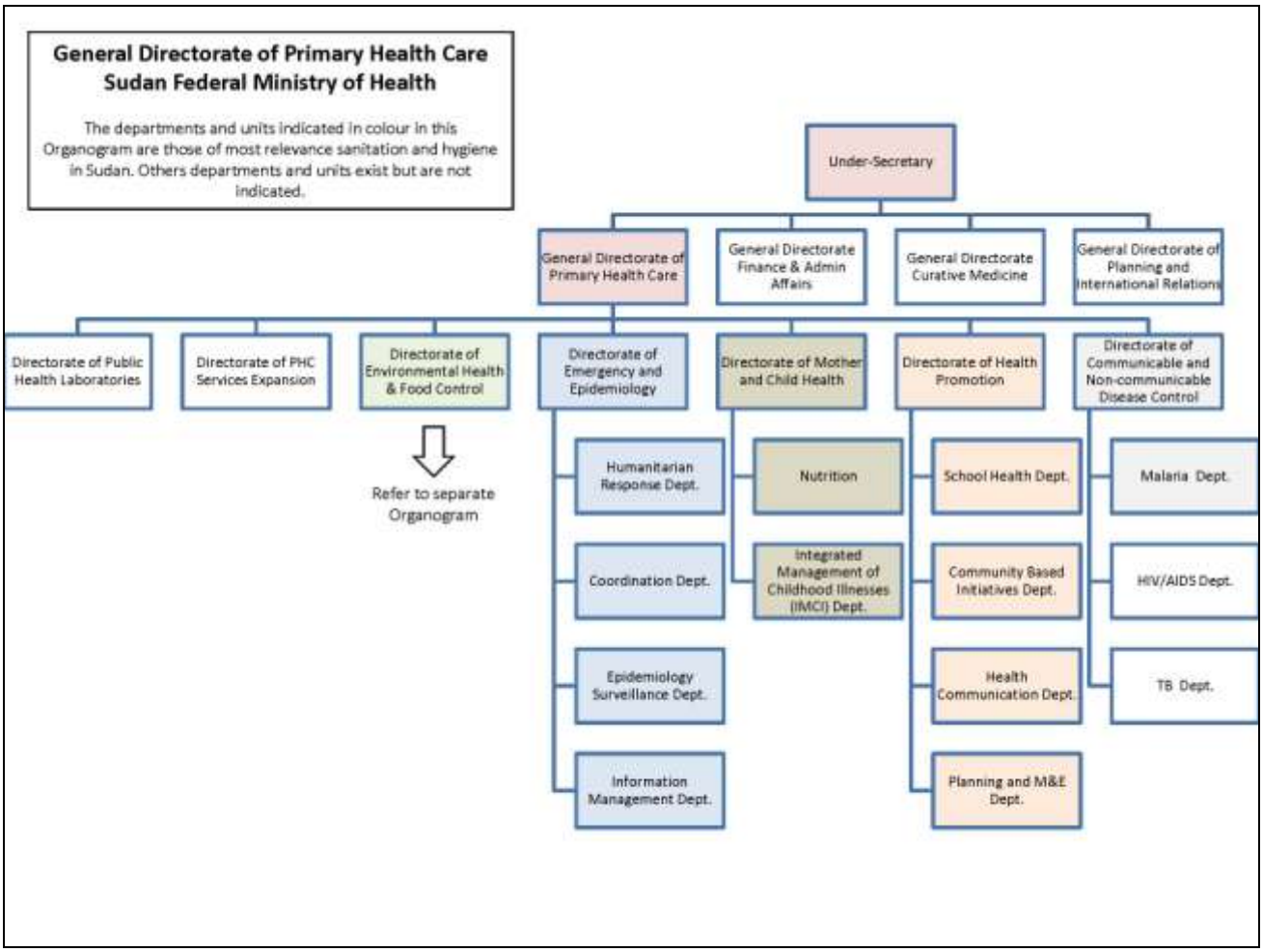
The key departments involved in School Health / EH / WASH are:

- Student Activities Department - School Health Dept / Unit
- Programme Department - responsible for the standards or building and other infrastructural facilities

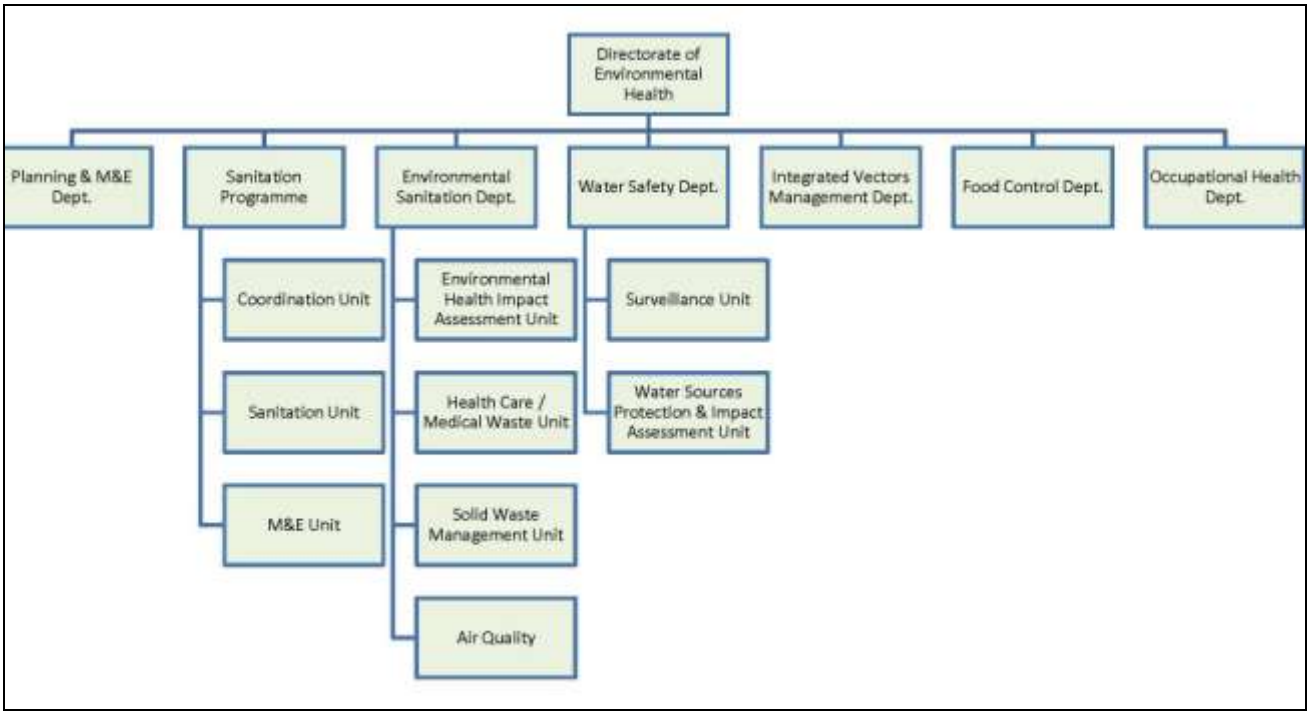
Federal Ministry of Health

Organograms for the MoH and MoWRE highlighting the departments that have a role in S&H in Sudan.

Annex Fig 15. Organogram of the FMoH (1 of 2)

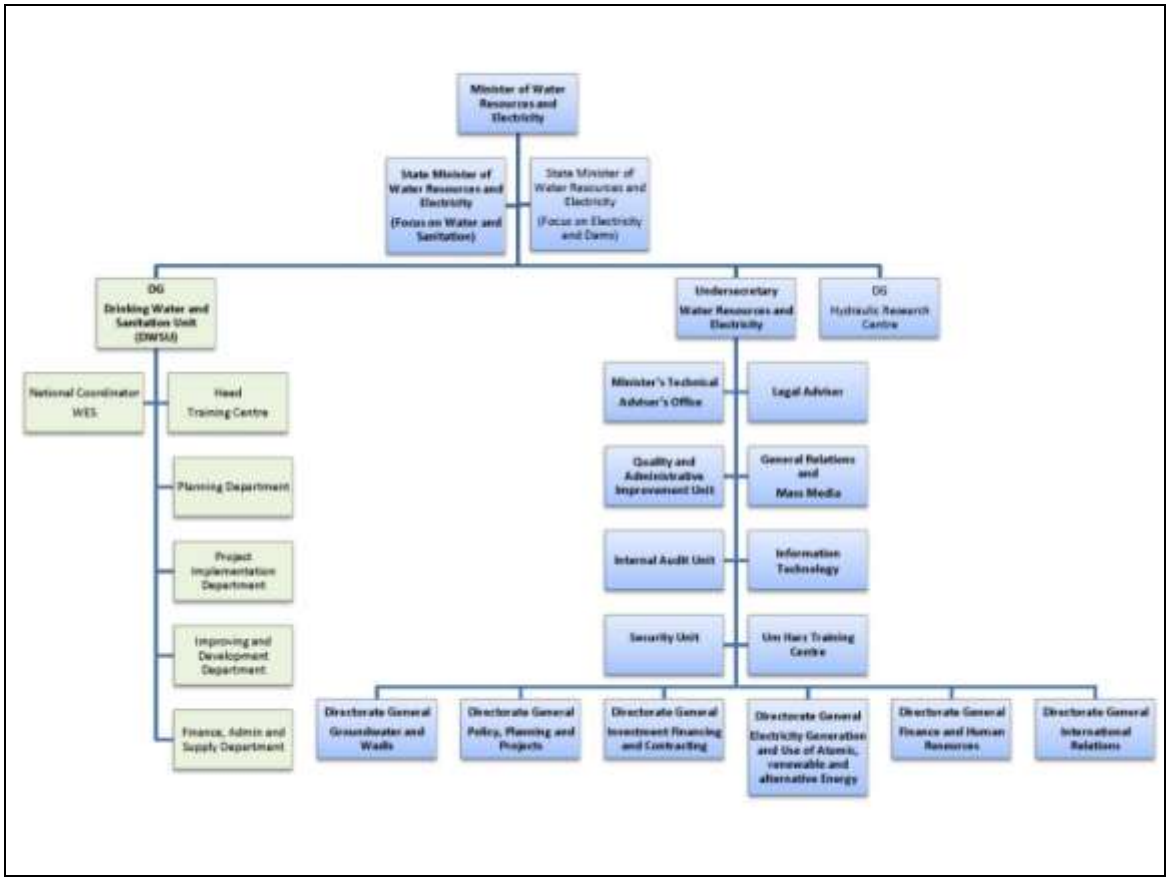


Annex Fig 16. Organogram of FMoH (2 of 2) - Directorate of Environmental Health & Food Control Administration



MoWRE

Annex Fig 17. Organogram for the MoWRE including DWSU and the WES Programme



Annex XIV - Government institutional responsibilities for sanitation and hygiene in Sudan

The table which follows identifies the government institutional responsibilities for sanitation and hygiene in Sudan.

Annex Table 31 - Government institutional responsibilities for S&H in Sudan

Institution / Organisation	Lead or Coordination Roles	Other responsibilities	Components of S&H for which institutions have some responsibilities											
			Household		Institutional & Public			Environmental Health Services						
			Excreta mgt.	Hygiene promotion	Schools & education	Public & community	Food premises	Faecal sludge mgt.	Solid waste mgt.	Health care & hazardous wastes	Vector control	Food safety	Drinking water safety	Drainage
Federal level														
Federal Ministry of Health (FMoH)	Lead for S&H in Sudan Chair & Secretariat for NSHC Heads the Public Health Coordination Council Co-Chair School Health Multi-sectoral Coordination Councils Lead of S&H TWG for the	• Collaboration with and provision of advisory and technical support to all other institutions and stakeholders with responsibilities in EH/S&H • Establishment of and updating of the regulatory environment for EH/S&H - laws; regulations; policies; strategies • Enforcement of regulations related to EH/S&H & delegates some enforcement to State level • Development of plans and advocacy for finance for EH/S&H • Updating or development of technical guidelines for EH/S&H • Supporting capacity building on EH/S&H • Establishment of systems for surveillance and enforcement for: drinking water safety; food safety; vector control • Establishing and maintaining a management information system to track EH/S&H in humanitarian and development contexts • Supervision, monitoring and evaluation of EH/S&H actions and programmes • Conduct and approve assessment and research • Forms linkages across Departments and sectors, including for nutrition and the management of integrated childhood	X	X	X	X	X	X	X	X	X	X	X	

Institution / Organisation	Lead or Coordination Roles	Other responsibilities	Components of S&H for which institutions have some responsibilities											
			Household		Institutional & Public			Environmental Health Services						
			Excreta mgt.	Hygiene promotion	Schools & education	Public & community	Food premises	Faecal sludge mgt.	Solid waste mgt.	Health care & hazardous wastes	Vector control	Food safety	Drinking water safety	Drainage
	coordination of WASH Sector (humanitarian) Coordination of the Health Sector Chair Council on Drugs & Poisoning	illnesses (IMCI) • For SWM and HCWM, responsible for capacity building, the development of guidance and research												
Ministry of Water Resources and Electricity (MoWRE), Drinking Water and Sanitation Unit (DWSU)[99] - includes the Water and Environmental Sanitation (WES) Coordination Unit	Leads the coordination of the WASH Sector (development and humanitarian) Deputy Chair of the NSHC	• Establishment of and updating of the regulatory environment for water supply and water resources - laws; regulations; policies; strategies • Facilitation, supervision and management of the process of establishment of water supply for communities and institutions (such as schools and other educational institutions; health facilities; industry; markets; religious institutions) • Development of plans for water supply, water resources and sewerage systems • Development of technical guidelines for water supply, water resources and sewerage infrastructure • Establishing and maintaining a management information system to track water supply in humanitarian and development contexts	X	X	X	X	X	X					X	

[99] The DWSU was previously known as the Public Water Corporation until 2012.

Institution / Organisation	Lead or Coordination Roles	Other responsibilities	Components of S&H for which institutions have some responsibilities											
			Household		Institutional & Public			Environmental Health Services						
			Excreta mgt.	Hygiene promotion	Schools & education	Public & community	Food premises	Faecal sludge mgt.	Solid waste mgt.	Health care & hazardous wastes	Vector control	Food safety	Drinking water safety	Drainage
		• Coordination with FMoH and SMoH to ensure S&H are integrated into Water projects.												
Ministry of Education (MoE)	Co-Chair School Health Multi-sectoral Coordination Council Member NSHC	• Collaborate with the MoH and MoWRE to ensure that WASH in schools and other educational institutions is integral to each sector's strategies, guidelines and plans • Development of plans for EH/WASH in schools and other educational institutions • Allocate funding to ensure that EH/WASH is an integral part of all new infrastructure for schools and other educational institutions and operation and maintenance plans • Ensure schools and other educational facilities establish effective operation and maintenance (O&M) systems for EH/WASH services • Allocate budget for schools and other educational institutions for the O&M systems for EH/WASH services • Monitor schools and other educational institutions for their adherence to minimum standards for the construction and O&M of EH/WASH services • Integrate EH/WASH (including menstrual hygiene management, MHM) into the school curriculum and monitor its implementation • Integrate EH/WASH (including MHM) into the training of teachers and headmasters • Ensure the regular collection of data on WASH in the EMIS system			X									

Institution / Organisation	Lead or Coordination Roles	Other responsibilities	Components of S&H for which institutions have some responsibilities											
			Household		Institutional & Public			Environmental Health Services						
			Excreta mgt.	Hygiene promotion	Schools & education	Public & community	Food premises	Faecal sludge mgt.	Solid waste mgt.	Health care & hazardous wastes	Vector control	Food safety	Drinking water safety	Drainage
Ministry of Environment, Natural Resources and Physical Development (MoENRPD)	Member NSHC Heads the High Council for Environment and Natural Resources Member of the National Pesticides Council	• Planning, supervision of SWM services and landfills • Environmental Impact Assessment of S&H infrastructure • Some role in hazardous wastes management (along with a range of other institutions).							X	X				
Ministry of Agriculture	Chairs the National Pesticides Council	• Role in the management of pesticides • Oversight on the use of faecal wastes on agricultural land / use of Ecosan products	X							X	X			
Ministry of Welfare and Social Security (MoWSS)	Member NSHC	• Responsible for community development, welfare, gender, violence, children, psychosocial health, displaced persons, people with disabilities and income generation/poverty reduction • Community mobilisation and hygiene promotion • Provide advice to the MoH, MoWRE and MoE on gender, equity and vulnerability and how to effectively consider and respond to these issues in their work • Ensure that all programmes focussing on the most vulnerable across sectors incorporate good WASH practices • Humanitarian Aid Commission (HAC) – supervision of NGO activities and monitoring emergency areas • Supporting poverty reduction and increase income generation	X	X	X	X								

Institution / Organisation	Lead or Coordination Roles	Other responsibilities	Components of S&H for which institutions have some responsibilities											
			Household		Institutional & Public			Environmental Health Services						
			Excreta mgt.	Hygiene promotion	Schools & education	Public & community	Food premises	Faecal sludge mgt.	Solid waste mgt.	Health care & hazardous wastes	Vector control	Food safety	Drinking water safety	Drainage
Ministry of Finance & National Economy (MoFNE)	Member NSHC	• Allocation of government finance for EH/S&H services in Sudan • Monitoring of budgets and expenditures of Ministries with responsibilities for EH/S&H • Audits of finances and expenditures for EH/S&H												
State level														
State MoH	Lead Ministry for EH/S&H in the State Chair State Sanitation Committee Support WES Unit with coordination of WASH sector (humanitarian) Co-Chair School Health Multi-sectoral Coordination Council	• Collaboration with and provision of advisory and technical support to all other institutions and stakeholders with responsibilities in EH/S&H in the State • Establishment of and updating of the regulatory environment for EH/S&H in the State • Enforcement of regulations related to EH/S&H • Supporting capacity building on EH/S&H • Monitoring adherence to technical standards and guidelines for EH/S&H • Implementing the systems for surveillance and enforcement for: drinking water safety; food safety; vector control • Maintaining the MIS to track EH/S&H in humanitarian and development contexts • Supervision, monitoring and evaluation of EH/S&H actions and programmes • Water quality surveillance • For SWM and HCWM, responsible for capacity building, the development of guidance and research	X	X	X	X	X	X	X	X	X	X	X	

Institution / Organisation	Lead or Coordination Roles	Other responsibilities	Components of S&H for which institutions have some responsibilities											
			Household		Institutional & Public			Environmental Health Services						
			Excreta mgt.	Hygiene promotion	Schools & education	Public & community	Food premises	Faecal sludge mgt.	Solid waste mgt.	Health care & hazardous wastes	Vector control	Food safety	Drinking water safety	Drainage
State Ministry of Urban Development and Infrastructure (or alternative version) / Public Utilities / Construction - State Water Corporations - WES Unit	Coordinator of WASH sector (humanitarian) in collaboration with State MoH Member of the State Sanitation Committee	• Line management of State Water Corporations • In Khartoum State - line Management of Khartoum State Sewerage Corporation • Administration, planning, construction, supervision and operation and maintenance of facilities related to sewage and other wastewater treatment facilities, including treatment plants, pumping stations, sludge treatment units. • Planning and supervision of design, construction and operation and maintenance of solid waste management landfill sites • Planning and supervision of design, construction and operation and maintenance of main drains in urban drainage systems and provision of technical support to Localities for the construction of the medium and smaller drains • Monitoring of urban EH services • Establishment of and updating of the regulatory environment for water supply - laws; regulations; policies; strategies at State level • Facilitation, supervision and management of the process of establishment of water supply for communities and institutions (such as schools and other educational institutions; health facilities; industry; markets; religious institutions) • Monitoring adherence to technical standards and guidelines for water supply • Maintaining the MIS to track water supply in humanitarian and development contexts	X	X	X	X	X	X	X				X	X

Institution / Organisation	Lead or Coordination Roles	Other responsibilities	Components of S&H for which institutions have some responsibilities											
			Household		Institutional & Public			Environmental Health Services						
			Excreta mgt.	Hygiene promotion	Schools & education	Public & community	Food premises	Faecal sludge mgt.	Solid waste mgt.	Health care & hazardous wastes	Vector control	Food safety	Drinking water safety	Drainage
		• Monitoring of water quality												
State MoE	Co-Chair School Health Multi-sectoral Coordination Council Member State Sanitation Council	• Collaborate with the SMoH and SMoUDPI to ensure that WASH for schools and other educational institutions is integral to each sector's strategies, guidelines and plans • Allocate funding to ensure that EH/WASH is an integral part of all new infrastructure for schools and other educational institutions and operation and maintenance plans • Ensure schools and other educational facilities establish effective operation and maintenance (O&M) systems for WASH services • Allocate budget for schools and other educational institutions for the O&M systems for WASH services • Monitor schools and other educational institutions for their adherence to minimum standards for the construction and O&M of EH/WASH services • Integrate WASH (including menstrual hygiene management, MHM) into the school curriculum and monitor its implementation • Integrate WASH (including MHM) into the training of teachers and headmasters • Ensure the regular collection of data on WASH in the EMIS system			X									
State Ministry of Welfare or Affairs (SMoW/A)	Member SSC	• Responsible for community development, welfare, gender, violence, children, psychosocial health, displaced persons, people with disabilities and income generation/poverty reduction • Provide advice to the SMoH, SMoE, and SMoUPI on gender,	X	X	X	X								

Institution / Organisation	Lead or Coordination Roles	Other responsibilities	Components of S&H for which institutions have some responsibilities											
			Household		Institutional & Public			Environmental Health Services						
			Excreta mgt.	Hygiene promotion	Schools & education	Public & community	Food premises	Faecal sludge mgt.	Solid waste mgt.	Health care & hazardous wastes	Vector control	Food safety	Drinking water safety	Drainage
		equity and vulnerability and how to effectively consider and respond to these issues in their work • Ensure that all programmes focussing on the most vulnerable across sectors incorporate good WASH practices • Humanitarian Aid Commission (HAC) – supervision of NGO activities and monitoring emergency areas • Supporting poverty reduction and increase income generation												
Localities & Administrative Units (Municipal) & State Cleaning Corporations														
Localities	Lead on provision and regulation of S&H services in Locality Co-ordination of	<u>Coordination, planning:</u> • Co-ordination of stakeholders engaged in S&H/EH activities and services in the locality • Develop plans, monitor and identify funds for S&H/EH in the locality <u>Health promotion</u>: • Awareness raising and behaviour change promotion for the general public for good S&H/EH behaviours <u>Excreta disposal and faecal sludge management:</u> • Support the private sector with capacity building for excreta disposal services • Monitor and regulate the private sector engaged in FSM from collection to end treatment or disposal <u>Institutional S&H:</u> • Provision of services and monitoring of the provision and O&M of EH/WASH services in institutions (such as schools and other educational institutions; health facilities; industry; markets; religious institutions) • Provision of, monitoring of the provision and O&M/WASH	X	X	X	X	X	X	X	X	X	X	X	X

Institution / Organisation	Lead or Coordination Roles	Other responsibilities	Components of S&H for which institutions have some responsibilities											
			Household		Institutional & Public			Environmental Health Services						
			Excreta mgt.	Hygiene promotion	Schools & education	Public & community	Food premises	Faecal sludge mgt.	Solid waste mgt.	Health care & hazardous wastes	Vector control	Food safety	Drinking water safety	Drainage
		services in community settings - including markets, slaughterhouses, community centres, highways <u>Vector control, drinking water safety:</u> • Implementation of IVM • Implementation of drinking water safety surveillance • Food safety inspection, training and control <u>Solid waste & health care and hazardous wastes management</u>: • Procurement, supervision and oversight of private providers for SWM services • Collection and transfer of solid wastes from households to transfer sites • Collection, transfer and end containment or disposal of health care and other hazardous wastes • Establishment and oversight of recycling or re-use schemes • Engagement with, capacity building of and regulation of small scale SWM providers												
Administrative Unit (Municipal)	Lead on provision and regulation of S&H services in municipality	• Awareness raising for the general public for good S&H/EH behaviours • Supervision of design, construction and management of sewerage networks • Supervision of design, construction and management of treatment facilities and end disposal sites for sewage and faecal sludge • Supervision of design, construction and management of drainage networks in urban contexts • Supervision of design, construction and management of solid waste management landfill sites	X	X	X	X	X	X	X	X	X	X	X	X

Institution / Organisation	Lead or Coordination Roles	Other responsibilities	Components of S&H for which institutions have some responsibilities											
			Household		Institutional & Public			Environmental Health Services						
			Excreta mgt.	Hygiene promotion	Schools & education	Public & community	Food premises	Faecal sludge mgt.	Solid waste mgt.	Health care & hazardous wastes	Vector control	Food safety	Drinking water safety	Drainage
		• Monitoring of urban S&H/EH services and the providers undertaking the collection, transfer and end disposal of solid wastes, hazardous wastes and sewage wastes • In some States they have a responsibility for part of the SWM collection and transfer chain • Enforcement of laws and regulations related to urban S&H/EH services and behaviours (fines for bad behaviours) • Collection of taxes for municipal EH services - sewerage, SWM, drainage												
Solid Waste / Cleaning Corporations	Lead on management of solid waste disposal	• Awareness raising for the general public for good SWM behaviours • Procurement, supervision and oversight of private providers for cleaning services • Management of transfer and landfill sites • Collection and transfer of solid wastes from transfer stations to end disposal • Collection, transfer and end containment or disposal of health care and other hazardous wastes • Establishment and oversight of recycling or re-use schemes • Engagement with, capacity building of and regulation of small scale SWM providers							X	X				

Annex XV - International aid support for S&H in Sudan, 2016

The following table identifies the international aid support for S&H in Sudan in 2016.

Annex Table 32 - International aid support for S&H in Sudan, 2016

Development Partner / Humanitarian Donor	Development or Humanitarian focus for S&H	Key focus areas for support
African Development Bank	Development	Supporting the **'Darfur Water Project'** (on-going) supporting 15-25 towns in 5 States of Darfur and the needs of pastoralist and nomadic groups. Main focus is water with smaller component of S&H. New project on **'Water Sector Reform and Institutional Capacity Development Programme'** (approx USD 64.8 million). Will support setting up of development partner coordination and sector working group and will review and update: water supply and sanitation legislation, policies and strategies. Will also support in 2 States (West Kordofan and Blue Nile), training, community based projects and a study on water and sanitation in schools. Also supports capacity building including through support to the DWSU Training Centre; and is supporting general institutional development of the GoS in public financial management, procurement, results management etc.
Department for International Development (DFID), UK Government	Both	S&H as an integrated component of emergency WASH programmes. Funding urban S&H in Darfur and plans to fund rural WASH. Funded strategic WASH support to Port Sudan [USD182 million] including the preparation of a WASH Master Plan and a Sector Investment Plan. DFID has a preference for increasingly funding recovery rather than emergency responses.
European Humanitarian Aid and Civil Protection department, European Union (ECHO)	Humanitarian	Supports short term life-saving humanitarian projects (maximum 1 year) through European NGOs or UN agencies. Supports S&H integrated into emergency WASH. Mainly includes excreta disposal, hygiene promotion and non-food items, emergency vector control.
Government of Qatar	Development	Is planning to support the GoS with USD 8 million for the Water Sector, with 3 million for S&H.
International Office of Migration (IOM)	Humanitarian and transitional	Supports humanitarian WASH for IDPs, refugees and returnees. Uses both humanitarian and development approaches and has supported capacity building of WASH or hygiene committees and the use of the Community Led Total Sanitation (CLTS) approach. Supports durable solutions to displacement to build resilience, reduce aid dependency, promote returns and prevent secondary displacement. This includes training for livelihoods.
Japanese International Cooperation Agency (JICA)	Both	In cooperation with the MoENRPD supports the Khartoum State Cleaning Corporation with institutional capacity building (strategy; SWM vehicles; maintenance workshop; training). Supports drinking water safety through its work with the MoWRE, DWSU Training Centre. Training courses also include sanitation and hygiene. Particular efforts being made to strengthen State Water Corporation capacities in operation and maintenance systems. Supporting an M&E system for urban water.
Office of Foreign Disaster Assistance (OFDA), USAID	Humanitarian	Funds INGOs and international organisations (such as IOM, IFRC, FAO). Funds S&H as an integrated part of integrated packages (WASH, nutrition and health) which include emergency WASH programmes. Funds lifesaving assistance only but has started to support water related technologies that

		support cost recovery, such as solar pumping systems.
United Nations Children's Fund (UNICEF) *(from UNICEF resources and various donors)*	Both	Child focussed. Co-leads WASH Sector (humanitarian) coordination. Supports MoH with funds and technical advice for S&H including: excreta disposal, health promotion, school and health facility WASH and some emergency EH services. Supports capacity development at enabling environment, institutional and individual levels; funds research and assessments; supports GoS to engage with global S&H monitoring processes such as JMP, AfricaSan and SWA. Supports links with nutrition sector actors. Largely humanitarian support. USD 80 million, based on average of USD 20 million / year.
United Nations High Commissioner for Refugees (UNHCR)	Humanitarian	Mandated to ensure the protection of refugees, which includes the provision of S&H services.
World Health Organisation (WHO)	Both	Supports MoH with funds and technical advice for EH including: drinking water safety, vector control, health care wastes management and disease prevention and control. Supports capacity development at enabling environment, institutional and individual levels; funded the development of the National Environmental Health Strategic Plan, 2015-2019; funds research and assessments; monitoring of health disasters, drinking water safety and EH in health facilities. Also has programmes in Neglected Tropical Diseases and Viral Haemorrhagic Fevers.

Annex XVI - Promising approaches for humanitarian S&H

The following box provides a few examples of successes in humanitarian S&H shared by participants at the Darfur workshop.

Promising approaches highlighted by case studies from Sudan

- After conflict in 2011, IDPs settled in existing urban communities. An assessment was undertaken and community leaders were involved. It was discussed that services would only be provided for a short time. This helped to transfer from emergency to recovery. Moved from shared latrines to single latrines which they constructed themselves with tools that were provided.
- In KAS camp, space is limited. People are prepared to pay for sanitation above water. They pay for a latrine attendant to look after communal latrines.
- Increase in availability of evacuation trucks in Nyala supported by the private sector in response to demand for emptying latrines.
- In the Sortony camp 500 latrines were constructed in 10 days with the leadership of the State MoH and handed over to Oxfam for continuation. This was achieved by training people in latrine construction, installing a supervisory structure and including an element of competition / reward.
- Management of garbage through the provision of hygiene cleaning tools.
- With the support of UNICEF, CATS/CLTS is currently being trialled in old IDP camps in peri-urban areas of El Fasher town.
- Tearfund has been pro-active in its facilitation of discussion on hygiene, with issues being brought forward by the community itself.
- Implementation of CATS/CLTS in the host community surrounding South Sudan refugee camps in White Nile without challenge.

Annex XVII - References

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- UNICEF (2016) *Humanitarian Situation Report,* March 2016
- UNICEF and RedR (2014) *Capacity Development Framework, A 3-year Capacity Development Plan*, October 2014
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- WASH SAG (2015) *Protracted Displacement Strategy for Darfur: A Multi-sectoral approach to change* - Draft WASH Sector Submission, First draft 10 Sept 2015, WASH SAG approved, 2 Nov 2015
- WASH Sector (2015) *Sudan WASH Improvement Agenda*, An approach to Improved Sector Performance, Aug 2015-Dec 2017

XVII.3 Sudan - Development focussed - WASH, Health, Education

Please refer to **Annex Section D - X** for an overview of legislation, policies, guidelines noted by component in addition to those noted here.

Environmental health:

- GoS, Federal Ministry of Health, Directorate of Primary Health Care, EH & Food Control Department (2015) *National EH Strategic Plan, 2015-2019*
- Republic of Sudan, FMoH, Directorate of Primary Health Care, Environmental Health & Food Control Department (2015) *National Environmental Health Strategic Plan, 2015-2019*
- Republic of Sudan, National Assembly (2009) *Environmental Health Act of 2009, Order Articles* [translation]

Excreta disposal:

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- Federal Ministry of Health and Ministry of Water Resources and Electricity (2014) *National Sanitation Scaling-up Workshop*, Khartoum, 23-24 June 2014

- Federal Ministry of Health, Department of EH and Food Control, Sanitation Program (no date) *Technical Guidelines for Construction of Latrines*
- FMoH & MoWRE (Aug 2014, zero draft) *Strategic Framework for Sanitation Scaling up in Sudan*
- FMoH (2015) *Country Sanitation Action Plan*
- GoS (2009) *The Khartoum Declaration*
- Habila, O (2015) *Strategic Issues for Scaling up, S&H in Sudan*, Presentation at the GoS-UNICEF Programme Annual Review and Planning Meeting, National Health Insurance Fund, Khartoum, 13-14 Dec 2015
- No author (no date) *Framework for building capacity on Community Approaches to Total Sanitation (CATS) in Sudan, paper and presentation*
- Public Water Corporation (MIWR-GONU), MWRI-GOSS, UNICEF (2009) *Technical Guidelines for the Construction and Management of Household Latrines, A manual for field staff and practitioners*, April 2009
- Republic of Sudan (2014) *Statement of Commitments for 2014 Sanitation and Water for All High Level Mission*
- Sanitation and Water for All (2012) *Sudan - Briefing: Economic Impact of Water and Sanitation*
- UNICEF (2014) *Evaluation of the WASH Sector Strategy Community Approaches to Total Sanitation (CATS), Final Evaluation Report*

Health sector / Health promotion/Health services / Nutrition:

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- Public Water Corporation (MIWR-GONU), MWRI-GOSS, UNICEF (2009) *Technical Guidelines for the Construction and Management of Rural Health Institution Latrines, A manual for field staff and practitioners*, April 2009
- Republic of Sudan (2008) *Public Health Law, 2008*
- Republic of Sudan (2012) *Health Sector Strategic Plan, 2012-16,* Final Draft, 7 November 2012
- Republic of Sudan, Federal Ministry of Health (2008) *National Strategy Document for Scaling-up Midwifery in the Republic of Sudan*, 2010
- Republic of Sudan, Federal Ministry of Health, Maternal and Child Health Directorate (2008) *National Nutrition Policy & Key Strategies*, 2008-2012, National Nutrition Programme
- Republic of Sudan, FMoH (no date) *25 Years Strategic Plan for Health Sector*
- Republic of Sudan, FMoH Directorate of Public Health and Emergency, Health Promotion and Community Based Initiatives Directorate (2012) *Health Promotion Strategic Plan*, 2008-12
- Republic of Sudan, FMoH, Directorate General of Quality, Development and Accreditation (2012, 2nd edition) *National Infection Prevention and Control Manual*
- UNICEF (2013, draft 1) *Ashuffa'a Al soghar*, *Communication Initiative Strategy*

Water / WASH sector:

- AMCOW (2010) *Water Supply and Sanitation in Northern Sudan, Turning Finance into Services for 2015 and Beyond, An AMCOW Country Status Overview*
- FMoH (2014) *Drinking Water By-Law, 2014* (under the Environmental Health Act 2009)
- Fogaroli S and Khiar, R (2015) *WASH Gender Review Report*, May 2015, UNICEF Sudan
- GoS, MoWRE, Drinking Water and Sanitation Unit and UNICEF (2013) *WASH Joint Programme, WASH Sector, Bottleneck Analysis Workshop, Summary Report*, Khartoum, Sudan, 3-7 November 2013
- Habila, O (2015) *The WASH Sector Landscape and the Need for Development Partners Coordination*, Presentation at the Inaugural Meeting of the WASH Sector DPs, at UNICEF Office, 08 Dec 2015
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- MoWRE & FMoH (2014, draft) *National Policy of Drinking Water, Sanitation and Hygiene, Feb 2014*
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- Republic of Sudan (2011) *WASH Sector National Strategic Plan, 2012-16*

- Republic of Sudan, MoWRE, *DWSU (no date) Drinking Water and Sanitation Unit Training Centre (DWST), Short-Term and Long-Term Plan*

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- South Kordofan State & Public Water Corporation (2011) *South Kordofan State Water, S&H Sector Strategic Plan for 2011-2016*, March 2011
- West Darfur State & Public Water Corporation (2011) *West Darfur State Water, S&H Sector Strategic Plan for 2011-2016,* March 2011

Education sector & schools:

- MoE (2016) *Rapid Survey, 2015-16 Data*
- Public Water Corporation (MIWR-GONU), MWRI-GOSS, UNICEF (2009) *Technical Guidelines for the Construction and Management of School Latrines, A manual for field staff and practitioners*, April 2009
- Republic of Sudan, Ministry of General Education and Federal Ministry of Health (2016, draft) *National Guidelines for Implementation of an Effective School Health Programme,* MoE, FMoH, UNICEF Sudan
- Republic of Sudan, Ministry of General Education, Federal Ministry of Health and UNICEF Sudan (2016, draft) *The National School Health Strategy, 2016-20*
- UNICEF (no date) *WASH in Schools Country Profile Sudan* (no date)
- UNICEF Sudan (2012) *WASH in Schools Distance-Learning Course: Learnings from the Field 2012*

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- FMoH, *National Integrated Vector Management Strategy,* 2014-18
- Mahgoub, H (2016) Vector control and water safety, presentation at the *Consultative Workshop for development of the Sudan National Sanitation and Hygiene Strategic Framework,* Khartoum, March 2016, World Health Organisation
- WHO (2016) Assessment of Vector Control System Capacity and Initiatives in Darfur States, February 2016

SWM, HCWM & HWM:

- Abdellah, A.M. and Balla, QI (2013) Domestic Solid Waste Management and its Impacts on Human Health and the Environment in Shard El Neel Locality, Khartoum State, Sudan, *Pak, J. Biol, Sci,* Nov 15, 2013, 15:16(22): 1538-44 - abstract only
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- Ahmed, N. O., Gasmelseed, G.A., Musa, A. E. (2014) Assessment of Medical Solid Waste Management in Khartoum State Hospitals, *Journal of Applied and Industrial Sciences*, 2014, 2(4): 201-205, ISSN: 2328-4595; National EH Strategy, 2015-19; and consultations
- Dahab, A. A (2016) Solid waste and health care waste management, presentation at the *Consultative Workshop for development of the Sudan National Sanitation and Hygiene Strategic Framework,* Khartoum, March 2016, Environmental Health Department, General Directorate of Primary Health Care, Federal Ministry of Health
- Dahab, A. A. (2015) *Situation Assessment of EH in Health Facilities in Sudan, General Directorate of Primary Health Care*, Federal Ministry of Health, Sudan
- Dahab, A. A. (2016) *Report on the Status of water, sanitation and hygiene (WASH) and environmental health in health care facilities,* Federal Ministry of Health, Sudan
- FMoH (2014) *Hazardous Waste Regulation*, 2014
- FMoH (2014) *Hazardous Wastes for Health Facilities, By-law*, 2014 (under the Environmental Health Act 2009)
- FMoH (no date, draft) *Hazardous Wastes in Health Facilities Guidelines*

- FMoH (no date, draft) *Health Care Wastes Policy*
- FMoH: *'National Guidelines for Primary Health Waste'*; *'Chapter 1: Definition of Solid Waste'*
- World Vision (no date) *Solid Waste Management* [humanitarian focussed]

Food safety:

- Republic of Sudan, National Assembly (1973) *Monitoring Foods Act*

Data:

- Central Bureau of Statistics (2009) Sudan National Baseline Household Survey
- FMoH, *Annual Health Statistics,* 2012 (in print)
- *Multi Indicator Cluster Survey (MICS) data* (2014)
- Republic of Sudan, Ministry of Cabinet, Central Bureau of Statistics and UNICEF (no date) *Facts and Figures (based on MDGs Indicators)*, Multi Indicator Cluster Survey (MICS)
- *Sudan S3M Core Indicators*
- USAID (no date) *Sudan, Water and Sanitation Profile*
- World Food Programme and UNICEF (2016) *The case for investment in nutrition in Sudan*, February 2016

UN and development partner supported programmes:

- African Development Bank (2015) *Water Sector Reforms and Institutional Capacity Development Program,* http://www.afdb.org/en/projects-and-operations/project-portfolio/project/p-sd-e00-002/
- DFID (2015) *DFID Sudan*, http://www.gov.uk/government/world/organisations/dfid-sudan
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- ICAI (2013) *DFID's Water, S&H Programming in Sudan*
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- WHO (2014) *Country Cooperation Strategy at a Glance, Sudan*

XVII.4 Global resources

The following are global resources referred to in this strategy:

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- Giles-Hansen, C. (2015) *Hygiene Needs of Incontinence Sufferers; How can water, sanitation and hygiene actors better address the needs of vulnerable people suffering from urine and/or faecal incontinence in low and middle income countries*, WaterAid/SHARE http://www.communityledtotalsanitation.org/sites/communityledtotalsanitation.org/files/Hygiene_needs_of_incontinence_sufferers.pdf
- Hafskjold, B. Pop-Stefanija, B. Giles-Hansen, C. Weerts, E. Flynn, E. Wilbur, J. Brogan, K. Ackom, K. Farrington, M. Peuschel, M. Klaesener-Metzner, N. Pla Cordero, R. Cavill, S. House, S. (2016) 'Incompetent at incontinence - why are we ignoring the needs of incontinence sufferers?' Waterlines, volume 35, issue 3, July 2016
- House, S, Mahon, T, Cavill, S (2012) *Menstrual Hygiene Matters; A resource for improving menstrual hygiene around the world*, WaterAid/SHARE (co-published by 18 organisations); or Roose, S, Rankin, T and S. Cavill (2015)

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- House, S, Mahon, T, Cavill, S (2012) *Menstrual Hygiene Matters; A resource for improving menstrual hygiene around the world*, WaterAid/SHARE (co-published by 18 organisations)
- House, S. and Cavill, S. (2015) 'Making Sanitation and Hygiene Safer: Reducing Vulnerabilities to Violence', *Frontiers of CLTS: Innovations and Insights,* Issue 5, Brighton: IDS; http://www.communityledtotalsanitation.org/sites/communityledtotalsanitation.org/files/Frontiers5_Making_Sanitation_and_Hygiene_Safer.pdf
- House, S. Ferron, S, Sommer, M, and Cavill, S. (2014) *Violence, Gender & WASH: A practitioner's Toolkit - Making water, sanitation and hygiene safer through improved programming and services*. London, UK: WaterAid/SHARE (co-published by 27 organisations) http://violence-WASH.lboro.ac.uk
- Jewitt, S. And Ryley, H (2014) It's a girl thing: Menstruation, school attendance, spatial mobility and wider gender inequalities in Kenya, *Geoforum*, 56 (2014) 137-147. http://www.sciencedirect.com/science/article/pii/S0016718514001638
- Kettaneh, A, Pulizzi, S and Todesco, M (2014) *Puberty Education & Menstrual Hygiene Management, Good Policy and Practice in Health Education*, Booklet 9, United Nations Educational, Scientific and Cultural Organisation (UNESCO) http://unesdoc.unesco.org/images/0022/002267/226792e.pdf
- Roose, S, Rankin, T and S. Cavill (2015) Breaking the Next Taboo: Menstrual Hygiene within CLTS, *Frontiers of CLTS: Innovations and Insights*, Issue 6, July 2015 http://www.communityledtotalsanitation.org/sites/communityledtotalsanitation.org/files/Frontiers_no6_MHM_0.pdf
- Schouten T. & Moriarty P. (2003) *Community Water, Community Management, From systems to service in rural areas,* Practical Action, in: Action Contre La Faim (2007) *How to Make WASH Projects Sustainable and Successfully Disengage in Vulnerable Contexts*, ACF-International Network
- Sijbesma, C (2011) *Sanitation financing models for the urban poor*, Thematic Overview Paper 25, International Water and Sanitation Centre;
- Tremolet, S, Kolsky, P and Perez, E (2010) *Financing on-site sanitation for the poor; A six country comparative analysis*, WSP and The World Bank
- USAID Deliver Project (2011) *Guide to Health Care Waste Management for the Community Health Worker,* USAID, Deliver Project, Task Order 4
- WASH United, *Menstrual Hygiene Day* http://menstrualhygieneday.org/
- WHO & UNICEF (2015, draft) *JMP Green Paper: Global monitoring of water, sanitation and hygiene post-2015*, Joint Monitoring Programme, WHO & UNICEF
- WHO (2015*) Service Availability and Readiness Assessment (SARA); An annual monitoring system for service delivery, Reference Manual*, Version 2.2, Revised July 2015
- World Business Council for Sustainable Development (2016) *Safe Water, Sanitation and Hygiene at the Workplace*, http://www.wbcsd.org/washatworkplace.aspx
- WSUP (2003) *Financing water and sanitation for the poor: six key solutions,* Discussion Paper, WSUP and IRC; and Fonseca, C et al (2011) *Life-cycle costs approach, Costing sustainable services,* Briefing Note 1a, Nov 2011, IRC International Water and Sanitation Centre