



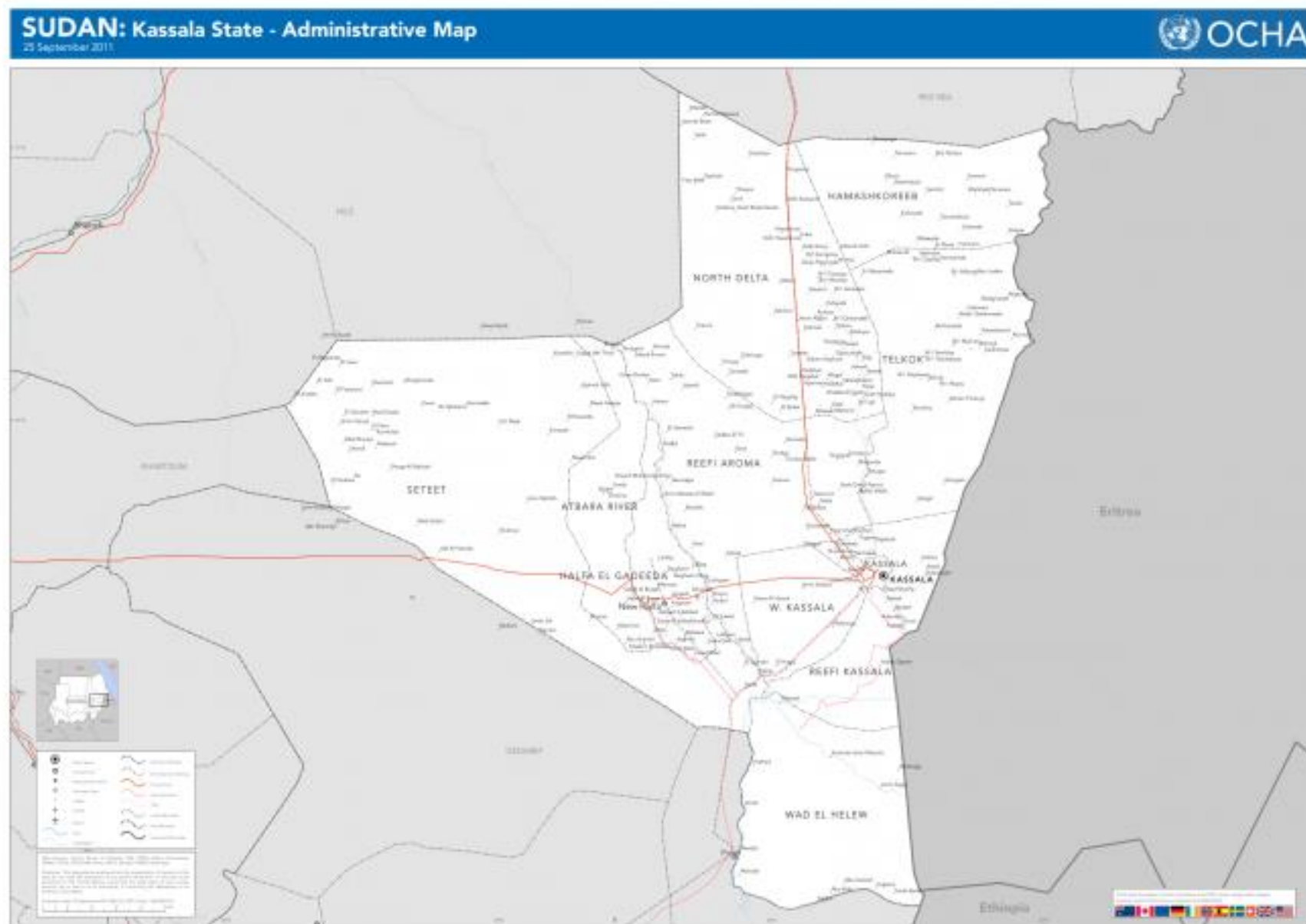
## Kassala State

# W.A.S.H. and Waste Sector Development Plan

September 2019



Figure 1: Kassala State Map



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## Acronyms

|       |  |
|-------|--|
| AWD   | Acute Watery Diarrhoea   |
| CBO   | Community based organisations  |
| CFS   | Child Friendly Schools   |
| CLTS  | Community Led Total Sanitation                                       |
| COR   | Commission for Refugees  |
| CSO   | Civil Society Organisations (NGOs, CBOs, FBOs)                       |
| DFID  | Department for International Development, UK Government              |
| DG    | Director General   |
| DRR   | Disaster risk reduction  |
| DWQ   | Drinking water quality   |
| DWS   | Drinking water safety  |
| DWST  | Drinking Water and Sanitation Unit Training Centre                   |
| DWSU  | Drinking Water and Sanitation Unit, MoWRIE (previously known as PWC) |
| EH    | Environmental health   |
| EMIS  | Education Management Information System                              |
| FBO   | Faith based organization   |
| FGD   | Focus group discussion   |
| FRC   | Free residual chlorine   |
| FMoH  | Federal Ministry of Health   |
| FSM   | Faecal Sludge Management   |
| GBV   | Gender Based Violence  |
| GoS   | Government of Sudan  |
| GWD   | Groundwater and Wadis Directorate, MoWRIE                            |
| HAC   | Humanitarian Aid Commission  |
| HACCP | Hazard analysis critical control point                               |
| HCW   | Health Care Waste  |
| HP    | Hygiene promotion / Health promotion                                 |
| HP    | Hand Pump  |
| HTH   | High test hypochlorite   |
| HWM   | Hazardous Waste Management   |
| HWTS  | Household water treatment and safe storage                           |
| HYWY  | High yield water yard  |
| IDP   | Internally displaced person  |
| INGO  | International non-governmental organization                          |
| IOM   | International Office for Migration                                   |
| IVM   | Integrated Vector Management   |
| IWRM  | Integrated water resources management                                |
| JMP   | Joint Monitoring Programme, WHO/UNICEF                               |

|         |   |
|---------|---|
| KAP     | Knowledge, attitude and practice  |
| KII     | Key Informant Interview   |
| KPI     | Key performance indicator   |
| LYWY    | Low yield water yard  |
| 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   |
| MoE     | Ministry of Education   |
| MoENRPD | Ministry of the Environment, Natural Resources and Physical Development |
| MoFNE   | Ministry of Finance and National Economy                                |
| MoWRIE  | Ministry of Water Resources, Irrigation and Electricity                 |
| MoWSS   | Ministry of Welfare and Social Security                                 |
| NERC    | National Environmental Research Council                                 |
| NGO     | Non-governmental organization   |
| NPHL    | National Public Health Laboratory, FMoH (formerly known as STAK)        |
| NSHC    | National Sanitation High Committee                                      |
| O&M     | Operation and maintenance   |
| OFDA    | Office of United States Foreign Disaster Assistance                     |
| PHAST   | Participatory Hygiene and Sanitation Transformation                     |
| PoU     | Point of use  |
| PPE     | Personal protective equipment   |
| PTA     | Parents and Teachers Association  |
| PWD     | Person(s) with Disabilities   |
| RCF     | Refugee Consultation Forum  |
| S&H     | Sanitation and hygiene  |
| SAG     | Sector Advisory Group (of Humanitarian WASH Sector)                     |
| SDG     | Sustainable Development Goals   |
| SDW     | Safe drinking water   |
| SDWSSF  | Sudan Drinking Water Safety Strategic Framework                         |
| SHCC    | School Health Coordination Council                                      |
| SM      | Sanitation Marketing  |
| SME     | Small and medium sized enterprises                                      |
| SMoIUD  | State Ministry of Infrastructure and Urban Development                  |
| SNSHSF  | Sudan National Sanitation and Hygiene Strategic Framework               |
| SSC     | State Sanitation Committee  |
| SSF     | Slow Sand Filter  |
| SSMO    | Sudan Standards and Metrology Organisation                              |

|                                       |  |
|---------------------------------------|--|
| SWC                                   | State Water Corporation  |
| SWM                                   | Solid waste management   |
| TAG                                   | Technical Advisory Group   |
| TSSM                                  | Total sanitation and sanitation marketing  |
| TWG                                   | Technical Working Group  |
| UNHCR                                 | United Nations High Commissioner for Refugees  |
| UNICEF                                | United Nations Children's Fund   |
| uPVC                                  | Un-plasticised Poly Vinyl Chloride   |
| UWA                                   | Urban Water Authority  |
| UW4D                                  | Urban Water for Darfur   |
| WASH                                  | Water, sanitation and hygiene  |
| WES                                   | Water and Environmental Sanitation [Project]   |
| WHO                                   | World Health Organization  |
| WSP                                   | Water Safety Plan  |
| WTP                                   | Water treatment plant  |
| WUC                                   | Water User Committee   |
| <b>English words for Arabic terms</b> |  |
| Zeer                                  | A traditional clay pot used for storing drinking water (alternatively spelt as Zir or Zyr) |
| Wudu                                  | Ablution, washing before prayer  |

Key acronyms that have been used throughout the report:

- SDW - Safe drinking water
- DWS - Drinking water safety
- DWQ- Drinking water quality
- S&H - Sanitation and Hygiene
- WASH – Water, Sanitation & Hygiene

# 1 Executive Summary

## **State Water, Sanitation, Hygiene Development Plan for Kassala**

The State Water, Sanitation and Hygiene and Waste development plan has been developed to provide a framework for strategic planning, implementing, coordinating and for scaling up safe drinking water, sanitation, waste and hygiene across Kassala State.

It has been developed from the findings of the August 2019 report WASH Situation in Kassala State, August 2019 and was developed to be in line with the Sudan National Sanitation and Hygiene Strategic Framework (SNSHSF) and the Sudan Drinking Water Safety Strategic Framework (SDWSSF) through a consultative process involving representatives from:

- State Ministry of Health
- SWC
- WES
- Rural Kassala
- Sudanese Red Crescent Society
- Agenzia Italiana per la Cooperazione allo Sviluppo
- Practical Action (Plan)
- Plan (INGO)

The process has been financed by the European Union through AICS- Agenzia Italiana per la Cooperazione allo Sviluppo, facilitated by RedR Sudan.

## **Strategic Priorities**

The following strategic priorities have been established for each of the key components of:

- safe drinking water (SDW),
- sanitation and hygiene (S&H),
- 'cross-cutting issues' of gender, diversity and marginalization; of sustainability, seasonality and disaster risk reduction
- 'building blocks' of legal and policy frameworks, stakeholder responsibilities, financing, advocacy and political commitment, planning, monitoring, research and learning and capacities and capacity building

Each are supported by a series of strategic outcomes outlined below:

### **a) Scaling up WASH in Kassala State**

#### **i. Drinking Water Safety**

- 1. Supply - Protection, selection, siting, design of system and construction**
  - To improve the protection of water resources
  - To select, site, design and construct systems that maximise the safety and sustainability of drinking water supplies for the population of Kassala State, including populations in refugee and IDP contexts



2. Supply - Management and operation and maintenance
  - To strengthen management processes and commitment and action on operation and pro-active maintenance that will underpin the availability of sustainable SDW for the population of Kassala
3. Demand - Community engagement, hygiene promotion and enforcement/ activation of laws
  - To strengthen hygiene promotion with, and community engagement of, the population of Kassala to facilitate actions to improve sustained access to SDW at household level
  - To increase the effectiveness of the process of enforcement/ activation of laws to act as a motivator for drinking water suppliers to improve the consistency of SDW in Kassala
4. Quality - Operational monitoring, verification of effectiveness, surveillance, documentation and citizen feedback
  - To strengthen commitment to monitoring, evaluation, surveillance and documentation
  - To increase regular practice and quality of monitoring, evaluation, surveillance and documentation

## **ii. Household sanitation and hygiene**

1. Excreta disposal
  - To scale up efforts to ensure that 100% of households in Kassala stop open defecation and move up the sanitation ladder to improved, gender-sensitive, safe and fully accessible excreta disposal facilities
2. Hygiene Promotion
  - To scale up the sustained practice of good hygiene behaviors by all people in Kassala State

## **iii. Institutional and public sanitation and hygiene**

1. Health facilities
  - To ensure effective EH services and behaviors in all health facilities across Kassala, both public and private sector, to reduce EH risks for staff, patients, visitors and neighboring communities
2. Schools and other educational facilities
  - To ensure that schools and all other educational facilities provide healthy WASH environments with adequate numbers of safe, accessible<sup>1</sup>, 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.
  - To ensure that all children in Kassala 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.
3. Religious institutions, workplaces, community centers, highways
  - To ensure that religious institutions, workplaces, community centers and highways are served by adequate accessible, clean, safe and well-maintained S&H facilities including for solid and liquid waste and menstrual hygiene material disposal.

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<sup>1</sup> 'Accessible' means accessible to all including people with disabilities

4. Markets, slaughterhouses and other food related premises

For all markets, slaughterhouses and food and beverage related premises:

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

**iv. Environmental health services**

1. Faecal sludge management

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

2. Solid waste management

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

3. Health care waste and hazardous waste management

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

4. Vector control

- 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.
- To strengthen attention on maintenance of existing IVM equipment to ensure its most effective use.

5. Food safety

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

6. Surface water drainage and grey-water disposal and re-use

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

**b) Cross-cutting issues for DWS in Kassala**

**i. Gender, equity and vulnerability**

- Ensure that WASH services respond effectively to the needs of all people in Kassala, particularly women and girls, people with disabilities or mobility limitations and those who may be disadvantaged or in marginalized or particularly vulnerable situations.

**ii. Sustainability, seasonality, environment, climate change and Disaster Risk Reduction**

- To increase the sustainability and safety of WASH services, including from the effects

- of climate change across the seasons, and improving WASH related behaviors
- To protect the environment through effective design, siting and management of WASH services and application of and enforcement of environmental standards related to WASH
- To strengthen DRR to improve sustained access to WASH services during times of humanitarian crisis

**c) Building blocks for WASH Services in Kassala**

**i. Legal and policy framework**

- To update and strengthen the overall coherence of the legal and policy framework for WASH in Sudan

**ii. Stakeholder responsibilities**

- To clarify the institutional responsibilities for WASH across State Ministries and between all stakeholders and strengthen inter-sectoral coordination
- To maximise the potential of the private sector of different types and sizes in the supply of WASH services
- To create an enabling environment and strengthen regulation of the private sector involved in the provision of WASH services in Kassala

**iii. Financing, advocacy and political commitment**

- To significantly increase the political commitment for WASH in Kassala including increase in investment and financial allocations for the provision of WASH in Kassala
- To increase commitment and action to ensure adequate finances are available for operation and maintenance of drinking water systems
- To identify and propose new financial resources for WASH in Kassala, with the participation of and from communities, from across sectors, the private sector, from micro-finance and through cross-subsidies

**iv. Planning, monitoring, research and learning**

- To increase the implementation and monitoring of WSPs at all levels including the consideration of gender and equity at each stage.
- To reduce overlap in monitoring systems between institutions to result in simple streamlined and efficient gender-sensitive monitoring systems for collecting information on WASH that can be used at all levels and sustained over time.
- To increase opportunities for experience sharing and learning opportunities for professionals working on WASH at all levels

**v. Capacities and capacity building**

- To build the capacity of the professionals of the future to work in WASH at all levels using an array of capacity building approaches to train, coach and mentor, through the provision of resources and equipment and through the development of systems which will enable the capacities to be utilized
- To strengthen the capacities of the existing training and educational institutions which train sector professionals in WASH
- To utilize the knowledge and skills of the higher education institutions to undertake applied research, assessments and evaluations related to WASH, while also updating the knowledge of the lecturers

## 2 Introduction

### 2.1 Aim of the Developmental Plan

The aim of the Kassala State Water, Sanitation and Hygiene (WASH) the plan is to provide strategic direction to the scaling up of access to Safe Drinking Water (SDW) and Sanitation and Hygiene (S&H) across Kassala State.

The plan has been developed from the findings of the August 2019 report WASH Situation in Kassala State, August 2019 and was developed to be in line with the Sudan National Sanitation and Hygiene Strategic Framework (SNSHSF) and the Sudan Drinking Water Safety Strategic Framework (SDWSSF). It has been validated in a meeting of the following organizations:

- State Ministry of Health (Environmental Health).
- State Ministry of Health (Integrated Vector Management).
- State Ministry of Health (Environmental Health - water safety)
- State Ministry of Health (Sanitation)
- State Water corporation
- State Water corporation WES
- Environmental Sanitation Project)
- State Ministry of Education (school health)
- Rural Kassala
- Sudanese Red Crescent Society
- Agenzia Italiana per la Cooperazione allo Sviluppo
- Practical Action
- Plan Sudan (INGO)

### 2.2 Structure of the Development Plan

The main body of the development plan has been structured:

- **Section 3** – Main findings of the WASH Situation in Kassala State Report
- **Section 4** - Vision, purpose, principles
- **Section 5** - Strategies – Scaling up WASH in Kassala State– separated by component
  - Cross-cutting issues
  - Building blocks for WASH in Kassala
- **Section 6** – Development plan framework

### 2.3 Main findings of the report WASH Situation in Kassala State

The report “WASH Situation in Kassala State” set out the situation of WASH services in Kassala, as evidenced in various State and national surveys and from interviews of key informants from the State MoH, State WES State MoE, the Sudanese Red Crescent and several NGOs.

#### 2.3.1 Water Supply

35% of households in Kassala get their water from an improved supply in their premises. It is unsure how many have a safely managed supply (according to the SDGs) as water quality is not tested in the homes and little household water treatment is done. 13% get water tankered from an improved

source but worryingly, 20% get unfiltered water from rivers, lakes, hafirs or other unimproved sources with a high risk of contamination.

There is poor quality in operation and maintenance of water supplies. A sporadic electricity supply in urban areas means that amounts and quality of networked water are poor. As groundwater sources are depleted, more surface water is used in networks, necessitating costly treatment to reduce turbidity and contamination. Water quality monitoring is carried out but not on a regular basis and not widespread enough. The State laboratories are operational and can test for all Sudan's water quality parameters. Rural communities use surface water and ground water, many communities treat water using sand filters.

Management of networks is carried out by the SWC, but smaller supplies are rarely managed effectively by WUCs. Tariffs cover little more than simple operation and maintenance and do not cover costs of large-scale repairs or replacement of equipment.

Only 3% of households carry out water treatment at home, so those households who use unimproved water supplies rarely treat their own water, putting them at high risk of catching WASH related diseases.

The 7 refugee camps' water supply are managed by the international community and coordinated by UNHCR.

Nomads generally travel with their animals from one water source and grazing area to the next. They primarily use contaminated surface water and share it with their animals. During flooding and droughts their situation is more vulnerable than most with no designated facilities.

Management of water supplies in both rural and urban areas is poor in terms of water quality; setting, collecting and using tariffs; and operation of and repairs to water supplies. Households should be encouraged to treat their own water to reduce diarrheal and other WASH related diseases. Further support to nomadic groups should be identified through a better identification of needs. Existing programmes such as water safety planning will help safeguard existing water supplies from contamination.

### 2.3.2 Excreta Disposal

34% of households use an improved sanitation facility, 21% use an unimproved facility and 44% defaecate in the open, which is a massive health risk. However, there is a major initiative by the State Ministry of Health and partners to make villages in Kassala State ODF. This needs to continue and needs further inputs if it is to succeed by 2022.

Societal norms around good sanitation and open defecation need to be addressed at household, school and institutional level for major changes to happen.

### 2.3.3 Handwashing

11% of Kassala households had a place for handwashing with water and soap available, another 9% had a place for handwashing but with no soap or water. Without water in the house, and with poor understanding of its importance, little change will happen. Awareness raising throughout the State has been limited, but where it has happened improvements in knowledge and practice can be seen. Existing programmes of hygiene promotion, ODF villages and the CLTS need to be extended and prioritized and monitored to see the longest term changes to people's behavior.

#### 2.3.4 Menstrual Hygiene

Menstrual hygiene is a taboo subject in Sudanese culture and there is little provision to manage it. Greater awareness through school lessons, and hardware provision in institutions to dispose of or manage menstrual hygiene products will support women and adolescent girls.

#### 2.3.5 Solid Waste Management

Solid Waste Management is not considered a priority by many people in Sudan or Kassala. Funding and equipment are limited, and taxes cover at best 20% of the costs. There is no formal waste collection or disposal site. In many urban centers, waste is dumped in open ground or often burnt. In rural areas households dispose of waste by burying, burning or dumping. Only in the camp is there a system that is working, operated by the NGOs and UN. There is no recycling of plastics or metals.

Much will need to be invested to make SWM effective, both in terms of infrastructure and in terms of people's conceptions. In Sudan, people say they are willing to pay but only for a system that works well.

#### 2.3.6 Vector control

Although there is a high proportion of vector borne diseases in Sudan, there is little funding for vector control in Kassala. There is a lack of vehicles and insecticides and material for investigation.

#### 2.3.7 Food Safety

Again, there is little capacity for either investigative work or education of the public in food safety. Food Safety Officers only work regularly in Kassala towns and not at all in rural areas.

#### 2.3.8 WASH in Schools

Provision of water to schools could be improved massively in terms of amounts and quality of water, some rural schools do not have access to a supply. Although almost 78% of schools have latrines, there is no indication as to how well they are being used and cleaned and whether there are sufficient numbers of segregated latrines for girls, boys and staff. In Sudan, only 20% of schools have handwashing facilities with soap and water.

The costs of construction of new latrines are prohibitive and teachers do not have time or skills to promote good hygiene and sanitation in classes. In the whole of Sudan, there are some good initiatives in some schools like WASH committees and teachers trained to promote good hygiene practice; these could be copied throughout Kassala State.

#### 2.3.9 WASH in Health Facilities

72% of health facilities have at least 1 latrine in Kassala State and 66% have a water supply. It is unsure how many have segregated latrines for men and women and what condition the latrines are in. There is no indication of the quality of water supplied or whether it is enough to meet the needs of patients, carers, staff and medical purposes. It is also unclear whether there are handwashing facilities in the health institutions. Supplies, logistics and resources are limited for improving

environmental health in health institutions. There is little management of environmental health and few trained staff.

Health care waste is typically not managed at all or badly in most health institutions. Dumping of hazardous waste in the grounds of the institutions or nearby is common.

#### 2.3.10 WASH in other Institutions

WASH in mosques, Quranic schools, clubs and highways is generally inadequate, few facilities have latrines or water supplies. Only 1 out of 6 highways have latrines and only 32% of markets have working latrines.

#### 2.3.11 Cross-Cutting Themes

Gender, equity and marginalization affect how people access WASH services and how safe they feel using these services. Although there are WASH programmes that set out to address these concerns, they need to be integrated into all WASH programming throughout the State.

Sustainability, seasonality, climate change and disaster risk reduction need to be addressed in future WASH programmes and in operation and maintenance of WASH facilities. Risk management programming, such as water safety plans are ideal methods to bring in these issues into programming and improvements.

### **3 Vision and purpose of the Development Plan**

#### **3.1 Vision**

All people in Kassala State have sustainable access to and use safe drinking water (SDW) and improved sanitation, dispose of solid and liquid wastes safely and practice healthy hygiene behaviors, contributing a clean environment, a disease-free State and to the upholding of a range of human rights and the longer term prosperity and development of Kassala State.

#### **3.2 Purpose**

The development plan will contribute to scaling up access to SDW and S&H across Kassala in development, humanitarian and transitional contexts through:

1. Providing clear strategic direction, leading to increased harmonization of approaches by all stakeholders across sectors, including government, non-governmental organizations and the private sector.
2. Increasing understanding of the cross-sectoral responsibilities and the contributions related to the supply, monitoring and sustainability of SDW to upholding a range of rights for the people of Kassala, 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 Principles

The scaling up of access to WASH services in Kassala will be undertaken with the following principles:

### **Principle 1 – Social Development –**

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

The efforts to scale up access to WASH services in Kassala will consider the motivations, cultural norms, skills, priorities and needs of the girls, boys, women and men of Kassala; encouraging their leadership, participation and innovation, and increasing demand for WASH services, as well as sustained practice of positive hygiene behaviors.

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 WASH from a young age. Particular efforts will also be made in identifying, involving and prioritizing the needs of the poorest and those in most vulnerable or marginalized 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**

The three lead Ministries for SDW at State level are the: SMoENRPD - lead for environmental protection of water resources; SMoWRIE - lead for the control of water resources and supply of SDW; and the SMoH - lead for surveillance of safe drinking water and enforcement and sanitation and hygiene promotion. SMoH also leads on S&H activities.

The overall coordinator of the WASH sector is the SMoWRIE/DWSU. Their leadership of these different areas are to be implemented collaboratively and in a spirit of teamwork and shared responsibility, working towards the same goal, across sectors and Ministries. The State Water Corporation leads the supply of SDW and the SMoH for the surveillance and control of SDW. The Localities have the responsibility for ensuring access to SDW and S&H services in their areas of responsibility as well as surveillance and control of SDW and S&H and work in partnership with communities and the private sector who are responsible for managing water supplies at community level. Collaboration 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, finance and social welfare; as well as with the Administrative Units (Municipal) and Localities.

Partnerships will be established and nurtured between the State Government at all levels, across sectors and organizations, including community based organizations, non-governmental organizations, research institutions, the private sector and bilateral and multi-lateral organizations, 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 recognized 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 and Locality to State levels and then onto 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/ activation of laws 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 WASH 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 behaviors will be integral to the design of solutions**

All efforts on WASH will consider the short, medium and longer term sustainability of facilities, services and behaviors. 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 at all levels and feed back into designs for improved solutions**

Monitoring, evaluation and information management related to WASH 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 organizations and institutions for mutual benefit of the quality of interventions, as well as for continuing capacity building of future professionals working in the area of WASH.

## 5. Strategies for scaling up WASH in Kassala State

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

- **Section 5.1** – Drinking water safety
- **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, refer to **WASH Situation in Kassala State**

### 5.1 Drinking Water Safety

#### 5.1.1 Supply - Protection, selection, siting, design of system and construction

**Strategic outcomes:**

- **To improve the protection of water resources**
- **To select, site, design and construct systems that maximize the safety and sustainability of drinking water supplies for the population of Kassala State, including populations in refugee and IDP contexts**

**Methods to achieve the outcome:**

1. Identify the stakeholders with a role in protecting, selecting, siting, designing, constructing, managing and operating and maintaining the drinking water system and who will be the owner of the system including the community who will benefit from the supply, and involve them in all stages of the process.
2. Strengthen the collaboration across sectors and stakeholders in environmental protection of the water resources and strengthen the requirement for social and environmental impact assessments for development in the area to clearly consider the impact on water resources.
3. Strengthen the standard processes for selection of water sources and the design and construction of the source abstraction, treatment and supply system to maximise the safety and sustainability of the drinking water supply.
4. Pay greater attention to establishing appropriate conditions for effective chlorination (reducing turbidity, storage of chlorine) and increasing the dosages to ensure that 0.2 mg/l free chlorine residual can be found in stored water at household level in the most distant ends of the network after 24 hours. Also, undertake research in Kassala State to refine the appropriate dosages and residuals in different contamination and climatic temperatures.
5. Establish a strategy to respond to changes in population in refugee and IDP contexts to ensure sustainable DWS of both adequate quantity and water safety.
6. Establish a technical body which is responsible for the O&M strategy and approach to guide the technical interventions.

See also **Section 5.6.5** on building capacities related to this strategic objective.

## **5.1.2 Supply - Management and operation and maintenance**

### **Strategic outcomes:**

**To strengthen management processes and commitment and action on operation and pro-active maintenance that will underpin the availability of sustainable SDW for the population of Kassala**

### **Methods to achieve the outcome:**

1. Clarify good practices for management that effective operation and pro-active maintenance of all facilities and equipment as part of the water supply chain.
2. Establish and maintain functional water quality analysis facilities at each WTP that have the capacity to test the source, along stages of the treatment process and the water leaving the WTP and to test the optimal dosages for water treatment chemicals.
3. Set up alternative intervention for treatment of the ground water source that has a clear result of water unfit for human consumption.
4. Each water supplier should be required to establish the real costs of operation and preventative and responsive maintenance for their services and be required to ring fence this amount in their annual budgets to be dedicated for operation and preventative maintenance.
5. Increase the use of water meters to better understand leakage.
6. Introduce the standard reports of KPIs for all SWCs in Kassala State to include one KPI related to DWS.
7. Clarify who is responsible for which elements of maintenance and specify these in agreements with communities and private householders (for example that the SWC will be responsible for the main supply pipes to water yards and the main storage tanks).
8. Improve health and safety requirements and the personal protective equipment (PPE) for water sector operatives when handling chemicals, in particular chlorine and require that all sector operatives are provided with and wear the required minimum PPE.
9. Improve the system and management of the discharge of sludge from WTPs to minimize impact on the environment.

See also [Section 5.6.5](#) on building capacities related to this strategic objective.

## **5.1.3 Demand - Community engagement, hygiene promotion and enforcement/ activation of laws**

### **Strategic outcomes:**

- **To strengthen hygiene promotion with, and community engagement of, the population of Kassala to facilitate actions to improve sustained access to SDW at household level**
- **To increase the effectiveness of the process of enforcement/ activation of laws to act as a motivator for drinking water suppliers to improve the consistency of SDW in Kassala**

### **Methods to achieve the outcome:**

#### **Community engagement and HP:**

1. Establish channels and methodologies to undertake/ strengthen hygiene promotion, and increase engagement with the population of Sudan (women, men, girls, boys and people from particular vulnerable or disadvantaged groups) increasing public awareness on:
  - a. Strengthening ownership / feelings of ownership of the water supply facilities

- b. Reporting failures and problems and demanding their rights and action on maintenance by the SWCs
  - c. Protecting, managing, operating and maintaining community level water supplies
  - d. How to organise communities for hygiene promotion and engagement to implement and monitor WSPs
  - e. Good practices in the collection, handling, household treatment and safe storage of drinking water
  - f. Reasons for not using surface water during the rainy season instead of SDW
  - g. Good practices in the design, management and operation and maintenance of household roof water storage systems and piped supplies
  - h. How to ensure that the most vulnerable and disadvantaged are involved in the processes and benefit from them.
2. For schools (including preschools, *Khalwas* / religious schools), health facilities and other public institutions and places:
    - a. Establish the role of Teachers, Parent and Teacher Associations and Health Facility Management Teams in the management of DWS in schools and health facilities and provide capacity building
    - b. Focus on the issues in strategy 1 above and particular risk areas, such as ensuring soap is available for handwashing, not sharing cups and having taps on *Zeers* or other storage containers and preparing WSPs
    - c. Particular attention on educating school children on the critical importance of pro-active maintenance to sustain drinking water supplies and other services
  3. Monitor the effectiveness of the hygiene promotion, communication channels and methodologies on positive behaviors relating to access to SDW
  4. Establish / strengthen mechanisms for the reporting of faults and complaints to water suppliers by the general public and the system for monitoring action
  5. Ensure that all professionals and institutions working on DWS in Sudan follow "*don't ask people to do what you are not doing*", and are positive role models for the wider community (for example have soap for hand-washing, have clean and well-drained water points in their offices, do not use shared cups for drinking water)
  6. Ensure there is a mix of people in teams which engage with communities on DWS related issues, including women, men and people from minority or marginalized groups.

### **Enforcement:**

7. Strengthen the systems for monitoring and enforcing regulations related to bottled / packaged water and ice producers and suppliers, including small ice sellers
8. Revise the existing community empowerment guideline (in Arabic and English) to include WSPs and strengthen all HP materials to have a component of DWS and specific information on what SDW is.
9. Improve the effectiveness of the process of enforcement/ activation of laws. Actions:
  - a. Clarify which institutions are responsible for enforcement/ activation of laws
  - b. Increase collaboration between the institutions responsible for enforcement across the agriculture, environmental and water sectors and with the Localities

- c. Establish which institutions are responsible for and what are the processes to enforce government institutions who are involved in the process of supplying drinking water
- d. Clarify the processes of enforcement/ activation of laws for different misdemeanors and types and level of penalty
- e. Streamline processes for being able to apply penalties to make them more efficient and effective as motivators for positive behaviors in relation to supply of water
- f. Consider the needs and situations of particularly vulnerable and disadvantaged groups when considering enforcement and alternative strategies to assist them to access and use SDW
- g. Increase attention on industrial pollution and toxic wastes in urban contexts

See also **Section 5.6.5** on building capacities related to this strategic objective.

#### **5.1.4 Quality - Operational monitoring, verification of effectiveness, surveillance, documentation and citizen feedback**

##### **Strategic outcomes:**

- **To strengthen commitment to monitoring, evaluation, surveillance and documentation**
- **To increase regular practice and quality of monitoring, evaluation, surveillance and documentation**

##### **Methods to achieve the outcomes:**

1. Strengthen the commitment of drinking water sector and Environmental Health professionals to undertaking the processes of:
  - a. Operational monitoring
  - b. Verification of the effectiveness of treatment and supply systems
  - c. Surveillance of pollution risks related to drinking water supply
  - d. Documentation and reporting of risks - including permanent log books / records on site for monitoring and strong emphasis on honest recording of actual results (not what is expected as good practice)
  - e. Undertake responses to remove the risks and implement mitigating / remedial action
2. Install a system of publicly accessible records of complaints / reports on problems with water services and a record of what has been done about them
3. Increase regular practice and quality of the above, including with supportive supervision and feedback
4. Increase checking of the effectiveness of tablets for DWQ monitoring field kits to ensure accurate results
5. Increase engagement of communities in monitoring and reporting.
6. DWS in schools, health facilities and other public institutions should be included in the general surveillance system, in the monitoring of water resources, be part of health facilities and school inspections and be included in specific trainings for staff (teachers including MoE and religious teachers; and health facility managers and staff).

See also **Section 5.6.4** for strategies related to establishing/strengthening existing databases and **Section 5.6.5** on building capacities related to this strategic objective.

## **5.2 Household sanitation and hygiene**

### **5.2.1 Excreta disposal**

#### **Strategic outcomes:**

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

#### **Methods to achieve the outcome:**

##### **Enabling environment:**

1. Scale up the CLTS approach across all Kassala State through engaging more organisations and institutions, training of CLTS facilitators, strengthening resources for logistics and on-going support costs.
2. Conduct a joint assessment (between State Ministries, NGOs and others) to study the strengths and weaknesses and lesson learnt of the CLTs approach
3. Undertake mapping of the role and responsibilities of sector partners in S&H promotion and to develop a S&H action plan.
4. Undertake monitoring of progress and on-going sustainability of the CLTS approach in Kassala State
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 Kassala 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. Support and role out 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 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. Disseminate technical guidelines developed at the national level for the implementation of CLTS in Sudan.
16. Roll out ODF verification and monitoring guidelines for all CLTS in Kassala.
17. Increase opportunities for regular peer-to-peer experience sharing on using CLTS in Kassala and the whole of 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. Use standardised guidelines for latrine options in humanitarian contexts - including both technical aspects as well as social mobilisation and gender aspects.

**5.2.4 Hygiene promotion****Strategic outcome:**

**To scale up the sustained practice of good hygiene behaviours by all people in Kassala State**

**Methods to achieve the outcome:****Enabling environment:**

1. Advocacy for significantly increased resources to be allocated to HP at Locality level, as a standard part of State and national Government funding.
2. Support national level initiatives to 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.
5. Ensure household focused hygiene promotion approaches 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 handwashing 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 immunization 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 internalize, 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 outcome:**

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

**Methods to achieve the outcome:**

**Enabling environment:**

1. Review the legislative, strategic and guidance materials for EH in health facilities including accreditation, audit<sup>2</sup> 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)'<sup>3</sup> for Kassala.

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<sup>2</sup> An example of such an audit tool is the Ethiopian 'Clean and Safe Health Facility (CASH) Audit Tool'.

<sup>3</sup> This is a health facility assessment tool designed to assess and monitor the service availability and readiness

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. Ensure every health facility has staff to manage the sanitation and hygiene services
6. 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.
7. 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.
8. 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.
9. To ensure that all health facilities have improved and a continual supply of water.
10. 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 outcomes:**

- To ensure that schools and all other educational facilities provide healthy WASH environments with adequate numbers of safe, accessible<sup>4</sup>, 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.
- To ensure that all children in Kassala 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.

#### **Methods to achieve the outcomes:**

##### **Enabling environment:**

1. Review any State legislation to ensure that it includes the requirement for adherence to standards for WASH in schools.
2. Develop a road map / plan that relates to any national level road maps, to increase school WASH coverage.
3. Strengthen school WASH information systems, ensuring that school WASH data is collected as

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of the health sector to generate evidence to support the planning and management of a health system.

<sup>4</sup> 'Accessible' means accessible to all including people with disabilities

part of the national EMIS.

4. Undertake a School WASH Mapping - to establish the accurate situation of WASH in schools across Kassala.
5. Advocate for the development of legislation to prohibit school construction without integrated WASH services.
6. Adopt national level standards and specifications for appropriate S&H technologies in schools.
7. Advocacy to increase government and state 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 Kassala, 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 all schools in Kassala State.
13. Establish school health (including hygiene) committees and school health (including hygiene) clubs.
14. Ensure every school has staff to manage the sanitation and hygiene services
15. Mainstream gender equality and the needs of children and teachers with disabilities in all school WASH planning, implementation and monitoring processes.
16. 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.
17. Print, distribute, advocate for and build capacity on the implementation of the school health strategy.
18. Develop attached menstrual hygiene disposal systems with latrines in Schools and other educational facilities

### **5.3.3 Religious institutions, workplaces, community centers, highways**

#### **Strategic outcome:**

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

#### **Methods to achieve the outcome:**

#### **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<sup>5</sup>.
4. Require employers to have user-friendly gender-segregated, accessible<sup>6</sup> 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. Ensure every public institution has staff to manage the sanitation and hygiene services
8. Strictly enforce the Government of Sudan policy that no new roads are to be built without toilet facilities and handwashing.
9. 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 outcomes:**

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

- **To increase access to improved S&H facilities, including discrete disposal systems for menstrual hygiene materials.**

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<sup>5</sup> World Business Council for Sustainable Development (2016) *Water, Sanitation and Hygiene at the Workplace*, <http://www.wbcsd.org/washatworkplace.aspx>

<sup>6</sup> Accessible for all, including people with disabilities

- **To improve the cleanliness and sustainability of all facilities and ensure application of public health legislation.**
- **To improve personal hygiene of operatives and food hygiene and control.**

#### **Methods to achieve the outcome:**

##### **Enabling environment**

1. Review relevant State 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. Role out the Sudan national compulsory hygiene certification system for all food operatives, who must undergo training in hygiene processes to attain the certification.
4. Advocacy for increased prioritization and funding allocations for Localities to be able to undertake regular hygiene promotion awareness sessions with food operatives in markets, slaughterhouses and food and beverage related premises.

##### **Supply:**

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

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

#### **Methods to achieve the outcome:**

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 any State 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 Kassala, 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 Kassala.

**Supply:**

4. In the interim, while moving towards sewerage 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 outcome:**

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

**Methods to achieve the outcome:**

**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. 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 Kassala.
8. Identify sites where sanitary landfills can be constructed and construct these to ensure the safe final disposal for municipal waste.
9. Ensure waste collection and disposal staff have necessary tools and PPE at locality and community level

**Demand:**

10. Increased efforts on raising awareness and behavior change for solid waste minimization, 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 Kassala.

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 outcomes:**

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

**Methods to achieve the outcome:****Enabling environment:**

1. Review and strengthen the State legislative and institutional framework to ensure the safe management of hazardous and health care wastes in Kassala, ensuring a stable institutional framework. This is to avoid unstable institutions and responsibilities.
2. Support the role out of the national policy for the management of health care and hazardous wastes.
3. Set up a State body for the management and control of health care wastes under the umbrella of SMoH. That body should report to the national level body. 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 State body for the management of hazardous wastes.
5. To establish a surveillance and monitoring system for health care and other hazardous wastes management (see also the strategies for Health Facilities) in **Section 5.2.1**.
6. To implement the national guidelines for the management of health care wastes in health facilities.



**Supply:**

7. Provide training for Public Health Officers responsible for the management of health care wastes, health and support staff in health facilities across Kassala.
8. 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:**

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

**5.4.4 Vector control****Strategic outcomes:**

- **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.**
- **To strengthen attention on maintenance of existing IVM equipment to ensure its most effective use.**

**Methods to achieve the outcome:**

The following strategies are recommended for vector control:

***Enabling environment:***

1. Increase advocacy on IVM to increase political commitment and resources.
2. Undertake a detailed entomological survey across Kassala (including bio-assay) to identify the epidemiological profile.
3. Develop strategies to develop more comprehensive approaches linked to the epidemiological profile of Kassala.
4. Inventories State equipment and personnel, reports and interventions in national information system set up at Federal level.

**Supply:**

5. Strengthen IVM capacities at State and locality levels - staff capacities, logistics, laboratories, maintenance routines, running costs.
6. 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 outcomes**

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

#### **Methods to achieve the outcome:**

##### **Enabling environment:**

1. Review the current legislative and institutional framework for Kassala, 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, focusing 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 Surface water drainage and grey-water disposal and re-use**

#### **Strategic outcomes:**

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

#### **Methods to achieve the outcome:**

##### **Enabling environment:**

1. To develop Master Plans for S&H including surface water drainage for all cities and towns in Kassala.
2. To improve the drainage network in urban areas in Kassala 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.

## **5.5 Strategies – Cross-cutting issues for DWS in Sudan**

### **5.5.1 Gender, equity and vulnerability**

#### **Strategic outcome:**

**Ensure that WASH services respond effectively to the needs of all people in Kassala, particularly women and girls, people with disabilities or mobility limitations and those who may be disadvantaged or in marginalized or particularly vulnerable situations.**

#### **Methods to achieve the outcome:**

1. Develop practical strategies and guidance to be able to practically consider gender, equity and vulnerability in their work and support women's increased involvement in the sector and in management and implementation, 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 and people from vulnerable, marginalised or otherwise disadvantaged groups, as well as men and boys in WASH.
3. Particular guidance to be provided on technical options for improving accessibility of WASH facilities for people with disabilities and people with mobility limitations and integrate it into legislation and policy.
4. Consider how the WASH sector can better engage with Ministry of Welfare and Social Security (MoWSS) to help it build its capacity in responding to gender, equity and vulnerability related issues.
5. Increase the collection of disaggregated data related to WASH outcomes and programmes and analysis to develop strategies in response.
6. Ensure teams include people from various genders and backgrounds, including women, men and people from marginalised or minority groups.

See also **Section 5.6.5** on building capacities related to this strategic objective.

### **5.5.2 Sustainability, seasonality, environment, climate change and Disaster Risk Reduction**

#### **Strategic outcomes:**

- **To increase the sustainability and safety of WASH services, including from the effects of climate change across the seasons, and improving WASH related behaviours**
- **To protect the environment through effective design, siting and management of WASH services and application of and enforcement of environmental standards related to WASH**
- **To strengthen DRR to improve sustained access to WASH services during times of humanitarian crisis**

#### **Methods to achieve the outcome:**

1. Priority to be placed on increasing awareness and commitment on the critical importance of operation and pro-active maintenance and sustainability of drinking water systems and S&H services and the implications of not undertaking pro-active maintenance.
2. Strengthen monitoring of the quality and capacity of groundwater aquifers and use of groundwater supplies over time, including water levels and associated quality changes.
3. Strengthen /establish a sense of ownership of the water source and water supply system and

ensure that the management body is able to finance the required costs for O&M to help strengthen sustainability.

4. Create positive social norms at community and household levels using participatory demand-based approaches to promote demand for protecting, operating and maintaining community based and household water supplies, for HWTS and to promote acceptability, ownership and system sustainability in S&H services.
5. Strengthen DRR (including early warning and emergency preparedness systems) and capacity for WASH services with particular attention on preparations for outbreak prediction, prevention and control, increasing attention to monitoring and surveillance linked to the rainy season.
6. Build on existing learning on modifications needed to existing systems to respond to climate change.<sup>7</sup>
7. Increase attention on strengthening SWM, FSM and hazardous waste management systems to reduce impacts on the environment.
8. Increase capacity for environmental assessment and monitoring in relation to urban WASH services.

Also see **Section 5.6.1** - for strategies related to the legal and policy framework.

## **5.6 Building blocks for WASH Services in Kassala**

### **5.6.1 Legal and policy framework**

Strategic outcomes:

**To update and strengthen the overall coherence of the legal and policy framework for SDW in Kassala**

**Methods to achieve the outcome:**

1. Review the consistency of State and Locality level legal and policy frameworks relating to WASH.
2. Make laws and policies understandable for the general public - through simplified formats widely disseminated.
3. Strengthen the systems for enforcement/ activation of the laws related to WASH where actions do not comply with Federal, State and Locality drinking water regulations and by-laws.
4. Strengthen regulation and enforcement processes related to the provision of drinking water through private sector operators.

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<sup>7</sup> The following reference has useful practical guidance on pages 35-42: WHO (2017) *Climate-resistant Water Safety Plans*: Managing health risks associated with climate variability and change

### 5.6.2 Stakeholder responsibilities

#### Strategic outcomes:

- To clarify the institutional responsibilities for WASH across State Ministries and between all stakeholders and strengthen inter-sectoral coordination
- To maximize the potential of the private sector of different types and sizes in the supply of WASH services
- To create an enabling environment and strengthen regulation of the private sector involved in the provision of WASH services in Kassala

#### *Methods to achieve the outcome:*

##### **General:**

1. Strengthen inter-sectoral coordination processes to provide oversight and bring together efforts of all stakeholders on WASH.

##### **Private sector:**

2. To undertake a study on the private sector opportunities to engage with WASH in Kassala, identifying the major constraints and developing an action plan to respond.
3. raise awareness within the private sector of the specifications to be used for products used in drinking water (whether national or international specifications/ standards) as well as existing laws, regulations, policies and guidelines.
4. Pay particular attention to clarifying the responsibilities of packaged/ bottled water and ice producers and sellers, including small ice sellers, and raise awareness on, and monitor and regulate the same.
5. Promote opportunities available for the private sector in WASH, for example in the promotion and sale of HWTS products to attract new businesses.

See also [Section 5.6.1](#) on enforcement and also [Section 5.6.5](#) on building capacities related to this strategic objective.

### 5.6.3 Financing, advocacy and political commitment

#### Strategic outcomes:

- To significantly increase the political commitment for WASH in Kassala, including increase in investment and financial allocations for the provision of WASH in Kassala
- To increase commitment and action to ensure adequate finances are available for operation and maintenance of drinking water systems
- To identify and propose new financial resources for WASH in Kassala, with the participation of and from communities, from across sectors, the private sector, from micro-finance and through cross-subsidies

#### Methods to achieve the outcome:

1. Establish a minimum percentage of state income that should be spent on water supply and key elements of WASH.
2. Establish clear priorities for the expenditure of the budget considering the current capacities and capacity building needs to execute the necessary actions.

3. Politicians to be informed of the cost of the AWD response and how this would compare to improving WASH over the longer term.
4. Undertake advocacy at State and Locality levels to increase understanding on the importance of WASH, not only in emergency situations but also for the current and longer term context and for increases in regular budgets for WASH.
5. Increase drinking water and sanitation tariffs to enable effective O&M, to sustain the SWCs and to encourage the retention of staff. Where the tariff is being taken by the State Ministry of Finance, to ensure that the SWC receives a large proportion of the tariff for its operations.
6. Scaling up household and community contributions to WASH services through encouraging positive social norms in relation to safe HWTS and increased understanding of poor O&M of community level supplies on WASH.
7. Increase state government commitment to funding water treatment chemicals for urban and rural drinking water supplies in longer term, transitional and humanitarian contexts and reduce reliance on supply by UN agencies and other development partners.
8. Encourage increased financing through different sectors, such as the Education Sector in relation to schools and other educational institutions, the Health sector for health related institutions.
9. Investigate whether micro-finance, savings clubs and other micro-finance opportunities may be useful and appropriate tools for raising finance for SMEs or households for HWTS and S&H options.
10. Investigate new financing opportunities from the private sector from direct investment, from Corporate Social Responsibility, from marketing campaigns as part of their product promotion or as part of public- private partnerships.

#### **5.6.4 Planning, monitoring, research and learning**

##### **Strategic outcomes:**

- **To increase the implementation and monitoring of WSPs at all levels including the consideration of gender and equity at each stage.**
- **To reduce overlap in monitoring systems between institutions to result in simple streamlined and efficient gender-sensitive monitoring systems for collecting information on WASH that can be used at all levels and sustained over time.**
- **To increase opportunities for experience sharing and learning opportunities for professionals working on WASH at all levels.**

##### **Water Safety Planning Strategies:**

1. Develop a participatory plan to implement WSPs at all levels and to increase the number of WSPs implemented at State, Locality, water supply networked system and community point source levels.
2. All SWCs to be required to prepare WSPs for the urban drinking WTPs and piped networks as well as point sources that they manage and operate, including considering the impact of sewage networks and waste.
3. Design WSP processes to pro-actively consider the perspective and skills and involve all groups in the community including women, men, children and people who may be considered vulnerable, marginalised or disadvantaged (such as the poorest members of the community, older people, people with disabilities and people who may be minorities)
4. Establish systems to verify the implementation and effectiveness of WSPs and to establish remedial actions.

## **Information Management Strategies**

5. Coordination to be undertaken between all ministries and development partners involved in supporting the establishment or strengthening of M&E or MIS systems that are of relevance to WASH in Kassala to:
  - a. Where possible reduce overlap in planning, monitoring and database systems related to water sources and drinking water, whilst also considering their purpose and the users to ensure that they are accessible and used
  - b. Clarify how different institutions can access and input data into the agreed database(s)
  - c. To integrate the results of sanitary inspections/surveys and the existence of WSPs for each water source and drinking water system
  - d. To enable sustainability of the system / database(s) and use over time
6. Strengthen the collection of standardised WASH related data in all national surveys and ensure that gender-sensitive data on WASH 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.
7. Increase operational research on WASH related issues, including on:
  - a. How to respond to issues such as turbidity
  - b. How to reduce specific contaminants such as algae, nitrates, fluorides and toxic wastes
8. To increase opportunities for the collation of learning and reflection and learning on WASH related issues at all levels and across sectors (Water, Health, Education, Environment) with particular focus on State, Locality and water supply system levels.
9. Increase opportunities for the sharing of experience and the results of research and learning between professionals working on SDW at all levels and also opportunities for sharing of good practices between communities.

See also **Section 5.6.5** on building capacities related to this strategic objective.

### **5.6.5 Capacities and capacity building**

#### **Strategic outcomes:**

- **To build the capacity of the professionals of the future to work in WASH at all levels using an array of capacity building approaches to train, coach and mentor, through the provision of resources and equipment and through the development of systems which will enable the capacities to be utilized**
- **To strengthen the capacities of the existing training and educational institutions which train sector professionals in WASH**
- **To utilize the knowledge and skills of the higher education institutions to undertake applied research, assessments and evaluations related to WASH, whilst also updating the knowledge of the lecturers**

**Methods to achieve the outcome:****Higher education and vocational training institutions:**

1. To increase coordination and engagement between universities, colleges, vocational training and other training institutions and operational institutions and agencies to:
  - a. Increase opportunities for students to experience WASH services in the workplace and community
  - b. Increase the number of lectures from operational professionals to training institutions / students
  - c. Increase opportunities for staff and post-graduate students to contribute to operational research

**Laboratories and field testing equipment:**

1. To support a more detailed review/ survey nationally of the water quality testing capacities across institutions and levels (laboratory and field based) and a market survey to:
  - a. Identify existing capacities, strengths and gaps across institutions and levels
  - b. increase efficiency of laboratories through collaboration or sharing resources, including broken equipment in need of repair and equipment that is not being used
  - c. Support establishing regional laboratories with higher capacity to test a range of more complex parameters (whilst also considering the implications of the long distances that would be required to travel to utilize the laboratories and the costs involved)
  - d. Support the repair of water quality testing equipment across institutions and make recommendations for strengthening capacities of mechanics
  - e. Identify the current market situation in relation to accessibility to consumables required for the range of water quality test equipment being used in Sudan

**Sector professionals:**

To particularly strengthen capacities of professionals in the following areas:

- a. In the selection, design and construction of drinking water systems to consider implications for the safety of drinking water supplies.
- b. To build capacities of professionals working at Administrative Unit, Locality and State levels (across institutions and sectors) to prepare and monitor WSPs and undertake remedial actions
- c. Management and pro-active O&M related to all stages of the water supply chain - with particular attention on commitment to pro-active maintenance
- d. Optimisation of the efficiency of water treatment through jar testing and dosing using the range of water treatment chemicals used in Kassala - with particular attention on coagulation and chlorination
- e. Operational monitoring; Verification of the effectiveness of treatment and supply systems; Surveillance of pollution risks related to drinking water supply; Documentation and reporting of risks; and responses to remove the risks and implement mitigating / remedial action
- f. Significantly increase access to logistics and budgets for the water safety teams to undertake regular monitoring and surveillance of drinking water sources and systems



- g. Support the capacity building of the institutions and professionals responsible for enforcement/ activation of laws to have adequate transport, funds, access to water quality testing equipment or laboratory facilities and knowledge on the processes for the enforcement/ activation of laws
- h. Where possible increase salaries / incentives to encourage qualified staff to remain in their roles in Sudan - especially in remote locations
- i. Establish periodic capacity building related to WASH including to respond to the turnover of staff
- j. Household water treatment and safe storage - a menu of options
- k. The testing of pesticides and insecticides in more locations.
- l. The coordination and leadership capacities of the Sanitation Team across the State and Localities including logistics and on the scale up of CLTS
- m. Hygiene promotion and community mobilization skills in both humanitarian and development sectors
- n. Other sectors to better integrate WASH into their programmes
- o. To strengthen sector level M&E systems and skills
- p. To increase engagement of CSOs in sector related strategic planning activities
- q. How to practically consider gender, equity, disadvantage in their work and support women's increased involvement in the sector, including through men and boys' support for this change and also how to involve all groups in the community including women, men, children and people who may be considered vulnerable, marginalized or disadvantaged (such as the poorest members of the community, older people, people with disabilities or minorities)<sup>8</sup>.

### **Communities:**

- 2. To particularly strengthen the capacities of communities in the following areas:
  - a. To understand their rights under the Laws, Acts and standards and how to demand their rights
  - b. To prepare and monitor WSPs and undertake remedial actions
  - c. How to undertake monitoring of SDW at community, household and institutional levels, and remedial actions in response
  - d. Household water treatment and safe storage - a menu of options
  - e. CLTS community programming
  - f. Community based SWM and vector control
  - g. How to involve all groups in the community in WASH related processes and ensure benefits for all - including women, men, children and people who may be considered vulnerable, marginalised or disadvantaged (such as the poorest members of the community, older people, people with disabilities and people who may be marginalised or minorities)

### **Private sector:**

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<sup>8</sup> Useful reference: WHO (2017, draft) *Equity in Water Safety Planning, A guide to integrating equity considerations into the water safety plan process, Draft version, 27 September 2017*



3. Provide capacity building in specific priority areas for the private sector such as:
  - a. National policies, strategies and guidelines as well as opportunities for capacity building in HWTS and sanitation market skills, considering the needs of small to larger private sector actors.
  - b. Pay particular attention to building capacity of packaged/ bottled water and ice producers and small ice suppliers to know their responsibilities.
  - c. Other areas to consider: O&M of desalination plants; standards and specifications for equipment and chemicals; DWQ testing; water treatment; water management; establish a water manual; sustainability; and customer service staff about chemicals and equipment.

## 6 Development Plan

| Strategic Priority  | Outcome  | Indicator   | Means of verification   | Risk Assumptions  | Expected Partners                      |
|---|--|---|---|---|--|
| <b>1 Water Supply</b>   |  |   |   |   |  |
| 1.1 Water Supply - Protection, selection, siting, availability, design of system and construction | 1.1.1 Selection, siting, design and construction of systems maximise the safety and sustainability of drinking water supplies for the population of Kassala State, including populations in refugee and IDP contexts | <ol style="list-style-type: none"> <li>1. 80% of all new water sources have been assessed identifying measures to protect water sources</li> <li>2. 80% of designs and construction of water supplies incorporate significant measures to protect water supply</li> </ol> | <p>Assessment reports</p> <p>Design plans and supervision records of construction</p> | <p>Assessments carried out by competent professionals</p> <p>Design and construction managed by competent professionals</p> | DWSU, SWC, UN, NGOs, and SRCS          |
| 1.2 Water Supply - Management and operation and maintenance                                       | 1.2.1 Management of operation and pro-active maintenance strengthened to underpin the availability of sustainable SDW for the population of Kassala  | <ol style="list-style-type: none"> <li>1. 80% of water supplies have operation and maintenance plans developed, run and monitored using water safety planning methods or similar</li> </ol>   | Water safety plans  | Water Safety Plans developed with the cooperation of key stakeholders   | DWSU, Communities, NGOs, SRCS, SWC, UN |

| Strategic Priority   | Outcome   | Indicator   | Means of verification   | Risk Assumptions  | Expected Partners   |
|--|---|---|---|---|---|
| 1.3 Demand - Community engagement, hygiene promotion and enforcement/ activation of laws                           | 1.3.1 Strengthened hygiene promotion with, and community engagement of, the population of Kassala to facilitate actions to improve sustained access to SDW at household level   | 1. 80% of water supplies have communities engaged in the management and monitoring of the water supply through water user committees, water safety planning teams or similar<br>2. 60% of women, men, boys, girls and people from vulnerable or disadvantaged groups are able to identify 5 key actions for good collection, handling, storage and treatment of drinking water<br>2. 80% of schools and health facilities have hygiene promotion activities at least once a month | Water safety planning team or water user committee meeting minutes<br><br>KAP surveys<br><br>School and health facility records | Water safety planning teams continue to monitor water safety after training<br><br>Women, men, girls and boys and vulnerable and disadvantaged groups are willing to attend hygiene promotion sessions.<br><br>School curriculums have space to deliver hygiene promotion messages. | DWSU, Communities, NGOs, SRCS, SWC, UN, school and health facility management, SMOE, SMOH |
|  | 1.3.2 Increased effectiveness of the process of enforcement/ activation of laws to act as a motivator for drinking water suppliers to improve the consistency of SDW in Gedaref | Monitoring and enforcement of laws/regulations relating to water supply are increased by 50%  | Enforcement institution records   | Communities and businesses regard laws and regulations as necessary to guard against major water quality and supply violations  | Enforcement institutions - DWSU, SMOH etc.  |
| 1.4 Water Quality - Operational monitoring, verification of effectiveness, surveillance, documentation and citizen | 1.4.1 Increased regular practice and quality of monitoring, evaluation, surveillance and documentation  | 1. 80% of water supplies have water quality tested on a regular basis (dependent on type of supply)<br>2. 80% of water treatment works have water quality tested on a daily basis<br>3. 80% of water supply   | SMOH/DWSU records<br><br>SWC records<br><br>Household   | Staff are trained and have adequate water quality testing apparatus   | SMOH, DWSU, SWC   |

| Strategic Priority                                       | Outcome  | Indicator   | Means of verification  | Risk Assumptions  | Expected Partners                 |
|--|--|---|--|---|-----------------------------------|
| feedback   |  | networks have a feedback mechanism that the public use and see as effective   | surveys  |   |                                   |
| <b>2 Household Sanitation and Hygiene</b>                |  |   |  |   |                                   |
| 2.1 Household excreta disposal                           | 2.1.1 Open defecation is stopped and households move up the sanitation ladder to improved, gender-sensitive, safe and fully accessible excreta disposal facilities | <ol style="list-style-type: none"> <li>1. 100% of communities in Kassala State are ODF certified</li> <li>2. 60% of households can report how they have constructed or improved their latrines and thereby moved up the sanitation ladder</li> </ol>  | CLTS records and ODF verification records<br>Household surveys     | Communities certified as ODF will continue to strive to be so after certification<br>Households are willing to contribute to latrine improvements | Communities, MOH, NGOs, UN, SRCS  |
| 2.2 Hygiene Promotion                                    | 2.2.1 Increase in practice of sustained good hygiene behaviour by all people in Kassala State  | <ol style="list-style-type: none"> <li>1. 80% of households report using a latrine and safely disposing of children's faeces</li> <li>2. 80% of people can identify at least 3 key events when handwashing with soap is important</li> <li>3. 80% of staff in health facilities wash their hands at appropriate times.</li> </ol> | Household surveys<br>Observations and surveys at health facilities | Households have handwashing facilities with soap and water.<br>Staff are given time to attend trainings and awareness meetings around hygiene.    | Communities, NGOs, UN, SRCS, SMOH |
| <b>3 Institutional and public sanitation and hygiene</b> |  |   |  |   |                                   |
| 3.1 Water supply and sanitation at health facilities     | 3.1.1 Effective EH services and in all health facilities in Kassala State both public and private sector, to reduce EH risks for staff, patients and visitors      | 1. 80% of health facilities have adequate water supplies, enough latrines and handwashing facilities and menstrual hygiene management facilities that are being used, and a suitable waste management   | MoH surveys  | Facilities are used appropriately by staff, visitors, patients and carers   | SMOH, NGOs, SRCS, UN              |

| Strategic Priority   | Outcome   | Indicator  | Means of verification    | Risk Assumptions   | Expected Partners  |
|--|---|--|--------------------------|--|--|
|  |   | system   |                          |  |  |
| 3.2 Water supply and sanitation at schools and other educational facilities                        | 3.2.1 Effective EH services and in all schools and educational facilities in Kassala, both public and private sector, to reduce EH risks for staff and pupils   | 1. 80% of health facilities have adequate water supplies, enough latrines and handwashing facilities and menstrual hygiene material disposal that are being used and a suitable waste management system                                | SMoE surveys             | Facilities are used appropriately by staff and pupils                    | SMOE, NGOs, UN, SRCS   |
| 3.3 Water supply and sanitation at Religious institutions, workplaces, community centres, highways | 3.3.1 Religious institutions, workplaces, community centres and highways are served by adequate accessible, clean, safe and well maintained WASH facilities including for solid waste and menstrual hygiene material disposal | 1. 60% of Religious institutions, workplaces, community centres and highways have adequate water supplies, latrines and handwashing facilities that are being used and a suitable waste management system                              | SMoH reports             | Facilities are used appropriately  | SMoH, private businesses, religious groups, community groups |
| 3.4 Water supply and sanitation at markets, slaughter houses and other food related premises       | 3.4.1 Markets, slaughter houses and other food related premises are served by adequate accessible, clean, safe and well maintained WASH facilities including for solid waste and menstrual hygiene material disposal          | 1 60% of Markets, slaughter houses and other food related premises have adequate water supplies, latrines and handwashing facilities that are being used and a suitable waste management system (see also section 4.5 for food safety) | Food inspection reports  | Staff and customers use facilities appropriately                         | SMoH food safety officers, businesses                        |
| <b>4 Environmental Health Services</b>   |   |  |                          |  |  |
| 4.1 Faecal Sludge management   | 4.1.1 Improved regulation of safe containment, emptying, transport, treatment and re-   | 1 Legal requirements and financial contribution requirements for sewerage services for high rise   | Municipality regulations | Construction companies willing to pay contribution to sewerage services. | SWC?? DWSU, LGUs and private sector                          |

| Strategic Priority               | Outcome  | Indicator  | Means of verification                       | Risk Assumptions   | Expected Partners                                    |
|----------------------------------|--|--|---|--|--|
|                                  | use/disposal systems for faecal sludge   | <p>constructions are defined.</p> <p>2 Master plans for S&amp;H including faecal sludge management are in place for all towns and cities in Kassala</p>  | Municipality master plans                   |  |  |
| 4.2 Solid waste management       | 4.2.1 Improvement in the safe collection, transfer, disposal, re-use or recycling of solid waste in Kassala to ensure a clean, safe and healthy environment  | 1 60% of cities, towns and villages have a working system of solid waste collection, transfer, disposal re-use or recycling  | LGU records                                 | Households are willing to pay for solid waste collection                       | LGUs, communities, NGOs, UN, SRCS and private sector |
| 4.3 Health care waste management | 4.3.1 Improvement in the safe management of all health care and other hazardous wastes, to reduce risks to human populations, animals and the environment.   | 1 80% of health facilities have a working system of managing health care waste that protects health care workers, patients and surrounding populations   | SMOH records, Health care facility visits   | All staff willing to ensure proper segregation of wastes at point of creation. | SMOH, NGOs, SRCS, UN and private sector              |
| 4.4 Vector control               | 4.4.1 Strengthened 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 | <p>1 State and locality level regular entomological surveillance carried out</p> <p>2 80% of State laboratories able to operate effectively with adequate equipment and consumables to carry out investigative work</p> <p>3 60% of communities in affected areas involved in vector control campaigns</p> | SMOH records                                | Communities willing to engage in vector control campaigns                      | Communities, SMOH, and private sector                |
| 4.5 Food safety                  | 4.5.1 Strengthened capacity of the food control system in Kassala, particularly at   | 1 100% increase in food inspections, enforcements and remedying  | Food safety officer reports<br>Food control | Businesses willing/able to pay increased fines to help support food            | Food related businesses, SMOH, SSMO, Protection      |

| Strategic Priority   | Outcome   | Indicator  | Means of verification  | Risk Assumptions  | Expected Partners                      |
|--|---|--|--|---|--|
|  | Locality level, including logistics and ongoing costs for operations and on focusing on awareness raising of responsibilities of food handlers and producers, inspections, enforcement and remedying infringements  | infringements at locality level<br>2 100% increase in food safety testing in food control laboratories<br>3 100% increase in awareness of food related businesses as to their legal requirements   | laboratory reports<br>Survey of food related businesses  | safety teams  | consumer society and private sector    |
| 4.6 Surface water drainage and grey water disposal and re-use                  | 4.6.1 improved scope and functioning of surface water drainage networks in Kassala to reduce flooding, improve the environmental conditions and reduce mosquito breeding opportunities  | 1 100% increase in functioning drainage networks in urban areas<br>2 Flood risk analysis carried out in all cities and towns in Kassala  | SWC records<br>LGU Flood risk plans  | Communities support the construction of drainage networks and refrain from using them for solid waste dumping   | SWC, LGUs, NGOs, UN and private sector |
| <b>5 Cross- cutting issues</b>   |   |  |  |   |  |
| 5.1 Gender, equity and vulnerability   | 5.1.1 WASH services respond effectively to the needs of all people in Kassala, particularly women and girls, people with disabilities or mobility limitations and those who may be disadvantaged or in marginalised or particularly vulnerable situations | 1 80% of women, girls, boys, men and people from vulnerable, marginalised or otherwise disadvantaged groups who were surveyed report that WASH services have taken their views and needs into account<br>2 All data collected on WASH services is disaggregated. | Household surveys and focus groups discussions<br>Disaggregation data from reports, surveys and other data information sources | Women, girls, boys, men and people from vulnerable, marginalised or otherwise disadvantaged groups are willing to engage in community activities to adapt WASH services | SWC, SMOH, DWSU, LGUs, NGOs, UN, SRCS  |
| 5.2 Sustainability, seasonality, environment, climate change and disaster risk | 5.2.1 Increased sustainability of WASH services, including from the effects of climate change across the seasons.   | 1 80% of large scale aquifers are monitored for quality and capacity of groundwater aquifers and use of groundwater  | SWC, DWSU monitoring reports   | Results of long-term monitoring of aquifers are taken into account in planning for new groundwater  | SWC, DWSU                              |

| Strategic Priority                         | Outcome  | Indicator  | Means of verification  | Risk Assumptions  | Expected Partners                     |
|--|--|--|--|---|---------------------------------------|
| reduction                                  |  | supplies over time, including water levels and associated quality changes.   |  | abstraction or possible pollution sources   |                                       |
|  | 5.2.2 Increased protection of the environment through effective design, siting and management of WASH services and application of and enforcement of environmental standards related to WASH | 1 All municipal SWM, FSM and hazardous waste management systems include measures to reduce impacts on the environment<br>2 Environmental assessments for all new WASH networks in are carried out in urban areas   | LGU, SWC, DWSU, SMOH reports<br><br>LGU, DWSU, SWC plans                                       | Environmental assessment recommendations are implemented in WASH network designs  | SWC, DWSU, SMOH, businesses           |
|  | 5.2.3 Strengthened DRR to improve sustained access to WASH services during times of humanitarian crisis  | 1 Early warning and emergency preparedness systems are in place and working for WASH services in 60% of towns and cities in Kassala<br>2 Preparations for outbreak prediction, prevention and control are in place at State level and in 60% of localities | Early warning and emergency preparedness system reports<br>Prevention and control plans        | Communities and local authorities are willing and able to keep up to date early warning and preparedness plans and procedures   | LGUs, communities, SMOH, DWSU, SWC    |
| <b>6 Building Blocks for WASH services</b> |  |  |  |   |                                       |
| 6.1 Legal and policy framework             | 6.1.1 Coherence of the legal and policy framework for WASH in Kassala State is strengthened  | 1 State laws and policies for WASH in Kassala are consistent with Federal and locality laws and policies<br>2 60% of people surveyed understood laws and policies relating to WASH<br>3 60% of violations of laws  | Review of Federal, State and Locality laws<br><br>Household survey and FGDs<br><br>LGU reports | Federal and locality authorities willing to engage in review of WASH related laws<br>People are willing to read or engage with dissemination materials of laws written or | Federal DWSU, FMOH, LGUs, communities |



| Strategic Priority                               | Outcome  | Indicator   | Means of verification                              | Risk Assumptions  | Expected Partners                                       |
|--|--|---|--|---|---|
|  |  | relating to WASH that result in a fine are paid by the miscreant.   |  | defined in a simplified manner<br>Collection systems in place are adequate to collect fine.                           |   |
| 6.2 Stakeholder responsibilities                 | 6.2.1 Clarified institutional responsibilities for WASH across State Ministries and between all stakeholders and strengthened inter-sectoral coordination  | 1 Identified leads at State level for water supply, sanitation and environmental health with clear terms of reference<br>2 Regular intersectoral meetings for long term WASH services plans and for emergency planning and response | Terms of reference document<br><br>Meeting minutes | State ministries and other bodies accept the terms of reference of lead ministries                                    | SMOH, DWSU, SWC, LGUs                                   |
|  | 6.2.2 Increased potential of the private sector of different types and sizes in the supply of WASH services  | 1 WASH strategic plans and action plans include roles for the private sector  | WASH Strategic and action plans                    | Private sector willing to be involved in State planning of WASH services and willing to abide by laws and regulations | SMOH, DWSU, businesses                                  |
| 6.3 Financing, advocacy and political commitment | 6.3.1 Increased political commitment for WASH in G Kassala including increase in investment and financial allocations for the provision of WASH in Kassala | 1 A minimum percentage of State income set aside to spend on WASH services  | State budget reports                               | The money set aside is used to fund WASH services   | State Finance Ministry<br>State Government, DWSU        |
|  | 6.3.2 Increased commitment and action to ensure adequate finances are available for operation and maintenance of drinking                                  | 1 In 50% of communities, household and community contributions to WASH services increased to cover all operation and  | Water User Committee record keeping and accounts   | Households and communities are willing to pay<br>Money collected is used to cover O&M costs                           | Communities, water user committees, SWC, DWSU, NGOs, UN |

| Strategic Priority                              | Outcome   | Indicator   | Means of verification  | Risk Assumptions  | Expected Partners                           |
|---|---|---|--|---|---|
|   | water systems   | maintenance costs   |  |   |   |
| 6.4 Planning, monitoring, research and learning | 6.4.1 Increased implementation and monitoring of WSPs at all levels including the consideration of gender and equity at each stage.   | 1 60% of small water supplies are managed through a WSP, with gender and equity considered in the make-up of the WSP team<br>2 All SWC urban water supply networks and point sources are managed through WSPs | WSP reports  | Women and marginalized and vulnerable people are able to find time and resources to engage meaningfully in the WSP team | Communities, SWC, NGOs, UN SRCS             |
|   | 6.4.2 Monitoring systems coordinated between institutions resulting in simple streamlined and efficient gender-sensitive monitoring systems for collecting information on WASH that can be used at all levels and sustained over time | 1 Joint guidelines set out to define how and who collects monitoring and MIS data<br>2 Monitoring reports show regular use of applicable data from other institutions   | Guidelines<br><br>SMOH, DWSU, WASH Sector, SWC reports                         | Data provided in timely and efficient manner  | SMOH, DWSU, SWC, UN, NGOs, SRCS             |
|   | 6.4.3 Increased opportunities for experience sharing and learning opportunities for professionals working on WASH at all levels   | 1 Regular State and national level workshops, virtual spaces and events to share experiences and learning   | Workshop reports, communities of practice                                      | WASH professionals willing to share and engage with workshops virtual spaces and learning events                        | SMOH, DWSU, SWC, UN, NGOs, SRCS, businesses |
| 6.5 Capacities and capacity building            | 6.5.1 Strengthened capacity of the professionals of the future to work in WASH at all levels through an array of capacity building approaches to train, coach and mentor, through the   | 1 50% increase of new WASH professionals able to work in the sector   | School and university graduations in WASH related disciplines, WASH employment | People who have gained WASH related skills and knowledge willing to work in WASH sector                                 | Universities, schools, technical academies  |

| Strategic Priority | Outcome  | Indicator   | Means of verification             | Risk Assumptions  | Expected Partners                          |
|--------------------|--|---|-----------------------------------|---|--|
|                    | provision of resources and equipment and through the development of systems which will enable the capacities to be utilized  |   | opportunities filled              |   |  |
|                    | 6.5.2 Strengthened capacities of the existing training and educational institutions which train sector professionals in WASH | 1 50% increase in lectures/teaching in WASH related disciplines | University and school curriculums | Students are willing to learn WASH related subjects at educational establishments | Universities, schools, technical academies |

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