

Sudan Country Profile: Health Care Waste Management (HCWM) in the Context of COVID-19

September 2020

Background Information on HCWM

Population	42,813,238 ¹
National entity in charge of HCWM	Ministry of Health and Khartoum State directly
Municipal solid waste (MSW) generation	2,831,291 tonnes/year ²
Health care waste (HCW) generation	Unknown
On-site vs. off-site treatment	On-site and off-site
Health care waste exports?	No
National solid waste management law and policy	Environmental Health Act No. 1 of 2009 ³ Environmental Protection Law, 2001
National solid waste strategy	National Environmental Health (EH) Strategic Plan, 2015–2019 National Guidelines for SWM Khartoum State: Khartoum Cleaning Corporation Strategic Plan (no date) Khartoum State Government Waste Management Master Plan, 2013
National HCW management law and policy	FMoH, Hazardous Waste Regulation, 2014 FMoH, Health Care Waste Regulation, 2015 Sudan is also committed to the below international conventions: Stockholm Convention; Basel Convention; Rotterdam Convention; and Minamata Convention
National HCW management strategy	National EH Strategic Plan, 2015–2019 Sudan National Sanitation and Hygiene Strategic Framework 2016 ⁴
National guidelines or standard operating procedures (SOPs) for HCWM	KSMO, Guideline to the Safe Disposal of Medical Waste. 2012 ⁵

Policy and Planning Environment

- In Sudan, non-hazardous and hazardous waste management, including health care waste, is a multi-sectoral effort with a three-level organizational structure: federal, state, and localities and administrative units (municipal & state cleaning operations).
- Federal level: The Federal Ministry of Health (FMoH) and the Ministry of Environmental, Natural Resources and Physical Development (MoENRPD)—with support of established advisory and decision making councils and committees such as the Public Health National Coordination Council, the Higher Council for Environment and Natural Resources, the Council of Drugs and Poisoning and the National Sanitation High Committee—play the roles of capacity building, coordination, decision-making, development of guidance, technical support, research and financial provision to train each state on related obligations. The responsibility for their implementation is then discharged to every state of Sudan, except Khartoum State, through the different State Ministries of Health (SMoH). Khartoum State is mandated directly by the FMoH.
- State level: The State Ministry of Health (SmoH) leads the MoH in the state and plays vital role in: enforcing regulations; updating the regulatory environmental compliance; monitoring adherence to technical standards and guidelines; and providing of direction for the effective, efficient and safe management of HCW through the adoption of best available techniques, waste segregation and health and safety practices for all levels of healthcare facilities.
- The Council of Medicines and Poison, chaired by the Director of Environmental Health and the FMoH, also plays a specific role in Sudan's HCWM policy and planning arena as the entity in charge of approving all equipment for treatment in health care facilities, including incinerators.

Legal Framework

Regarding HCW legislation in Sudan—apart from the few laws on environmental conservation, such as the Interim National Constitution and the Sudan Environmental Protection Act—there are two documents developed by the FMoH:

- FMoH, Hazardous Waste Regulation, 2014.
- FMoH, Health Care Waste Regulation, 2005.

Sudan is also committed to many relevant international conventions, such as the Stockholm Convention, the Basel Convention on the Control

1 The World Bank

2 A Global Snapshot of Solid Waste Management to 2050

3 FAOLEX Database <http://www.fao.org/faolex/results/details/en/c/LEX-FAOC150546>

4 Sudan National Sanitation and Hygiene Strategic Framework 26 August 2016 <https://www.unicef.org/sudan/media/1026/file/National-Sanitation-Hygiene-Strategic-Framework-2016.pdf>

5 "Health Care Waste Management: a case study of Sudan", Ahmed Ali Hassan, Terry Tudor & Mentori Vaccati, MDPI, 5 August 2018 <https://www.mdpi.com/2076-3298/5/8/89/pdf>

of Trans-Boundary Movements of Hazardous Wastes and their Disposal, the Rotterdam Convention, and the Minamata Convention on Mercury. As there are no specific technical guidelines at federal level, most states follow international guidelines, primarily the WHO guidelines. An exception is Khartoum State which has developed its own guidelines with standards for the safe management of HCW.

- Khartoum State of Ministry of Health. Guidelines on the Safe Disposal of Medical Waste, 2012.

Snapshot of COVID-19 Health Care Waste Situation

Declaration of the pandemic	March 12, 2020
Number of cumulative confirmed cases as of Sept 18, 2020	13,535
Number of governmental (G) entities, HCFs (HCF) and service providers (SP) surveyed	7 (G) 13 (HCF) 7 (SP)
Pre COVID-19 HCW generated (among surveyed)	734 tonnes/month(SP) ⁶ No data provided by HCF
HCW during COVID-19 (among surveyed)	731 tonnes/month(SP) ⁷ No data provided by HCF
Percent increase (approximate)	N/A
Types of COVID-19 waste generated	PPE (gloves, masks, gowns), diagnostic samples, cultures, swabs and disposable medical devices
Changes to HCWM policy	Yes (54%) No (46%)
Most common HCW treatment technology	Autoclaves and incinerators (Khartoum state) but majority (90%) of the states burn the waste in non-controlled dumpsites
Service disruptions due to COVID-19 (among surveyed)	No (92.7%) Yes (7.7%)
Emergency treatment/disposal procedures in place	2 higher processing incinerators were provided 2 ton/h each—Khartoum state
Special COVID-19 training in place	Yes
Collection capacity surpassed?	No
Treatment capacity surpassed?	No
Disposal capacity surpassed?	No

Institutional Framework

With the exception of Khartoum State - where collection, transportation and treatment of health care waste is conducted directly by a private service provider, supervised by Federal Ministry of Health (FMoH)—all the other States are mandated directly by the FMoH through the State of Ministry of Health (SMoH) and follow the below hierarchy:

Federal level: FMoH and Higher Council for Environment and Natural Resources (HCENR). The FMoH is responsible for policy development and its endorsement, as well as follow-up on implementation of health care services and health emergency management (preparedness, risk reduction, mitigation & response). It is also responsible for managing health emergencies resulting from the different hazards in Sudan, in coordination and collaboration with governmental and non-governmental partners. HCENR is the technical arm of the MoENRPD. The HCENR is concerned with policies, legislation and strategic planning in relation to environmental and natural resources conservation and management. The MoENRPD of Sudan is responsible for planning, supervision of solid waste management services and landfills, environmental impact assessment of sanitation and hygiene infrastructure and hazardous waste management.

State level: State Ministry of Health (SMoH). The SMoH is responsible for capacity building and the development of guidance and research on

solid waste management and health care waste management as well as the collection and disposal of health care waste from secondary and tertiary health facilities.

Locality/community level: Collection and disposal of health care waste from primary health care facilities and the private health sector takes place at this level.

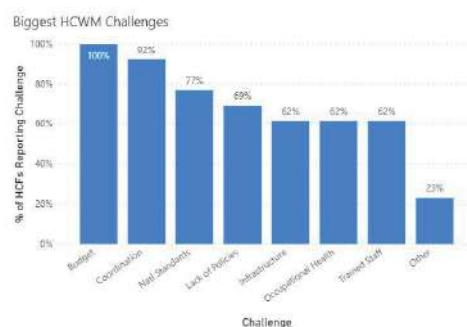
Programs and Actions in Place during COVID-19

The Federal Government, the United Nations and humanitarian partners have joined efforts to prevent and respond to the COVID-19 pandemic in Sudan. A COVID-19 Country Preparedness and Response Plan, organized around nine pillars, is currently being implemented by UN agencies, NGOs and other partners in support of the Sudanese Government-led response.^{8,9}

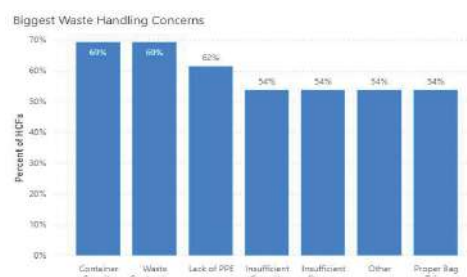
In April, the FmoH, with the support of the WHO, developed a country strategy to address the pandemic, which includes a series of measures such as: ensuring country-level coordination, planning and monitoring; setting up surveillance, rapid response teams, and case investigation and management; setting up national laboratories for testing; and providing operational support and logistics.¹⁰

HCWM Challenges during COVID-19

The HCF survey respondents cited the greatest challenges for HCWM as **lack of dedicated funding** for operations and infrastructure and **lack of coordination between departments and entities**:



The HCF respondents also identified **lack of proper segregation, scarcity of waste containers and plastic bags** and **lack of PPE** as the major waste handling problems observed during the COVID-19 response period:



Options for Improvement / Opportunities

- Promote a better communication policy and strategy among and between departments and entities.
- Update national legislation, guidelines and plans to enforce and promote the use of best available technologies and HCWM practices worldwide.
- Secure private/public funding to increase the operational, maintenance and monitoring capacity of health care waste storage, collection, treatment, and disposal systems.
- Provide adequate PPE for waste handlers to avoid service disruptions.
- Increase training and capacity for personnel at HCFs on proper waste storage, segregation and handling.
- Provide a dedicated team/representative to handle health care management tasks, including guidelines compliance and monitoring.

6 Based on the sum of average collected waste data received from 3 of 7 Service Providers that provide the information.

7 Ibid

8 <https://www.humanitarianresponse.info/fr/operations/sudan/document/sudan-corona-virus-covid-19-country-preparedness-and-response-plan-cprp>

9 <https://app.powerbi.com/view?r=eyJrIjoiaMzE0NjU2M2U0NTIiLC00ZTkwLW11NTUyY2IwOTQyNW50Tm51IiwidCI6Ij>

10 <https://www.arab-reform.net/publication/sudan-managing-covid-19-pandemic-during-a-time-of-transition/>