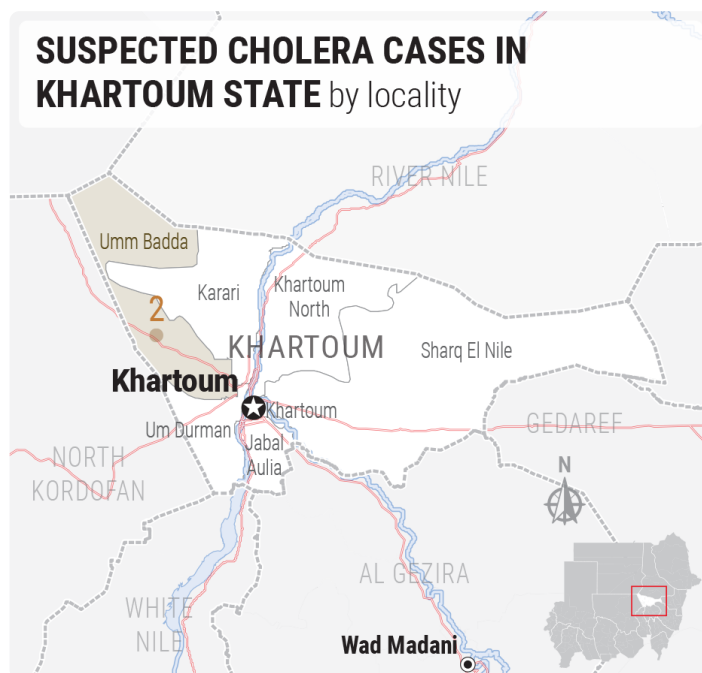


HIGHLIGHTS (24 Oct 2019)

- Dengue Fever, Rift Valley Fever and Chikungunya outbreaks reported in Sudan.
- Cholera has spread to Khartoum State with two cases reported bringing the total number of cases in the country to 323 cases—including 10 deaths—as of 22 October 2019.
- Sudan hosts the largest South Sudanese refugee population in the region, with an estimated 860,000 reported in the country as of 30 September 2019.
- Oral Cholera Vaccination Campaign launched in Blue Nile and Sennar states, targeting 1.6 million people in high risk areas.



KEY FIGURES

8.5M People in need (2019)

4.4M People targeted (2019)

323 Suspected Cholera cases

3 States with cholera outbreak

FUNDING (2019)

\$1.1B Required

\$556.3M Received

48% Progress

FTS: <https://fts.unocha.org/appeals/670/summary>

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FEATURE (24 Oct 2019)

Disease outbreaks in Sudan: Dengue Fever, Rift Valley Fever and Chikungunya

Over the past couple of months, Sudan has been facing numerous disease outbreaks including Cholera, Dengue Fever, Rift Valley Fever (RVF) and Chikungunya. Dengue Fever, RVF and Chikungunya are vector-borne diseases while Cholera is waterborne. The increase of these outbreaks can be linked to the recent floods in the country that have left large pools of stagnant water, which are breeding sites for various types of vectors such as mosquitoes and houseflies. Government authorities and humanitarian partners are actively responding to these outbreaks across the country, providing health assistance, vaccinations were appropriate, and vector control interventions.

Dengue Fever

There are 535 dengue fever cases—including two deaths—reported in Kassala, Red Sea, North Darfur, South Darfur and West Darfur states since the onset of the disease on 8 August until 22 October 2019. The majority of cases (499) are in Kassala State. Of all cases reported, 95.6 per cent have affected people over five years of age and 57 per cent are female.

The rise in dengue fever coincides with the recent rains/floods and consequent large areas of stagnant waters. Dengue is a mosquito-borne disease and stagnant waters are a breeding grounds for mosquitoes.

Dengue Fever response

In Kassala and North Darfur states, the State Ministry of Health (SMoH) activated weekly response taskforce meetings and developed state-level preparedness and response plans to mitigate the outbreak. Reporting from sentinel sites was also activated and rapid response teams (RRTs) were provided with refresher trainings. Case definition and management protocols have been distributed to all health facilities and integrated vector control and social mobilization are being promoted.

In North Darfur, SMoH distributed long lasting insecticide treated bed nets (LLITN) in all nine affected localities. Information, education and communication (IEC) materials have been distributed and 36,540 houses in El Fasher, Tawila, El Koma and Shangil Tobaya localities have been reached with awareness sessions. In addition, 141,246 people have benefited from integrated vector control interventions.

The major gaps and challenges facing dengue response include funding required for integrated vector control interventions; shortages in tools and machines needed for spraying; the need to improve the capacity/work of national and state laboratories; and the misdiagnosis and treatment of dengue fever cases due to its co-infection with malaria.

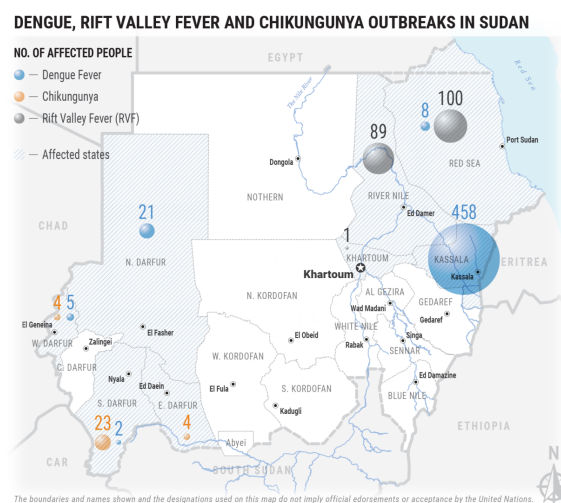
Symptoms of Dengue include high fever, headache, vomiting, muscle and joint pains, and a characteristic skin rash. Recovery generally takes between two to seven days. A vaccine for dengue fever has been approved and is commercially available in a number of countries. The vaccine, however, is only recommended for those who have been previously infected. Other methods of prevention include reducing mosquito habitats and limiting exposure to mosquito bites by getting rid of or covering standing water (breeding sites) and wearing clothing that covers much of the body.

Rift Valley Fever

There are 193 Rift Valley Fever (RVF) cases—including four deaths—reported in Red Sea, River Nile and Khartoum states since the onset of the disease on 28 September until 22 October 2019. The majority of cases (100) are in Red Sea. Of all cases reported, 94.8 per cent have affected people over five years of age and 83 per cent are male.

Rift Valley Fever response

Similar to the Dengue response, SMoH activated response taskforce meetings and developed state-level preparedness and response plans. There has been a joint investigation by the SMoH, WHO and the Ministry of Animal Resources (MoAR) in locations where the outbreak has occurred. Case definition and management training has been provided to 131 medical staff and an isolation center has been established in Tagadom hospital in Red Sea State. In addition,



2,200 mosquito nets have been distributed, 1,330 homes have been inspected for breeding sites and 3,542 homes have been fogged in the state. Health promotion activities have been carried out at the household and community levels.

The major gaps and challenges faced are the limited number of partners involved in response activities; better coordination between humanitarian partners and MoAR is needed; and there is a need to scale up activities in affected states. In addition, a more comprehensive plan needs to be developed between the government authorities and partners; more training in surveillance and case management is required; and social mobilization and vector control activities need to be intensified.

RVF is a viral disease which is spread either through the bite of an infected mosquito or by touching infected animal blood, breathing in the air around an infected animal being butchered, or drinking raw milk from an infected animal. The disease is spread between cows, sheep, goats, and camels by mosquitoes. Infection does not appear to be transmitted from person to person.

Vaccinating animals against the disease before the outbreak occurs can prevent it from being transmitted to humans. Other methods include eradicating mosquito breeding sites and avoiding their bites. If an outbreak occurs, limiting the movement of animals will reduce the spread of the disease. As a result, the declaration of RVF can have an impact on international and domestic livestock economies. Saudi Arabia has announced a ban on importing livestock from Sudan in response to the announcement of World Organization for Animal Health (OIE) concerning documented cases of RVF.

Chikungunya

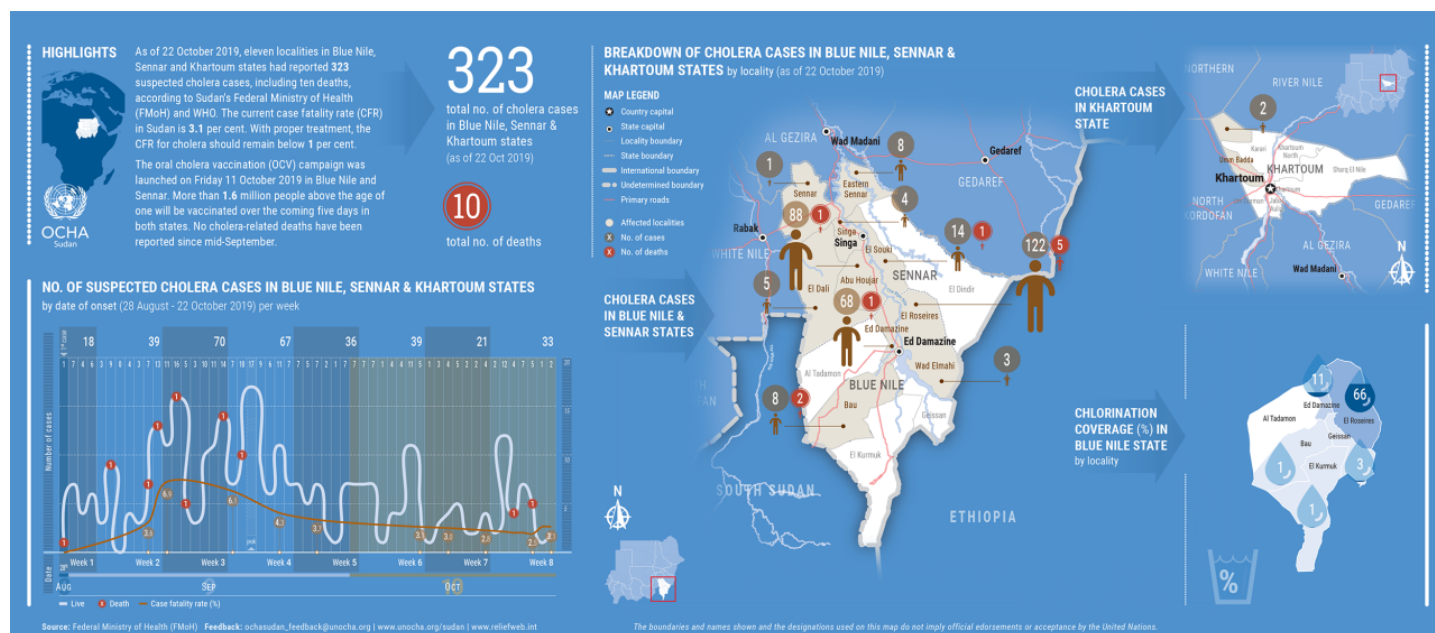
There are 31 Chikungunya cases reported in South, West and East Darfur states since the onset of the disease on 2 October until 22 October 2019. Response activities, mainly vector control, are ongoing.

The virus is spread by mosquitoes and symptoms include fever and joint pain. The very young, old, and those with other health problems are at risk of more severe symptoms. The best way to prevent chikungunya is mosquito control and avoiding bites. This may be achieved by draining stagnant waters, where mosquitoes breed, and using insect repellents and mosquito nets. Chikungunya usually does not cause death, but the symptoms can be severe and debilitating. The most common symptoms are joint aches and pains. The disease can also cause fever, fatigue, headaches, muscle pain, rashes and depression.

In East Darfur, SMOH has activated a taskforce with the participation of all health partners. A comprehensive response plan is being prepared by the SMOH—with technical support from WHO and UNICEF—and an isolation centre has been prepared in Ed Daein hospital for case management. UNICEF will support social mobilization activities including household visits by trained community health promoters, awareness-raising sessions and dissemination of key message through local radio stations. In addition, mosquito nets and information materials (pamphlets, flyers, leaflets etc) will be distributed as well.

VISUAL (24 Oct 2019)

Sudan Cholera Snapshot (as of 22 October 2019)



FEATURE (24 Oct 2019)

Cholera outbreak in Sudan

Overview

As of 22 October 2019, 323 suspected cholera cases, including 10 deaths, were reported in Blue Nile, Sennar and Khartoum states, according to Sudan's Federal Ministry of Health (FMoH) and WHO. The first case was detected on 28 of August 2019.

The current case fatality rate (CFR) in Sudan is 3.1 per cent. CFR is defined as the proportion of cases of a specified disease or condition, which are fatal within a specified time. The CFR is a measure of the severity of a disease; high CFR reflects limited access to health care, inconsistent case management and insufficiencies in a health care system, according to WHO. Rapid access to treatment and other prevention interventions are essential during a cholera outbreak. Up to 80 per cent of cases can be successfully treated with Oral Rehydration Solution (ORS), while 20 per cent requires intravenous rehydration and or hospital admission. If countries are lacking proper access to health care services, cholera CFR can reach up to 50 per cent. With proper and timely treatment, the CFR during cholera outbreak should remain below 1 per cent.

On 6 October, humanitarian partners in Sudan launched the Cholera Readiness and Response Plan (October - December 2019) seeking \$20.8 million to address the current outbreak. The response plan is targeting 2.5 million people in eight high-risk states (Blue Nile, Sennar, Gezira, Khartoum, Gedaref, White Nile, Kassala, and River Nile). Towards this plan, the Central Emergency Response Fund (CERF) allocated \$3 million which will provide close to 860,000 people with life-saving assistance over three months—as outlined in the response plan. In addition, the Sudan Humanitarian Fund (SHF)—Reserve for Emergency Allocation, allocated \$11 million for floods and cholera response throughout the country. However, the response plan requires more funding urgently.

An oral cholera vaccine (OCV) campaign launched on 11 October is currently ongoing, targeting 1.6 million people in high risk communities in Blue Nile and Sennar states. The aim of the campaign is to contain the outbreak and prevent its spread to neighbouring states.

World Health Organization (WHO) risk assessment

Sudan has been facing a continuous surge of acute watery diarrhoea (AWD)/suspected cholera cases since 2016. The current outbreak was reported following recent heavy rains and flooding in 17 out of 18 states across the country. As a result of the flooding, the country reported widespread damage to infrastructure, thus more cholera cases can be expected in the future. Although Blue Nile State shares borders with Ethiopia and South Sudan, there is currently no evidence of cross-border spread of the outbreak. The Government swiftly responded to the detection of cases and necessary control measures are being implemented by national authorities, with support from partners, to contain the outbreak.

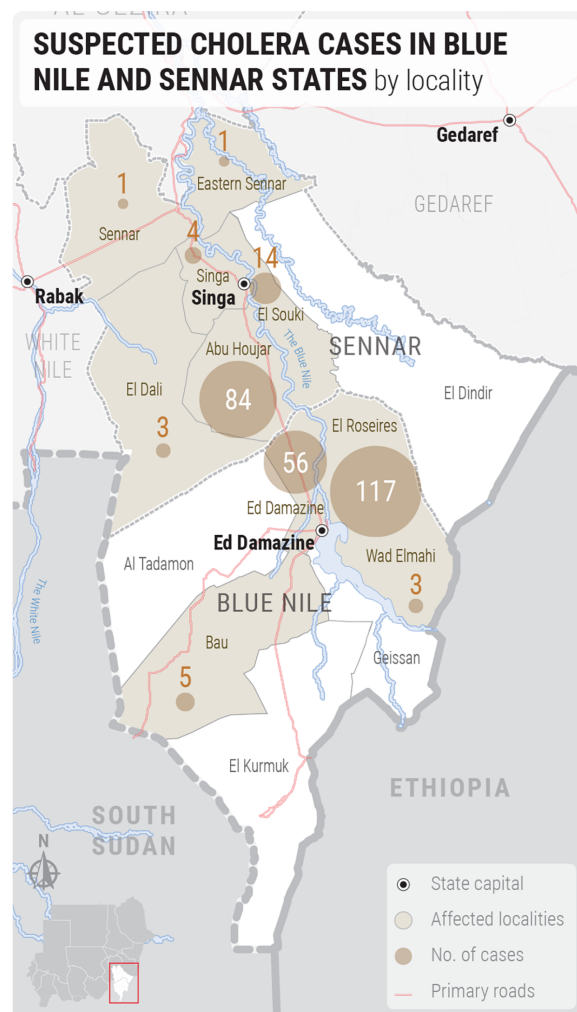
Public health response

The Government of Sudan and humanitarian partners have been responding to the cholera outbreak. The FMOH activated the national Cholera Task Force on 10 September, which coordinates response activities between national and international partners. WHO deployed a technical team to assist FMOH with this coordination and in the development of a response strategy. Surveillance and reporting systems have been strengthened by the distribution of case definitions; case investigation forms; and active case finding. FMOH has activated 14 Cholera Treatment Centres (CTC)—four in Blue Nile and 10 in Sennar—and have standardized case management protocols. FMOH, WHO, and partners have provided cholera kits (enough to treat 200 people) with three additional kits (enough to treat 300 people) in the pipeline. WHO is supporting the water quality surveillance system; water sampling and testing; and infection prevention and control activities. In Blue Nile State, the State Ministry of Health (SMoH)—with the support of partners—is implementing water chlorination activities and health promotion in the affected areas.

Challenges facing humanitarian partners

Despite the progress made in response, humanitarian actors face many challenges. More trainings are needed and registration tools, guidelines and protocols for surveillance are weak. Health education and infection prevention at cholera treatment centres (CTCs) need to be improved to prevent the spread of cholera. Cleaning tools, equipment and protective clothes are also needed for cleaning campaigns.

In addition, resources for cholera response in Sudan and preparedness in high-risk states is currently a major challenge, according to FMOH. The health ministry states that more efforts and funding are needed to address gaps in the areas of vector control, environmental sanitation and water chlorination in Blue Nile and Sennar. Lack of funding is likely to affect the response, with the opportunity of preventing new cases, averting deaths and saving time and resources potentially lost.



Cholera cases in Sudan (as of 12 October 2019)

Sudan hosts the largest South Sudanese refugee population in the region

In 2019, South Sudanese refugees continued arriving to the country as instability in South Sudan persists. When conflict erupted in South Sudan in mid-December 2013, over 2.2 million South Sudanese citizens fled their homes and took refuge in neighbouring countries. The Government of Sudan has maintained an open border policy, allowing safe and unrestricted access for those fleeing conflict and conflict-related food insecurity and granting them refugee status. As of 30 September, Sudan hosts the largest number of South Sudanese refugees in the region with an estimated 859,000 refugees, with approximately 467,000 living in Sudan prior to the conflict in South Sudan. The total number of South Sudanese refugees includes UNHCR and Commission for Refugees (COR) registered refugees, Immigration Passport Police (IPP) registered figures, and the unregistered population. Additional sources estimate a total of 1.3 million South Sudanese refugees in Sudan, however this data require verification.



A female head of a South Sudanese household receives NFIs in Banitu, Khartoum's "open area" (UNHCR, June 2019)

Assistance is being provided to South Sudanese refugees through the UNHCR multi-sectoral refugee response plan. According to the recently released South Sudan Regional Refugee Response Plan for Sudan mid-year report (January – June 2019), an estimated 339,000 South Sudanese refugees have received food assistance, either in-kind or cash, while 153,200 refugees targeted for food assistance have not been reached.

Health assistance has been provided to an estimated 283,000 refugees in refugee health facilities and 11,300 children under five years were given nutrition treatment and recovered. However, over 33 per cent of deliveries had no assistance from skilled health personnel. More than 63 per cent of all new refugees received full NFI kits and only 6 per cent of refugee families have access to household latrines. Refugees were able to access 15 litres of water per person per day, within the UNHCR water standard for emergencies.

Over 10,000 refugees were able to access livelihood or environment interventions and 2,250 families received fuel efficient stoves and alternative cooking fuel. This is less than 30 per cent of the targeted refugee population and over 70 per cent did not receive any livelihood, energy and environment assistance.

For protection, 36 community-based groups are working on sexual and gender-based violence prevention and response. An estimated 76 per cent of unaccompanied and separated children (UASC) were placed in appropriated interim and long-term alternative care. However, the child to caseworker ration is currently 108:1, while the standard is 25:1.

For education, an estimated 56,000 South Sudanese children were enrolled in basic schools and 2,212 children in secondary school, and about 48 parent-teacher associations (PTAs) were established and trained in various states hosting refugees from South Sudan. Limited secondary and tertiary education opportunities is contributing to increasing school drop-out rates.

Even though the need for additional and sufficient assistance is clearly evident for South Sudanese refugees in Sudan, funding remains a major challenge facing the response. As of 15 October 2019, only 13 per cent of the US \$326 million requirement has been received. Inter-agency partners estimate up to 50,000 new arrivals in Sudan by the end of 2019, reaching a total refugee population of just over 900,000 refugees by the end of the year.

FEATURE (13 Oct 2019)

Vaccination campaign against cholera kicks off in Sudan

An oral cholera vaccination (OCV) campaign was launched on Friday 11 October 2019 in Blue Nile and Sennar states in response to the cholera outbreak in the country. More than 1.6 million people above the age of one will be vaccinated over the coming five days in both states. Since the announcement of the outbreak by the Federal Ministry of Health on 8 September, 273 suspected cholera cases and eight related deaths have been reported as of 11 October in Blue Nile and Sennar states. No cholera-related deaths have been reported since mid-September. The first round of the campaign will end on 16 October and will be followed by a second round in four to six weeks to provide an additional dose to ensure people are protected for the next three years. The first round of the campaign will end on 16 October and will be followed by a second round in four to six weeks to provide an additional dose to ensure people are protected for the next three year. The vaccines for the campaign were procured using funding from The Global Alliance for Vaccines International (GAVI). GAVI also provided US\$ 2 million to cover operational costs for the campaign.



A child receives the first dose of the cholera vaccine (UNICEF, 11 October 2019)

On 6 October, humanitarian partners in Sudan launched the Cholera Readiness and Response Plan (October - December 2019) seeking \$20.8 million to address the current outbreak. The response plan is targeting 2.5 million people in eight high-risk states (Blue Nile, Sennar, Gezira, Khartoum, Gadaref, White Nile, Kassala, and River Nile). Activities will include case management; health services; water, sanitation and hygiene (WASH) interventions. Activities will also include mitigating underlying causes of high mortality like severe malnutrition in children under five years and targeting schools with WASH activities and hygiene campaigns. Towards this plan, the Central Emergency Response Fund (CERF) allocated \$3 million which will provide close to 860,000 people with life-saving assistance over three months—as outlined in the response plan. In addition, the Sudan Humanitarian Fund (SHF)—Reserve for Emergency Allocation, allocated \$11 million for floods and cholera response throughout the country. However, the response plan requires more funding urgently.

Humanitarian partners are supporting Sudan's Federal Ministry of Health in responding to the cholera outbreak. Public health teams are closely coordinating with national health authorities to strengthen disease surveillance, monitor water quality, and chlorinate public water supplies. These measures will help protect people who are at highest risk. As part of ongoing response efforts to contain the outbreak, 14 cholera treatment centres with oral rehydration therapy points and dedicated isolation centres have been established and equipped to manage and treat patients in Blue Nile and Sennar states. Health staff have also been trained to quickly and effectively diagnose and treat patients. To date, more than 160 patients have been discharged after receiving treatment. About 3,560 vaccinators, more than 2,240 social mobilizers, and almost 70 independent monitors have been trained and deployed in the two states. Over 240 mobile teams have been sent to carry out the campaign, in addition to 251 fixed sites in health facilities and 258 temporary sites including camps, schools, mosques, market areas and other public spaces.

Good hygiene practices and the use of safe water are key to preventing further spread of cholera. Rapid response activities include house-to-house visits by hundreds of community mobilisers who raise awareness among families on how to clean and store cooking and drinking water safely, practice good hygiene and hand washing, handle food safely, how to take care of a sick family member, and when to seek medical treatment.

EMERGENCY RESPONSE (3 Oct 2019)

Humanitarian Cholera Readiness and Response Plan

The major disease outbreaks in Sudan for the past decades are grouped into three categories based on type of transmission: water-borne, vector-borne and vaccine-preventable diseases. This is mainly attributed to low access to and coverage of safe drinking water, and sanitation, environmental sanitation and low vaccination coverage; exacerbated by weak health and WASH infrastructures. The country experienced the worst flooding since 2015 creating favourable ground for emergence and aggravation of water-borne and vector-borne diseases such as cholera, dysentery, dengue fever, malaria, etc. The most affected states by the flooding were White Nile, Kassala, Khartoum, Gezira, and North Kordofan.

The outbreak is spreading to neighbouring and adjacent localities and states despite the prompt and initial control measures put in place by health and WASH partners under the leadership of the government. Without timely and intensive scale up of control measures in high risk and adjacent states, the outbreak is likely to spread to other states. The pattern of spread during the last AWD outbreak attested the same evolution by engulfing one adjacent State after another due to population movement, poor WASH situation and other vulnerabilities. According to FMOH and WHO, eight states are at high risk; Blue Nile, Sennar, Gezira, Khartoum, Gadaref, White Nile, Kassala, and River Nile.

The Federal Ministry of Health has requested over 3 million doses of the Oral Cholera Vaccine (OCV) in order to conduct a vaccination campaign. The aim of the campaign is to contain the outbreak and prevent the spread to adjacent areas. The initial reactive campaign will target over 1.6 million people living in high risk communities in Blue Nile and Sennar states who will receive two doses of the vaccine.

To support government efforts to contain the disease and prevent further spread, humanitarian partners have developed a cholera readiness and response plan and are seeking **US\$ 20,300,039** for the next three months.

This plan is built on 6 main pillars in line with global multi-sectoral interventions to control cholera and the Sudan National AWD Response Plan 2018-2019:

1. Leadership and Coordination
2. Surveillance and Reporting
3. Community Engagement
4. Water, Sanitation, Hygiene and food safety
5. Use of Oral Cholera Vaccine
6. Health System Strengthening/HSS (case management and IPC)

In addition, given the overall prevalence of malnutrition in the targeted states, nutrition response has been included under the HSS to support the case-management and IYCFC of children with malnutrition and pregnant and lactating women affected by cholera. Consistent with the national and international strategies, guidelines and protocols the proposed activities will contribute to respond and contain further spread and reduce mortalities due to water-borne (with a focus on Cholera) and vector-borne disease outbreaks in the targeted 8 States over 3 months. As per its core mandate of health security of communities, WHO will protect health and ensure health security.

SUMMARY OF CHOLERA RESPONSE ACTIVITIES AND BUDGET

Summary of the Activities and Budget	
Leadership and Coordination	530,800
Surveillance and Reporting	753,000
HSS/Case Management and Infection Prevention and Control (IPC)	1,620,830
Community Engagement	1,926,000
WASH/ Environmental Health/ Food Safety	13,510,000
Nutrition	1,959,409
Grand Total	20,300,039

BUDGET SUMMARY BY AGENCY

Summary of the Activities and Budget	
WHO	7,417,040
UNICEF	10,102,999
UNHCR	2,780,000
Grand Total	20,300,039

Sudan cholera response plan budget by activity and agency

Overall, partners will target 13,000 for cholera case management, 1,016,006 people (including refugees in camps at risk) with provision of direct health services, 2.5 million people who will benefit from WASH interventions, 300,000 severely malnourished children and 546,000 mothers and caregivers to access infant and young child feeding counselling. Refugees living in camps in Kassala, Gedaref and White Nile States, and in Khartoum 'Open Areas' sites will also be targeted through a multi-sector response. Activities will also include mitigating underlying causes of high mortality like severe malnutrition in children under 5 years of age and targeting schools with WASH activities and hygiene campaigns.

See the complete [Humanitarian Cholera Readiness and Response Plan](#)

EMERGENCY RESPONSE (24 Oct 2019)

Response and Funding to Mitigate Cholera Outbreak in Blue Nile and Sennar States

Overview

As of 11 October 2019, nine localities in Blue Nile and Sennar states had reported 273 suspected cholera cases, including eight deaths, according to Sudan's Federal Ministry of Health (FMoH) and WHO. There were no cholera-related deaths reported since 13th and 19th of September 2019 in Blue Nile and Sennar States respectively.

The current case fatality rate (CFR) in Sudan is 3 per cent. CFR is defined as the proportion of cases of a specified disease or condition, which are fatal within a specified time. The CFR is a measure of the severity of a disease; high CFR reflects limited access to health care, inconsistent case management and insufficiencies in a health care system, according to WHO. Rapid access to treatment and other prevention interventions are essential during a cholera outbreak. Up to 80 per cent of cases can be successfully treated with Oral Rehydration Solution (ORS), while 20 per cent requires intravenous rehydration and/or hospital admission. If countries are lacking proper access to health care services, cholera CFR can reach up to 50 per cent. With proper and timely treatment, the CFR during cholera outbreak should remain below 1 per cent.

WHO risk assessment

Sudan has been facing a continuous surge of acute watery diarrhoea (AWD)/suspected cholera cases since 2016. The current outbreak was reported following recent heavy rains and flooding in 17 out of 18 states across the country. As a result of the flooding, the country reported widespread damage to infrastructure, thus more cholera cases can be expected in the future. Although Blue Nile State shares borders with Ethiopia and South Sudan, there is currently no evidence of cross-border spread of the outbreak. The Government swiftly responded to the detection of cases and necessary control measures are being implemented by national authorities, with support from partners, to contain the outbreak.

WHO recommends proper and timely case management, improving access to safe drinking water and sanitation, as well as improving hygiene practices and food safety in affected communities, which are the most effective means of controlling cholera. Key public health communication messages need to be disseminated widely amongst the general population and vaccination will complement the core prevention and control activities and help prevent the spread of the outbreak. On 19 September, the Federal Ministry of Health (FMoH) in Sudan requested the Oral Cholera Vaccine (OCV) from the International Coordinating Group—which manages the global stockpile of oral cholera vaccines—for a vaccination campaign targeting 1.6 million people in high risk communities in Blue Nile and Sennar states. The aim of the campaign is to contain the outbreak and prevent its spread to neighbouring states.

Challenges facing humanitarian partners

Despite the progress made in response, humanitarian actors face many challenges. More trainings are needed and registration tools, guidelines and protocols for surveillance are weak. Health education and infection prevention at cholera treatment centres (CTCs) need to be improved to prevent the spread of cholera. Cleaning tools, equipment and protective clothes are also needed for cleaning campaigns.

In addition, resources for cholera response in Sudan and preparedness in high-risk states is currently a major challenge, according to FMOH. The health ministry states that more efforts and funding are needed to address gaps in the areas of vector control, environmental sanitation and water chlorination in Blue Nile and Sennar. Lack of funding is likely to affect the response, with the opportunity of preventing new cases, averting deaths and saving time and resources potentially lost.

Blue Nile State (response as of 28 September 2019)

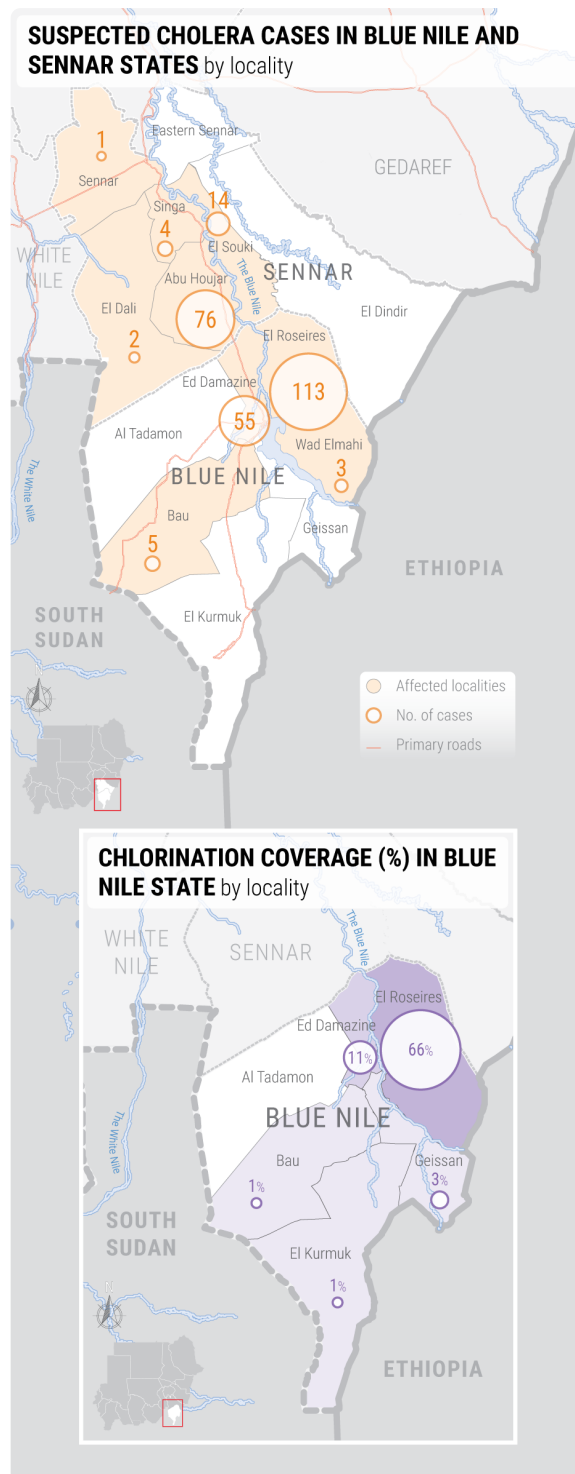
As of 11 October, 176 suspected cases of cholera, including six deaths, were reported in Blue Nile State by FMOH and WHO, with a CFR of 3.4 per cent. Humanitarian partners meet daily to coordinate response.

Health response

The FMOH and WHO are working together to strengthen disease surveillance, provide medical treatment for patients, distribute laboratory supplies, monitor water quality and chlorinate public water supplies, and promote health education and hygiene among affected as well as at-risk communities. Three cholera treatment centres are serving patients in Blue Nile—two supported by Médecins Sans Frontières (MSF)-Spain and one by WHO.

In Blue Nile State, WHO procured 25 cholera kits. These kits contain enough supplies to support 2,500 severe cholera cases. The kit also contains 5,000 Rapid Diagnostic Tests (RDTs) for cholera—these tests will be distributed to priority, high-risk areas. WHO has conducted a training workshop for 24 care providers from three affected localities in the state on management of cholera cases and activated three community based surveillance sites in high-risk areas.

UNICEF supported the State Ministry of Health (SMoH) CTCs and oral rehydration therapy (ORT) corners—an area within a health facility where caregivers can receive practical demonstrations on how to prepare ORS solutions and access lifesaving rehydration for sick people under the supervision of a healthcare provider—across the state. Assistance included seven cholera kits including community equipment and drug kits, 10 cartons of oral rehydration salts (ORS), 10 cartons of Zinc, 15 cartons of Integrated Management of Childhood Illness (IMCI) kits, and 640 ringer lactates. Additionally, UNICEF and partners supported five ORT corners and a cholera treatment unit (CTU) in Almadina 4 area (Wad Elmahi locality), serving 24,000 people. Health promotion interventions continue and awareness-raising



sessions were attended by 35,000 people from displaced and vulnerable communities. UNICEF also supported the implementation of mid-upper arm circumference (MUAC) screening in the Gannis area—where the first case of cholera was reported. Out of 6,767 children under five years screened, 54 children were identified with severe acute malnutrition (SAM) while 86 children were identified with moderate acute malnutrition (MAM). All SAM cases were referred to the Gannis OTP for treatment. Mother Support Groups (MSG) carried out 421 awareness-raising sessions reaching about 10,500 women.

Case management is very important in responding to outbreaks such as cholera. WHO distributed treatment guideline and supervision checklists to health care personnel and trained 24 care providers from the three affected localities on management of cholera cases. On-job training was given to the health providers in Goone (Ed Damazine locality) and Almadeena 4 (Wad Elmahi locality). WHO trained 20 medical doctors and nurses from Ed Damazine and El Roseires localities on standard case management, who will serve about 210,000 people. In addition, WHO has provided SMOH with equipment for cholera treatment facilities and has requested a shipment of drug supplies and intravenous (IV) fluids to cover needs in the state.

Water, sanitation and hygiene response

Water, sanitation and hygiene (WASH) interventions are vital in the management and preventing the spread of cholera. One way of making water safe to use is chlorination, which is the process of adding chlorine to drinking water to disinfect it and kill germs. In Blue Nile State 87 per cent of the urban water network system has been chlorinated, while the chlorination of water sources outside the network has reached 70 per cent. Household disinfection has been carried out in 5,512 homes in six localities in the state. In addition, 986 donkey carts and 14,038 containers in areas with unprotected water supplies were chlorinated. Vector control activities were carried out in 592 breeding sites for houseflies—one of the main transmitters of the cholera microbe. Food safety control is ongoing but coverage is low.

In order to promote better health practices, printed messages and information, education and communication (IEC) materials on therapeutic feeding, nutrition, environmental and sanitation, healthy water and cholera were distributed throughout the state. In El Roseires town and Gannis area, messages were disseminated through 13 theatrical performances and eight video presentations were given through two mobile video carts provided by the FMOH.

The main challenges facing response in Blue Nile State include chlorination coverage of areas outside the urban water network; having proper food handling inspections; household hygiene; open defecation; and solid waste collection.

Sennar State (response as of 21 September 2019)

As of 10 October, 97 suspected cases of cholera, including two deaths, were reported in Sennar State by FMOH and WHO, with a CFR of 2 per cent. The SMOH in Sennar established an operation room—co-chaired by WHO and with the participation of UNICEF and the Sudanese Red Crescent Society (SRCS)—where humanitarian partners meet and coordinate response.

Health response

WHO is working to improve the disease surveillance system and has deployed a surveillance officer to Sennar State to assist response activities. The SMOH will activate community-based surveillance (CBS) in Abu Houjar, Singa, and El Souki localities with communication materials provided by WHO. On-the-job training was provided to nine rapid response teams (RRT) identified by the SMOH to improve case investigation and initial response.

SMOH identified the need for 30 CTCs in the state. Currently six are functioning and 24 are being prepared. WHO will support the CTCs with supplies and equipment, including training for health staff and their incentives. Protocols on case management and infection control have been shared with doctors in the state with plans for on-the-job and full

trainings to be carried out soon. In addition, seven water testing kits—each kit can perform 3,000 water samples and 150 bacteriological tests—were distributed. UNICEF provided hygiene and cholera kits, which can cover the needs of over 100 cases.

House to house health education activities was carried out in the state reaching 1,433 families (about 9,500 people). Interactive radio sessions have been broadcast locally reaching about 40 per cent of people in the state. In El Souki locality, 40 people from the local community and the SRCS were trained to deliver health promotion messages and carry out chlorination activities.

Water, sanitation and hygiene response

For water quality monitoring, WHO trained 80 volunteers in Abu Houjar on water quality and chlorination. Water quality testing kits were sent to all seven localities in the state. Each kit will cover testing for 3,000 water samples and 150 bacteriological tests. UNICEF provided hygiene and cholera kits to cover 100 cases as well as strip chlorine tabs for water purification. In addition, water sources in 125 homes were chlorinated. On-the-job training and training of trainers for 20 public health officers in the state was carried out.

FORECAST (3 Oct 2019)

Projection for cholera cases in Sudan over the next 6 months

An expert team from the WHO headquarters in Geneva that specializes on cholera forecasting visited Sudan last week. They estimate that there may be between 5,000 and 13,200 cholera cases in the next 6 months in high risk states of Sudan. The projections are created based on the pattern of previous cholera/AWD outbreaks from 2016-2018.

State	# of Reported Cases 2016-2018 outbreaks	Cholera Cases in 2019	Projections	
			Best Case Scenario	Worst Case Scenario
Blue Nile	2,358	181	472	1,179
Sennar	3,744	107	749	1,872
El Gezira	3,434		687	1,717
Gedaref	2,266		453	1,133
Kassala	958		192	479
Khartoum	2,255		451	1,128
River Nile	1,953		-	586
South Kordofan	1,221		244	611
West Kordofan	343		-	103
White Nile	8,824		1,765	4,412
Total	25,233	288	5,013	13,247

There are two potential scenarios – the best case and the worst case. In the best case scenario, eight high-risk states adjacent to the areas currently affected by cholera will experience between 20-30 percent of the cases experienced from 2016-2018. This means up to 7,518 people would be affected by cholera.

In the worst case scenario, the outbreak will spread beyond the eight high-risk states and between 40-50 percent of the cases experienced in the last outbreak will occur. In this estimate over 13,000 people will be affected by cholera in 10 states.

There are several factors required to ensure the best case scenario. This includes a high level of transparency and information sharing between partners responding to the outbreak, a prompt national response, active engagement of the local community, readily available health promotion materials and an increased number of surveillance sites to catch new cases as they emerge.

EMERGENCY RESPONSE (19 Sep 2019)

Floods Overview

The flood response in Sudan is being coordinated by the Flood Task Force (FTF) Steering Committee which is led by the Sudanese Government's Humanitarian Aid Commission (HAC). Overall response is going well in areas where humanitarian organizations have operations and where preparedness plans were undertaken, mainly in Darfur states

and in South Kordofan. Government access and administrative procedures were facilitated by HAC with no major challenges faced. Assessments were carried out to identify people in need of assistance in flood-affected areas in Darfur states, Kassala, White Nile, Sennar and for the first time in Khartoum State. As of 19 September 2019, an estimated 364,200 people have been affected by heavy rains and flash floods across 17 states and the Abyei area*, according to HAC and partners. HAC has reported 78 related deaths, mainly due to collapsed roofs and electrocution. In total 45,104 homes have been destroyed and 27,742 homes damaged.

In Khartoum, the inter-sector coordination group (ISCG) is meeting on a weekly basis to coordinate humanitarian actors around key needs, response and gaps. The ISCG will now add response to the acute watery diarrhoea (AWD)/cholera outbreak to the agenda. At the state level, OCHA is working with state-level HACs' to coordinate the identification of key needs, response and gaps. In areas where OCHA is not present, agencies were identified as focal points to lead coordination efforts. Due to the scale of needs in White Nile State, OCHA has deployed a team to the state to coordinate response.

The total number of people affected by floods and in need of assistance is slowly increasing as more areas become accessible—as water dries up—mainly in El Salam and Tandalti localities in White Nile State. In areas where humanitarian actors are not present, HAC and national actors are trying to meet needs, but response is hampered by limited relief supplies, funding or staff. The main need of all people affected by floods are emergency shelter and household supplies (ES/NFIs). According to the Financial Tracking Service (FTS), the ES/NFI sector in the 2019 Humanitarian Response Plan (HRP) is only 0.3 per cent funded as of 12 September 2019. Other assistance needs include food, water, sanitation and hygiene (WASH), and health services.

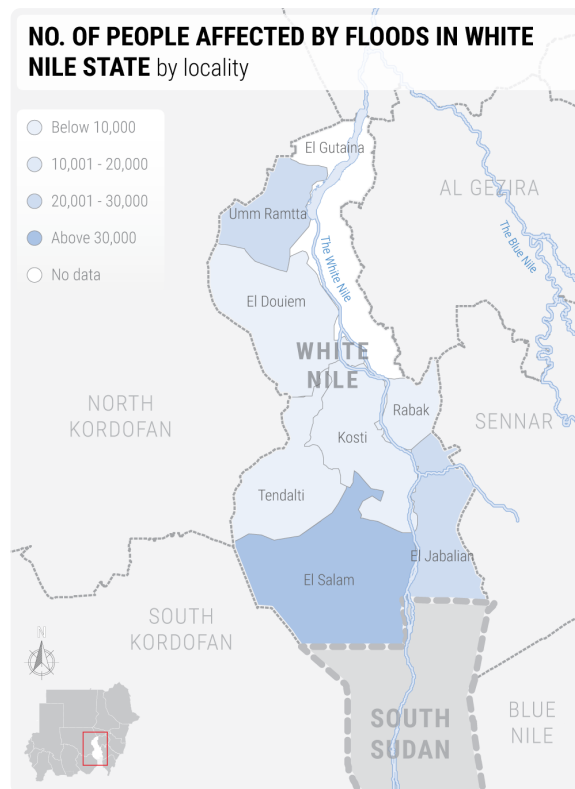
Outstanding gaps

Despite all ongoing response efforts by government authorities, UN agencies, international NGOs, national NGO and regional countries, not all people have received the assistance they need. In White Nile, Sennar, Khartoum, and Gedaref states an estimated 36,000 people still need water, sanitation and hygiene assistance. In White Nile, Sennar, and El Gezira states, 107,000 people still need health assistance. In White Nile, Khartoum, Sennar, and Kassala states, about 45,000 people still need ES/NFIs. There has been limited education assistance provided.

Forecast

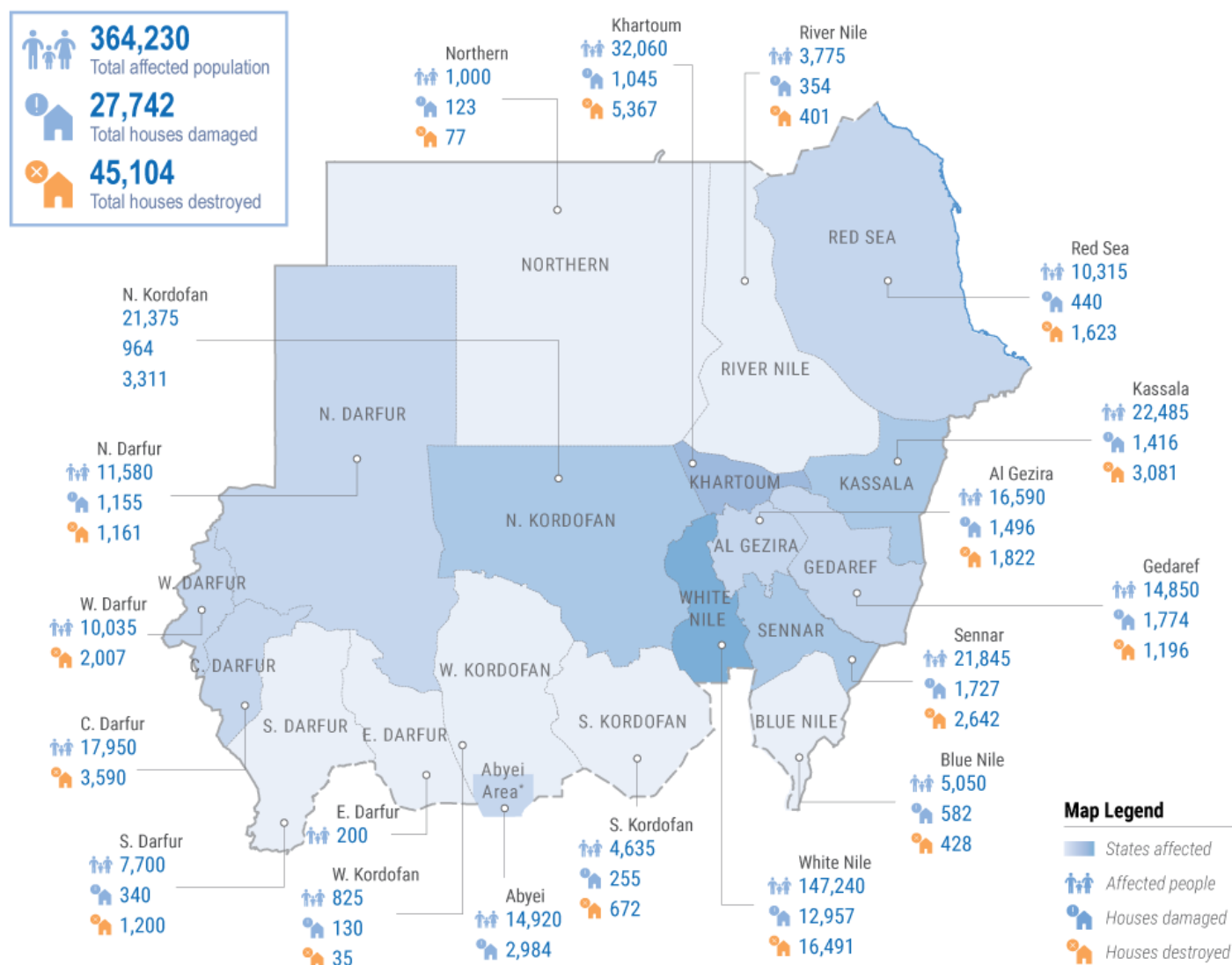
According to the latest Sudan Meteorological Association (SMA) forecast, less rainfall is expected as the rainy season comes to an end across the country. However, slightly above normal rainfall is expected in Blue Nile, South Kordofan and southern parts of the Darfur area. The risk of water-borne disease outbreaks such as AWD/cholera remains high and additional needs may arise in the coming months. Vector control activities need to be strengthened in all states to mitigate this risk.

*The final status of the Abyei Area is yet to be determined.



VISUAL (19 Sep 2019)

MAP: Floods across Sudan (As of 19 September 2019)



* The final status of the Abyei Area is yet to be determined.

Source: HAC and partners

OCHA coordinates the global emergency response to save lives and protect people in humanitarian crises. We advocate for effective and principled humanitarian action by all, for all.

<https://www.unocha.org/sudan>

<https://reliefweb.int/country/sdn>

<https://www.humanitarianresponse.info/en/operations/sudan>

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