# THE SOMALI STRATEGY FOR CHOLERA PREVENTION AND CONTROL 2020-2024

JAMHUURIYADDA
FEDERALKA SOOMAALIYA
Wasaaradda Caafimaadka
& Daryeelka Bulshada
XAFIISKA WASIIRKA

جمهـــوريـــة الصـــومـــال
الفيـــدرالية
وزارة الصحـــة ورعـــاية المجتـــمع
مكتب الوزير

Somali Federal Republic
Ministry of Health & Human Services
*Minister Office*

**Ref: MOH&HS/MOHO/0254 /Feb/2020** **19/Feb/2020/Mogadis**

**SOMALI FEDERAL MINISTRY OF HEALTH AND HUMAN SERVICE ENDORSES A STRATEGY FOR THE PREVENTION AND CONTROL OF CHOLERA**

Following extensive efforts of the Federal Ministry of Health and Human Services (FMOH&HS) and through the active collaboration with State Ministries of Health, and several other line ministries and organizations across the country and with WHO technical support, a strategy for the prevention and control of cholera has been developed. This important public health undertaking is the first of its kind in Somalia. The strategy recognizes the imperative of forging coordination and collaborative partnerships with the other government sectors, *donors*, the private sector, the civil society organizations and the UN agencies that are engaged in addressing health and/or social determinants of health, while encouraging community participation in cholera prevention, and incorporating monitoring and evaluation work plans. Accordingly, the strategy clearly shows that cholera prevention and control is not the sole responsibility of the Ministry Health, hence the need for multisectoral and multi-disciplinary cholera elimination plan, as clearly reflected in the deliberations of this strategy.

The strategy is quite comprehensive and innovative, and addresses a wide range of high impact interventions such as integrated disease surveillance; proper and timely case management; human resource capacity building; implementation of Oral Cholera Vaccine (OCV) in the hot spots; promoting the supply of safe drinking water, sanitation and hygiene; strengthening the health system preparedness and response capacity: advocacy for resource mobilization and a nation-wide advocacy and community social mobilization. The strategic measures for the prevention and control of cholera are envisaged as being the main drivers and essential prerequisites towards achieving Universal Health Coverage (UHC).

I hereby declare that the strategy for the prevention and control of cholera is now geared up and has been endorsed for implementation in the country in close collaboration with all the health partners committed to improving the health and well-being of the Somali population, With this endorsement, we affirm our commitment for ending cholera as a public health threat across the country.

**Best Regards**

**Dr. Fawziya Abikar Nur**

**Minister of Health & Human Services Federal Government of Somalia**

**Tel: +252-612925504 E-mail: fawziya.nur@gmail.com/minister@moh.gov.so**
**Mogadishu-Somalia**

## Contents

## List of Tables:



## List of Figures:

# ACRONYMS

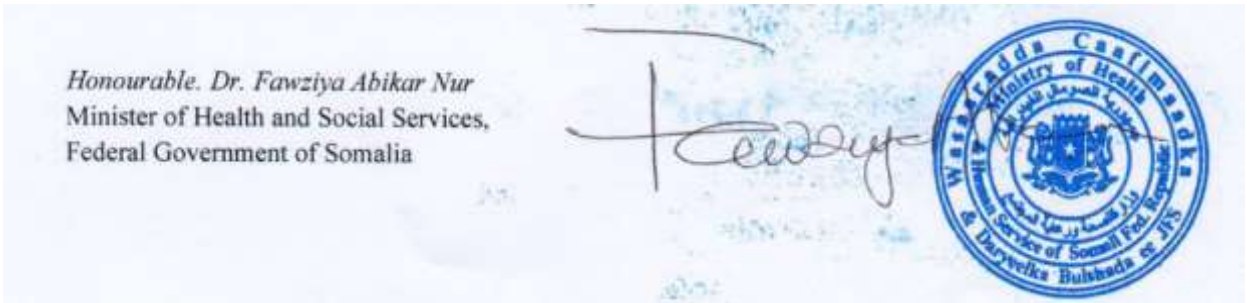
| | |
|---|---|
| AWD | Acute Watery Diarrhoea |
| BRAA | Benadir Regional Administration Authority |
| CFR | Case Fatality Rate |
| CTCs | Cholera Treatment Centers |
| CTUs | Cholera Treatment Units |
| CDSR | Communicable Disease Surveillance and response |
| CBFHW | Community Based Female Health Workers |
| FMOH | Federal Ministry of Health |
| EWARN | Early Warning Alert and Response Network |
| EM | Eastern Mediterranean Regional Office |
| ENSO | El Niño Southern Oscillation |
| EPSRU | Emergency Preparedness, Surveillance and Response Unit |
| E. Coli | Escherichia Coli |
| FGDs | Focal Group Discussions |
| GTFCC | Global Task Force for Cholera Control |
| IDSR | Integrated Disease Surveillance and Response |
| IEC | Information, Education and Communication |
| IDDK | Interagency Diarrhoeal Disease Kits |
| IDPs | Internally Displaced Persons |
| IHR | International Health Regulations |
| ISTFs | Intersectoral Task Forces |
| MOH | Ministry of Health |
| OR | Operational Research |
| ORP | Oral Rehydration Post |
| OCV | Oral Cholera Vaccination |
| ORS | Oral Rehydration Solution |
| PCR | Polymerase Chain Reaction |
| RDT | Rapid Diagnostic Test |
| RRTs | Rapid Response Teams |
| RCS | Risk Communication Strategy |
| SOPs | Standard Operating Procedures |
| ToT | Training of Trainers |
| UHC | Universal Health Coverage |
| UNICEF | United Nations International Children's Emergency Fund |
| WASH | Water, Sanitation and Hygiene |
| WHO | World Health Organization |

# PREFACE

The people of Somalia have paid a very heavy toll on account of Cholera for too long and it is now time to contain and eliminate this public health menace for all times to come. While the Somali public health sector is encouraged by the global roadmap set for ending Cholera by envisaging a massive 90% reduction in cholera morbidity through an ambitious global strategy being implemented in 47 cholera endemic countries including Somalia, we are fully conscious of the enormity of the task and the steps to be taken till 2030 in order to achieve this goal. Somalia is one of the endemic cholera countries in Sub Saharan Africa and among the few with persisting cholera transmission in the Eastern Mediterranean Region of WHO. We are therefore determined and committed to make every effort possible to eliminate this public health menace. The designing of a comprehensive Cholera prevention and control strategy is the first step in this context. We intend to proceed with wide ranging implementation of this multisectoral strategy to significantly reduce the morbidity and mortality of cholera with the long-term aim of its total elimination.

Certain key priority directions of the 5-year Cholera prevention and control strategy include better coordination and leadership, through an evolving federal governance system, with the support of a large number of partners engaged in service delivery in the health sector and a chain of coordination mechanisms with the environment sector to ensure the provision of safe water and improved sanitation services across the country and contribute to the charted levels of performance, envisaged to create high levels of cohesion and mutual accountability. Another important element of the strategy is the institution of an Integrated Disease Surveillance and Response (IDSR) system, for which the technical and operational parameters have been established and its effective ability to interrupt the disease transmission sufficiently recognized.

We expect that by improving surveillance to strengthen early detection and immediate response, we will effectively prevent and control cholera outbreaks, with the help of a trained cadre of Rapid Response Teams (RRTs) operating at federal, state, regional and district levels. The IDSR activities will be guided by the national public health reliable laboratory testing capacity. Community involvement in enhancing the awareness and engagement of the local populations will be a major driver of this entire strategy by promoting personal hygiene and the use of safe water and improved sanitation facilities. Moreover, we are also strongly aware that the newly introduced Oral Cholera Vaccine (OCV) is an essential weapon in the fight against cholera and a major complementary strategy in the prevention and control of cholera outbreaks. Nevertheless, the imperative to combine the OCV strategy with health system strengthening and a long term sustained provision of safe drinking water and sanitation through health sector aligned WASH interventions is self-evident. We are confident that during any outbreaks, the Cholera Treatment Centers (CTCs) and Cholera Treatment Units (CTUs) established in the different districts and equipped with a sufficiently skilled health workforce and the necessary cholera kits will be instrumental in drastically reducing the number of deaths from Cholera even in fragile settings by bridging the humanitarian and developmental efforts to build a resilient health system. Let us all resolve to contribute to this national cause with all the resources at our disposal.



# ACKNOWLEDGEMENTS

The development of a multisectoral national cholera strategy for Somalia was pursued using the available information compiled through a comprehensive situational analysis generated in consultation with the health authorities at federal and state level and other stakeholders from other public development sectors and with the international heath development partners. The strategy development was sponsored by WHO which in consensus with the FMOH contracted Benadir University (BU) to lead the strategy development mission identifying a principal investigator to spearhead this effort along with a senior professional core team from the Health Emergency Coordination Unit of the FMOH and a logistic support team from the BU. The process was conducted by organizing a series of consultations and meetings to seek the stakeholders' inputs across the health system in formulating the five-year national cholera prevention and control strategy. The process was initiated with consultations with the FMOH and a range of ministries with social and environmental determinants of cholera outbreaks. The consultations covered all the states i.e. South West; Hirshabelle; Jubbaland, Galmudug and Puntland, with the active participation of multisectoral teams of policy makers and a selected group of senior professionals led by the public health sector, while a separate parallel exercise was carried out in Somaliland.

The relevant development partners were also met, while, a special meeting was conducted with UNICEF for their special role in WASH implementation in coordination with the health sector. A concluding consultation workshop was held in Mogadishu to harmonize the prioritized strategic deliberation for action. The FMOH and BU take this opportunity to acknowledge the contribution of the federal and state level executives and officials; the principal investigator Prof. Khalif Bile Mohamud; the Executive Health of the Emergency Coordination Unit team of the FMOH led by Ahmed Moallim Mohamed; the WHO epidemiologist Dr Mutaawe Athanansius Lubogo, the Head of the National Public Health Laboratory Sahra Isse Mohamed, the Data Analyst Aden Hussein, and the BU technical logistic team Eng. Osman Ghedi and Eng Asad Abdi. The assistance provided by WHO and BU's valuable technical role in the development of this strategy are duly acknowledged, as well as all other partner organizations who expressed their firm commitment to the short, medium and long-term aspirations to end cholera in the country.

# 1 EXECUTIVE SUMMARY

**Background**

Cholera is an acute gastrointestinal infection caused by the bacterium Vibrio Cholerae serogroup O1 or O139, and is often linked to unsafe drinking water, lack of proper sanitation and personal hygiene. It adversely affects mostly the poor and vulnerable populations in countries, which are already deprived of proper health facilities and conducive environmental conditions. The disease spreads through oro-fecal transmission by the ingestion of contaminated food or water or by person-to-person contact. It has a short incubation period of 2 hours to 5 days and the number of affected cases can rapidly increase across large regions. Cholera is a significant threat to global public health leading to an estimated 3-5 million cases per year worldwide, with an annual toll of 100,000 deaths. The disease was first reported in 1817 from the Ganges Delta of India and since then the ongoing 7th pandemic has emerged from Indonesia, reached Africa in 1970 and Somalia happens to be one of the early affected countries. Over the past few decades, Somalia has witnessed the occurrence of repeated AWD/Cholera disease outbreaks that have caused high morbidity and mortality across the country.

The Somali health system has suffered from decades of disruption due to the extended civil conflicts that have contributed to a significant paucity of health professionals and an increase in the population lacking access to essential health services with a devastating impact on the health status of the general population. Moreover, while the internally displaced persons are estimated at 2.7 million, over 5.4 million are acutely food insecure. Other factors with devastating health consequences were the repeated droughts and the two famines of 1992 and 2011 that cumulatively wiped out over half a million people. In the Somalia transition to recovery, the country has formulated futuristic health policies and strategies that are being rapidly translated into action with a focus on key priorities to attain Universal Health Coverage (UHC). The development of a national strategy on the prevention and control of cholera outbreaks and endemicity constitutes an integral part of the national health system recovery process being currently pursued at all levels. The disease is also affected by climatic changes. Cholera control falls both within the ambit of emergency response in the case of outbreaks, and the normal developmental efforts when the disease is endemic in high-risk areas. The latter requires enhanced epidemiological and laboratory surveillance to identify endemic areas and rapidly detect, confirm, and respond to outbreaks by ensuring universal access to safe water, basic sanitation facilities, community engagement for behavioral changes and improved hygiene practices. Quick access to Oral Rehydration Solution (ORS) therapy can successfully cure most cases, while intravenous fluids and antibiotics are required for severe cases. Prevention with OCV is safe and effective. Cholera is preventable with the tools we have today, rendering the goal of its elimination within reach.

**Situation Analysis**

To assess the situation and the prevention and control efforts carried out at federal, state, regional, district and community levels, a common understanding of the pursued definitions and characterization of disease transmission patterns by the health professionals, related social sectors and partner organizations was necessary and accordingly developed as outlined below. A cholera situation assessment and cholera prevention and control strategy development consultations were quite exhaustive across the country, deliberating on the strategic priorities to be pursued in the prevention and control of cholera. During these consultation processes, several ministries and agencies as well as the Mogadishu Regional Administration Authority were briefed about their potential support and involvement, as well as the alignment of their sectoral strategies with the nationwide envisaged strategy for cholera prevention and control. During these consultations the following methodological approach was pursued:

i) **A district cholera risk profile:** The assessment was carried out by outlining a set of criteria including the occurrence of confirmed cholera outbreaks over the past three years; general performance of the health system network; access to medical supplies and vaccines and the ability of locally operating health professionals to freely deliver services in the area. Moreover, the security related access of the local population to health care services or referral care; the availability of safe drinking water and proper sanitation; and the presence of IDPs' concentration areas in the districts were also assessed.

Based on the above factors, the districts were classified into the following four categories as outlined below:

- *Low Risk of Infection* when the entire district population is accessing water from piped water schemes from deep bore or shallow wells with hand pumps, and the water is chlorinated with quality control systems in place. Such areas usually use private sanitation facilities connected to sewers from which wastewater is treated at a safe distance from the nearest water well and surface water, of at least 30 meters decreasing the risk of groundwater pollution. However, the latter is site specific and should be guided by the local hydrological and hydrogeological conditions.
- *Medium Risk of Infection* where water is accessed from piped water schemes, bore wells or shallow wells with hand pumps, but water is neither regularly chlorinated nor quality control measures in place. Here latrines are used where excreta are disposed of *in situ* but all latrines are not at a safe distance from the water well or surface water. The IDPs living in these areas nevertheless, have access to clean water and safe sanitation facilities.
- *High Risk of Infection* when districts have mixed access to protected water and water from open sources with no regular chlorination, or with mixed access to basic sanitation facilities and limited access to latrines where excreta are disposed of *in situ*. Moreover, districts with IDPs that have limited clean water supply and unsafe sanitation facilities but have not experienced any AWD/cholera outbreaks
- *Very High Risk of Infection* entails districts with no access to regular public sector health services due to poor security with resultantly poor water supply and sanitation facilities, none or highly limited supply of safe drinking water, no basic sanitation facilities with communities mainly practicing open defecation. Such districts have experienced at least one or more confirmed cholera outbreaks

ii) Water Points' Mapping: the availability of safe drinking water sources exemplified by the access to water sources from bore wells or shallow hand dug wells were evaluated

iii) Mapping the Cholera geographical "Hot Spots": these are administrative area where the prevailing environmental and socioeconomic conditions facilitate cholera transmission with verified disease endemicity. These include all the areas where OCV was exclusively carried out in Somalia, which were selected in the past as hot spots for coverage

iv) Stakeholder Mapping: This mapping was carried out to make the partners recognize cholera prevention and control as an integral component of the communicable disease control intervention of the district health system, both its humanitarian and developmental efforts towards the attainment of SDGs including UHC.

v) Health system strengthening: The health organization and performance for cholera prevention and control was strongly underlined in all state level consultations. This exercise was aimed at generating their commitment to the strategy design and to elicit their focused attention towards its implementation at all levels of service delivery, as an integral part of the UHC initiative

vi) Community engagement: This was another major area addressed during these consultations as without active and sustained community involvement, it would be difficult to attain the desired milestones for prevention and control of this killer disease.

In addition to the MOH, participants from other public sector ministries such as interior, education, energy and water, agriculture, women and human rights, and public sector representatives, actively contributed to the proceedings of these consultations. UN organizations such as WHO, UNICEF, UNFPA and health NGOs operating in each state also took part in this consultative process, with a view to gain a better understanding concerning the cholera trends over the years in each state and its respective regions and districts as well as the states' capacity for the prevention and control of the disease. The operational challenges at each level were also discussed and the projected remedial measures to undertake them outlined. The imperative for better coordination, intersectoral partnerships for the prevention and control of the disease were also fully acknowledged, as well as bridging the gap between the available and needed capacities for the purpose. Finally, the strategic directions necessary to undertake that are both technically effective and operationally feasible were shared and agreed for inclusion in the strategic plan.

The conducted field consultation workshops were combined with joint field exploration visits by the strategy development lead team accompanied by the local MOH team to the health facilities that provide care to the cholera affected cases in the event of disease outbreak, and to the available piped drinking-water distribution supply systems or other existing water supply and distribution modalities such as tankers or through other traditional means existing in these urban cities.

The cholera prevention and control strategic planning mission paid visits to all the states and conducted a 2-day intensive consultation on the cholera situation and the challenges being encountered for the prevention and control of the disease. In these consultative workshops, participants from the state Ministries of Health were each led by the Director General, while in some cases, the Ministers or Deputy Ministers of Health led the dialogue process.

Information was also collected on the WASH status from the different geographical areas of each state, as well as on the locally hosted internally displaced persons (IDPs). The latter are mostly residing in urban slums with scarce social services such as the delivery of health services, safe drinking water, sanitation facilities, waste management and a generally poor hygienic situation.

In all states, the participants demonstrated very robust engagement and contribution in accessing and collating the necessary information for the situation analysis, which was of critical importance for developing the current strategy in line with the Global Task Force for Cholera Control (GTFCC) with the ultimate aim of reducing cholera cases and deaths by 90% in line with the 2030 set global goals. In this regard, exercises were also made to define the key priorities of the envisaged strategic plan to ensure that the generated course of the plan was comprehensively informed by the fragile socio-economic situation, in general and by the status of health and WASH sectors, in particular.

At the end of the states' level consultation exercises, this process was concluded with a consultative workshop held in Mogadishu that was attended by federal level health authorities, NGOs providing health care services and UN agencies technically assisting in the delivery of health services.

A prime rationale of these federal and state level consultations was to collectively mobilize and sensitize the national health authorities on the public health risks that cholera inflicts on the national health system, while generating a shared commitment towards intersectoral action and building a national consensus on the strategic directions to pursue and priority activities to consider for implementation. These accomplishments are expected to create a strong federal initiative capable of mobilizing a nationwide public movement leading to the effective control of this long-standing endemic disease. This national strategy will complement the recently endorsed national commitment for UHC and its attainment of the SDG3 targets by 2030 across Somalia. To improve the resilience of the cholera affected local communities, it is necessary to strengthen the nexus between humanitarian and development health interventions to achieve far reaching successes in disease surveillance, health education and advocacy, early detection and proper case management and to ensure that case fatality rates do not exceed the globally set threshold of less than 1%.

**Cholera Prevention and Control Strategy: Priority Interventions**

The strategy thus clearly outlines the strategic priority interventions to be pursued during the course of its implementation that include the six critical areas delineated below:

- Reforming and enhancing the leadership and coordination of cholera preparedness and response and reducing the risk of cholera transmission and averting possible outbreaks, by involving all the relevant sectors, partners and the community
- Strengthening integrated disease surveillance and response and laboratory capacity for the early detection and control of cholera outbreaks
- Improving cholera case management to reduce the mortality and morbidity in the country with adequate prepositioning of the necessary medical supplies and the application of standard treatment guidelines at the operational level

- Introducing the Oral Cholera Vaccine (OCV), particularly in 'hot spot' geographical areas identified through the surveillance system as a supplementary measure
- Reducing the morbidity and mortality due to cholera outbreaks across the country by promoting and providing safe water and sanitation in addition to good hygiene practices among the population both in rural and urban settings
- Ensuring the exchange of real-time information, advice and opinions on prevention and control measures with the communities most threatened by the disease and engaging them in healthier practices to improve the well-being of the target population.

The five years earmarked budget for the above mentioned strategic interventions is estimated at US$ 9.268 million in present day terms. Moreover, monitoring supervision and evaluation indicators have been outlined to measure progress and the overall implementation framework including the operational research dimension. To successfully win the fight against cholera, the strategy will appeal for the formation of a national and international coalition partnership collectively achieving the moral obligation to support our ultimate objectives with regard to its timely elimination.

# 2 INTRODUCTION AND BACKGROUND

Cholera is an acute gastrointestinal infection caused by the bacterium Vibrio cholerae serogroup O1 or O139 often linked to unsafe drinking water, lack of proper sanitation and personal hygiene[1]. Cholera affects the poor and most vulnerable populations in countries which are deprived of proper health and environmental conditions spread through orofecal transmission by the ingestion of contaminated food or water or by person-to-person contact. Given the short incubation period of the disease ranging from as little as two hours to five days, the number of affected cases can rapidly increase resulting in a high mortality and morbidity. The disease was first reported in 1817 from the Indian Ganges Delta[2]. That first pandemic was followed by five pandemics emanating from the same region over the past two centuries, while the last and the ongoing 7th pandemic has emerged from Indonesia[3,4]. Cholera is a significant threat to global public health with acute diarrhoea and vomiting related with the disease-causing death from dehydration within hours, leading to an estimated 3-5 million cases per year worldwide, and an annual death toll of 100,000 deaths[5]. The seventh and ongoing cholera pandemic that started in Indonesia in 1961 reached Africa in 1970 and Somalia was one of the countries affected early on with recrudescent episodes of acute cholera outbreaks, where all the isolated strain of vibrio Cholerae 01 were of the Eltor biotype and of these both Inaba and Ogawa serotypes were isolated some already showing resistance to a range of drugs[2,6].

## 2.1 Cholera in Sub Saharan Africa and its occurrence in Somalia

The seventh epidemic reaching Africa in 1970 evolved into an endemic state with high burden of disease and frequent outbreaks with a high CFR of about 2%. In the first 40 years of the disease in the continent, over 3.2 million cases were reported representing 46% of the global burden of the disease. Of these, 86% of the cases and 99% of the mortality have occurred in Sub-Saharan Africa out of which over 50% were reported from just seven countries including Somalia[7].

Over the past few decades, Somalia has witnessed the occurrence of repeated AWD/Cholera disease outbreaks that have asserted the endemicity of the disease and caused high morbidity and mortality rates across the regions of the country. It was also observed that when effective preventive and curative case management interventions are maximized, the CFR could be reduced to 1%, while in the reverse the CFR can jump to 20%[8]. Vibrio Cholerae that causes large outbreaks in humans are classified into two serogroups, O1 and O139. While, Vibrio Cholerae O1 can be classified on the basis of its phenotypic or biochemical differences into classical and El Tor biotypes, the former being more pathogenic and virulent[9]. Within each biotype, the isolates are classified into serotypes by their antigenic form, the most important being the Inaba and Ogawa serotypes.

---

[1] Maggie Montgomery,a Megan Wilson Jones,b Ibrahim Kabole,c Rick Johnstona & Bruce Gordona. No end to cholera without basic water, sanitation and hygiene. Bull World Health Organ 2018;96:371–371A | doi: http://dx.doi.org/10.2471/BLT.18.213678

[2] https://www.history.com/topics/inventions/history-of-cholera,

[3] Lippi D, Gotuzzo E, Caini Cholera.S.Microbiol Spectr. 2016 Aug emerged from Indonesia;4(4). doi: 10.1128/microbiolspec.PoH-0012-2015),

[4] Clemens JD, Nair GB, Ahmed T, Qadri F, Holmgren J. .Lancet. 2017 Sep 23;390(10101):1539-1549. doi: 10.1016/S0140-6736(17)30559-7. Epub 2017 Mar 13. Review.

[5] Dawn L. Taylor, Tanya M. Kahawita, Sandy Cairncross, Jeroen H. J. Ensink. The Impact of Water, Sanitation and Hygiene Interventions to Control Cholera: A Systematic Review. PLOS ONE | DOI:10.1371/journal.pone.0135676 August 18, 2015

[6] University of Chicago. Clonal spread of multiple resistant strains of vibrio Cholerea 01 in Somalia. The Journal of Infectious Diseases vol 153 N0 4, April 1986.

[7] Mengel MA1, Delrieu I, Heyerdahl L, Gessner BDCurr. Cholera outbreaks in Africa. Top Microbiol Immunol. 2014;379:117-44. doi: 10.1007/82_2014_369.

[8] Dominique Legros World Health Organization, Geneva, Switzerland. Global Cholera Epidemiology: Opportunities to Reduce the Burden of Cholera by 2030. The Journal of Infectious Diseases. JID 2018:218 (Suppl 3) • S137.

[9] Global Task Force on Cholera Control. Ending Cholera: A global Roadmap to 2030. www.WHO. Int/Cholera/EN

Cholera cases are usually characterized by acute watery diarrhoea (AWD) of three or more loose or watery stools over a period of 24-hours. To ensure early detection and response, the health workers and local communities are advised to suspect the occurrence of cholera in an individual residing in an area where a cholera outbreak has not been declared, yet a child of two years old or older is found to be affected by acute watery diarrhoea and severe dehydration; or when an individual dies from acute watery diarrhoea[10]. In a geographical area where a cholera outbreak has been confirmed earlier, anyone presenting with the signs and symptoms of the disease or dying from acute watery diarrhoea need to be regarded a suspected cholera case[11].

Moreover, the detection of a) two or more people aged 2 years and older that are linked by time and place and presenting with acute watery diarrhoea and severe dehydration or b) dying from acute watery diarrhoea from the same areas within a week of one another; or c) a death from severe acute watery diarrhoea in a person of at least 5 years of age; or d) a case with acute watery diarrhoea testing positive for cholera by rapid diagnostic test (RDT) in an area where cholera confirmed cases have not yet been detected should ignite a cholera alert, a situation immediately triggering a public health response to mitigate the risk of cholera outbreaks. A full-blown cholera outbreak is confirmed by the occurrence of at least one confirmed case of cholera and the evidence of a local transmission, or when a cholera transmission area shows an unexpected increase in the cholera suspected cases for over two consecutive weeks of which one or more cases are laboratory confirmed. This basic technical information is extremely relevant in a country like Somalia, where the disease is endemic implying that several of its districts are maintaining a cholera confirmed transmission for three consecutive years, for which the technical preparedness and necessary response teams are ready to react and undertake the necessary preventive and control measures on the ground.

## 2.2 Cholera Prevention and Control and the health system

The Somali health system has suffered from decades of disruption due to the extended civil conflicts that have contributed to the significant increase in the population lacking access to essential health services with devastating impact on the health status of the general population. The above conditions have led to the internal displacement of large population groups currently estimated at 2.7 million. Furthermore, over 5.4 million are expected to be acutely food insecure in 2019[12]. The low number of health care professionals i.e. nurses, midwives and physicians of only 4-5 per 10,000 population is about five times lower than the minimum required threshold indicated by WHO. This is further compounded by their uneven distribution and the low density of public sector health facilities in the country, conditions seriously compromising the quality and the outreach of the health facilities, particularly for the rural populations.

Health care services need to be revamped in order to be able to provide the essential package of health services to the general population, especially to those residing in nomadic and rural settings and the 2.7 million internally displaced persons, who together form about 60% of the country's population. This makes it imperative to create unimpeded access to essential health services of which the prevention and control of communicable diseases such as cholera is a matter of top priority and concern. Other factors with devastating health consequences were the repeated droughts and the two famines of 1992 and 2011, where cumulatively half a million people were wiped out, although most of these deaths and the tragic impact of these famines were avoidable. In the Somalia transition to recovery, it is time to consolidate the delivery of essential health services and translate these into better health and nutrition outcomes. To effectively pursue this rapid course of action, Somalia has formulated its futuristic health policies and strategies that are being put actively into implementation. In line with the stipulated vision and mission, a National Health Sector plan is being developed as part of the National Development Plan. With the focus on key priorities, the goal is to achieve UHC, a strategy that was formally endorsed recently by the top national political

[10] Andrew S. Azman, Kara E. Rudolph, Derek A.T. Cummings, and Justin Lessler. The incubation period of cholera: A systematic review. J Infect. 2013 May ; 66(5): 432–438. doi:10.1016/j.jinf.2012.11.013.
[11] https://www.wvi.org/publications/report/somalia/somalia-august-2019-situation-report
[12] Somalia: Humanitarian Dashboard - April 2019 (As of 15 May 2019). the UN Office for the Coordination of Humanitarian Affairs-Published on 15 May 2019. https://reliefweb.int/report/somalia/somalia-humanitarian-dashboard-april-2019-15-may-2019

authority and launched for implementation across the country. For the hard-to-reach areas, the government is considering the deployment of trained Community Health Workers and Community Based Midwives that will provide a package of preventive and basic primary health care services, and linking these underprivileged communities to the different tiers of health system care provision for early referral to medical and obstetric care services. A District Health Information System has been initiated to build the capacity of data use and improve the management of service delivery. A National Medicines Policy and a National Medicines Supply Chain Master plan have also been developed. Programmes for routine immunization of children are supported by Gavi the Vaccine Alliance, aimed at increasing coverage from 50-60% to 85-90%. The development of a national strategy on the prevention and control of Cholera outbreaks and endemicity constitutes an integral part of the national health system recovery process that is actively being pursued both at federal and state levels of the health system. But many rampant health problems remain largely unattended. Malnutrition among children, mothers and adolescent girls is still highly prevalent. Tuberculosis, HIV/AIDS and malaria are endemic communicable diseases for which control measures need to be accelerated. Likewise, the prevailing humanitarian conditions, demand significant efforts to strengthen emergency preparedness and response capacity and improved access to essential lifesaving health services to mitigate communicable disease outbreaks through coordination, partnerships and effective community participation

Although Somalia is currently in the process of recovery, the country yet maintains a level of fragility with its relatively weak health institutions, poor infrastructure and paucity of a qualified health workforce. The health development challenges are therefore enormously affected by the decades' long conflicts and periodically ongoing insurgencies that render some geographical areas inaccessible to routine health service delivery. In this situation, the population remains highly vulnerable to cholera and other communicable diseases that are being encountered. The public health threat posed by cholera is sustained by the populations' limited access to essential health services and availability of safe drinking water and sanitation facilities. Frequent droughts, population migration, internally displaced persons, and the alternating river floods and flash floods in non-riverine areas have heightened the risk of cholera outbreaks in the country[2].

The climatic changes had their direct implications on the risk of cholera outbreaks, as reflected by the El Niño Southern Oscillation (ENSO), which is a periodic variation in the sea surface temperature, which through its warm winds in the tropical Pacific Ocean, influences weather patterns globally[13] (10, 11). The Warm phases of El Nino, are associated with warm sea surface temperatures in parts of the western Indian Ocean, leading to above average rainfalls in East Africa such as the El Niño event of 2015–2016[14]. El Niño event with similar events registered in earlier years, leading to threefold increase in the incidence of the disease[15]. The health sector follow-up and advance forecast of El Nino for a period of 6-12 months, could indeed strengthen the national emergency preparedness and response capacity and the effective mitigation of morbidity and mortality of the disease and enabling the triggering of public health preparations thus saving lives.

[13] Sean M. Moore, Andrew S. Azman, Benjamin F. Zaitchik, Eric D. Mintz, Joan Brunkard, Dominique Legros, Alexandra Hill, Heather McKay, Francisco J. Luquero, David Olson, and Justin Lessler. El Niño and the shifting geography of cholera in Africa. PNAS April 25, 2017 114 (17) 4436-4441

[14] Moore et al. Changes in cholera incidence across [14]Africa during an El Niño event. Shading indicates areas that tend to see an increase (red) or decrease (blue) in cholera cases, 2017.

[15] Environ Res. 2019 Sep;176:108571. doi: 10.1016/j.envres.2019.108571. Epub 2019 Jul 2. The cholera epidemic in Yemen - How did it start? The role of El Niño conditions followed by regional winds. Paz S.

**Figure 1: Climatic changes and their direct impact on the risk of cholera outbreaks**

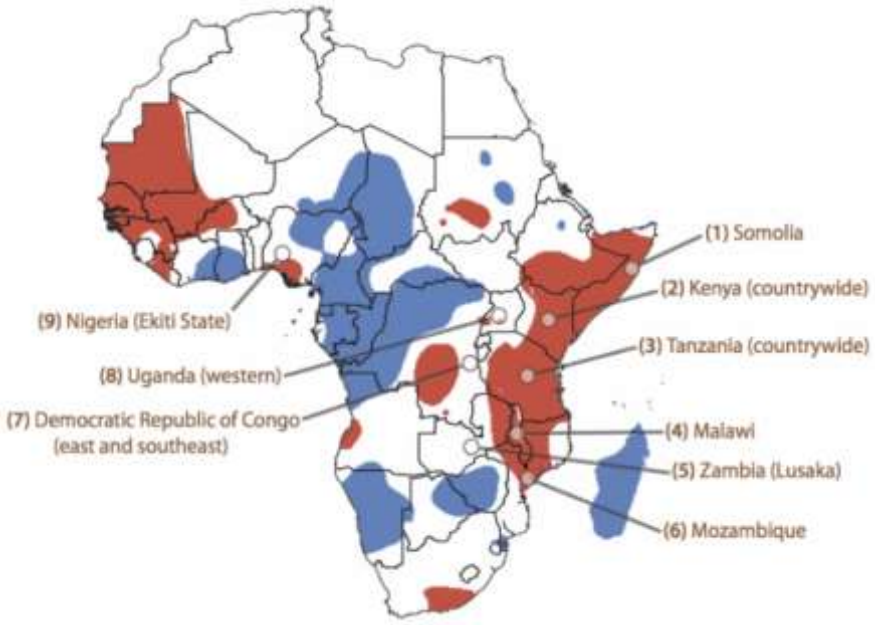



Figure 1 Changes in cholera incidence across [16]Africa during an El Niño event. Shading indicates areas that tend to see an increase (red) or decrease (blue) in cholera cases, 2017.

## 2.3 Bridging Emergency Response and Longer-term Cholera Control

Cholera control falls both within the ambit of emergency response in the case of outbreaks, and the normal developmental efforts when the disease is endemic in high-risk areas. Effective cholera prevention and control interventions are well known and rely to a great extent, on the implementation of integrated and comprehensive approaches that involve activities both inside and outside of the health sector. This includes enhanced epidemiological and laboratory surveillance to identify endemic areas and rapidly detect, confirm, and respond to outbreaks; universal use of safe water and basic sanitation; and community engagement for behavioral changes and improved hygiene practices. It also comprises quick access to treatment of ORS, which can successfully treat most cases, and intravenous fluids and antibiotics for severe cases and protection with safe and effective OCV.

The current persistence of cholera and the geographic and temporal pattern of its outbreaks indicate that despite the ongoing efforts, the current strategies have fallen short of controlling the disease in endemic areas. This is partly because the vast majority of cholera control activities have focused on emergency response to outbreaks, which reduces the number of cases and deaths but has lesser effect on the prevention of the disease. Long-term WASH programs are also very few and do not regularly prioritize areas most affected by cholera. Cholera is preventable with the tools we have today, rendering the goal of its elimination within reach. More proactive and targeted measures to prevent cholera through investments in WASH, improved health systems, and large-scale use of OCV for those most in need are, however, urgently required.

The latter allowed all the participants in the different state level consultations to have an equal understanding of the subject, particularly among those representing sectors other than health, as outlined in the background quick notes stated in Box 1 below aimed to create an informed discussion base for their envisioned cholera prevention and control measures to consider.

**Box 1: Cholera Quick Note**

[16] https://www.carbonbrief.org/el-nino-shifts-cholera-burden-east-africa

The following is a brief characterization of cholera transmission conditions relevant to the prevention and control of the disease

**Case Definition:** A disease characterized by AWD of three or more loose or watery stools within a period of 24-hours.

**Suspected cholera case:** To ensure early detection and response, health workers and local communities will suspect the occurrence of cholera in an individual residing in an area where a cholera outbreak has not been declared, but a child of two years old or older is found to be affected by acute watery diarrhoea and severe dehydration; or when an individual dies from acute watery diarrhoea. A geographical area where a cholera outbreak was confirmed earlier, a suspected cholera case is the detection of any one presenting with the signs and symptoms of or dying from acute watery diarrhoea.

**Confirmed cholera case:** A suspected case is confirmed when the patient's collected stool samples are tested and diagnosed through culture or through Polymerase Chain Reaction (PCR) test, and a Vibrio Cholerae O1 or O139 strain is detected.

**Cholera alert:** The detection of two or more people aged 2 years and older that are linked by time and place presenting with acute watery diarrhoea and severe dehydration or dying from acute watery diarrhoea from the same areas within one week of one another; or a death from severe acute watery diarrhoea in a person of at least 5 years old; or a case with acute watery diarrhoea testing positive for cholera by RDT in an area where cholera confirmed cases were not yet detected

**Cholera hotspot:** A geographically limited administrative area of a district or urban locality or an entire district or city where environmental, cultural and/or socioeconomic conditions have facilitated cholera transmission and where the disease occurrence persists or re-appears regularly and from where the disease often spreads to other areas.

**A cholera outbreak:** A Cholera outbreak is characterized by the occurrence of at least one confirmed case of cholera and the evidence of a local transmission, or when in a cholera sustained transmission area shows an unexpected increase in the cholera suspected cases for over two consecutive weeks of which one or more cases are laboratory confirmed

**A cholera endemic districts:** Districts with confirmed cholera cases arising from a local transmission reported within the last 3 years

**A Cholera endemic country:** A country is cholera endemic when two or more of its districts are characterized as cholera endemic. From this perspective, there are numerous districts in the country that are cholera endemic with confirmed Vibrio Cholerae for three consecutive years, an epidemiological paradigm that qualifies Somalia as a cholera endemic country.

# 3 METHODOLOGY

To assess the situation and the prevention and control efforts carried out both at federal and state levels, a common understanding of the pursued definitions and characterization of disease transmission patterns by the health professionals and their partners from other sectors and partner organizations was necessary and accordingly carried out, as summarized in the background quick note outlined above.

A cholera situation assessment and cholera prevention and control strategy development consultations were thus organized, one in each state led by the state ministry of health (MOH) and joined by the MOH partner organizations and government sectors expected to participate in the strategy implementation process. Two-day consultation workshops were organized in each state, attended by MOH officers and senior professionals, representatives from the line ministries relevant to Cholera outbreak prevention and control and from the local and international NGOs/organizations. The assessment and cholera prevention and control strategy development consultations were inaugurated either by the Minister of Health, Deputy Ministers for Health or the Director General of the MOH. At each state level, these policy makers reiterated their government's strong support to the development of this strategy and emphasized on their commitment for its implementation. Thus, the importance of the strategy was reflected and a high priority accorded to

its urgent design and implementation and a consensus established about the critical role it will play for the prevention and control of the frequent and devastating cholera outbreaks and to the high risk it poses to every state in the country. A similar exercise was also conducted at federal level led by the Federal Ministry of Health (FMOH) with the active participation of health partners and a number of government sectors engaged in the implementation of one or more of the strategic priorities to be pursued in the prevention and control of cholera in the country. During these consultation processes, several ministries and agencies as well as the Mogadishu Regional Administration Authority were visited and briefed about the strategy and their actual and potential support and involvement in any of the envisaged strategies for cholera prevention and control. The need to align their future plans and development aspirations with the cholera prevention and control strategy was emphasized. During these consultations the following methodological approach was pursued:

i) **A district cholera risk profile:** the assessment was carried out where a set of criteria were outlined for consideration. These included the occurrence of confirmed cholera outbreaks in the past three years; the general performance of the health system network; the access to medical supplies and vaccines and the ability of locally operating health professionals to openly and freely deliver their services in the area. Moreover, the security related access of the local population to health care services or seek referral care as necessary; the availability of safe drinking water and proper sanitation; and the presence of IDPs' concentration areas in the districts were also assessed. Based on the above factors, the districts were classified into the following four categories as outlined in Box 2.

**Box 2. Assessing the District Cholera Risk Profile**

**I. Low risk of Infection**

- The entire district population accessing water from piped water schemes from deep bore wells or shallow wells with hand pumps where water is regularly chlorinated & quality control systems are in place
- The district is using private sanitation facilities connected to sewers from which wastewater is treated or use pit latrines of three meters deep and one meter across with the safe distance from the nearest water well and surface water of at least 30 meters to decrease the risk of groundwater pollution

**II. Medium Risk of Infection**

- Accessing water from piped water schemes, bore wells or shallow wells with hand pumps but the water is not regularly chlorinated & there are no quality control systems in place
- Using latrines where excreta were disposed of in situ but all latrines are not on a safe distance from the water wells or surface water
- The IDPs living in the area have access to clean water and safe sanitation facilities

**III. High Risk of Infection**

- Districts with mixed access to protected water and water from open sources with no regular chlorination
- Districts with mixed access to basic sanitation facilities and no access to latrines where excreta are disposed of in situ
- Districts with IDPs having limited clean water supply and sanitation facilities are unsae but have not experienced any AWD/cholera outbreaks

**IV. Very High Risk of Infection**

- Districts with no access to regular public sector health services due to poor security and with poor water supply and sanitation facilities
- Districts with none or very limited supply of safe drinking water
- Districts with no basic sanitation facilities and a large proportion of the community still practice open defecation
- Districts that have experienced at least one or more confirmed cholera outbreaks

ii) **Water Points' Mapping:** the availability of safe drinking water sources exemplified by the access to water sources from borewells or shallow hand dug wells were assessed

iii) **Mapping the Cholera geographical "Hot Spots":** these are administrative area where the prevailing environmental and socioeconomic conditions have facilitated cholera transmission with a verified disease endemicity. These include all the areas where OCV was exclusively carried out in Somalia, which were selected in the past as hot spots for coverage

iv) **Stakeholder Mapping:** This mapping was carried out to make the partners recognize cholera prevention and control as an integral component of the communicable disease control intervention of the district health system, both its humanitarian and development windows. The established ask Foreces will encourage their coordinated partnership in marching towards the cholera effective prevention and control, this being a major step towards SDGs and UHC.

v) **Health system strengthening and cholera Prevention and control:** The health organization and performance for the cholera prevention and control was strongly underlined in all state level consultations. This exercise was aimed to generate their commitment to the design of the cholera prevention and control strategy and the special attention to direct on its implementation at all levels of service delivery as an integral part of the UHC initiative

vi) **Community engagement:** This was another major area addressed during this consultation as without community active involvement, it would be difficult to attain the desired milestones for prevention and control of this killer disease and sustain this effort at the community level.

In addition to the MOH, participants from other public sector ministries such as the ministries of interior, education, energy and water, women and human rights, public sector representatives, ministry of agriculture and others have actively participated in the proceedings of these consultations. UN organizations such as WHO, UNICEF, UNFPA and health NGOs operating in each state also took part in this consultative process. The main objective of these consultations was to gain a better understanding concerning the cholera trends over the years in each state and its respective regions and districts as well as the states' capacity for the prevention and control of the disease. The operational challenges at each level were also discussed and the remedial measures to undertake were also outlined. The imperative for better coordination, intersectoral partnerships for the prevention and control of the disease were also fully acknowledged, as well as the available and needed capacities for the prevention and control of the disease. Finally, the strategic directions necessary to undertake that are technically effective and operationally feasible were shared and agreed for consideration and inclusion in the strategic plan.

The conducted field consultation workshops were combined with field exploration visits where the strategy development lead team was accompanied by the local MOH team

The cholera prevention and control strategic planning mission has paid visits to all the states and conducted a 2-day intensive consultations in each, on the cholera situation and the challenges being encountered for the prevention and control of the disease. In these consultative workshops, participants from the state Ministry of Health led by the Director General were organized, while the Ministers or Deputy Ministers of Health led the initial driving phase of the dialogue process.

Members of the visiting mission were accompanied by the state level MOH members to perform field visits to the health facilities that provide care to the cholera affected patients in the event of disease outbreak, and to the available piped drinking-water distribution supply systems or other existing water supply and distribution modalities such as tankers or through other traditional means existing in these urban cities. Information was also collected on the WASH status of the other geographical area of each state, as well as on the locally hosted IDPs. These are often urban slums in which the social services are still scarce, such as the delivery of health services, regular supply of safe drinking water, sanitation facilities, waste management and the overall hygiene situation.

Intersectoral participation and its operational scope in the fight against cholera were strongly emphasized in all the consultation workshops. Accordingly, the participation of the other relevant sectors in these consultative workshops was ensured for their active contribution and support for the technical and organizational elements of the nascent strategy and to assist in its implementation.

In all states, the participants demonstrated very robust engagement and contribution in accessing and collating the necessary information for the situation analysis, which was of critical importance for developing the Somali cholera prevention and control strategy in line with the GTFCC with the ultimate aim to reduce cholera cases and deaths by 90% in line with the 2030 set global goal to achieve. In this regard, exercises were also made to define the key priorities of the envisaged strategic plan to make sure that the generated course of the plan is comprehensively informed by the fragile socio-economic situation on general and by the status of health and WASH sectors in particular.

At the end of the states' level consultation exercises, this process was concluded with a consultative workshop held in Mogadishu that was attended by federal level health authorities, the health care providing NGOs and the UN agencies assisting in the delivery of health services.

The main purpose of these federal and state level consultations was to collectively mobilize and sensitize the national health authorities on the public health risks that cholera inflicts on the national health system. The consultation in Somaliland was facilitated by WHO for which the finding and related recommendations will also be additionally described. The strategy also aims to generate a shared commitment towards intersectoral action in the prevention, control and elimination of this killer disease and to build a national consensus on the strategic directions to pursue and on the priority activities to consider for implementation. These accomplishments are expected to create a strong federal initiative capable of mobilizing a nationwide public support for the prevention, control and elimination of this long-standing endemic disease. These processes will be ultimately translated into a national strategy for cholera prevention, control and long-term elimination that will complement the recently endorsed national commitment for UHC and its attainment of the SDG3 targets by 2030 across Somalia. The strategy development process will also emphasize on the coordinated support of the different stakeholders supporting the development of the Somali national health system and its accelerated recovery, as well as on the active involvement of the local communities at every stage of the strategy implementation. To improve the resilience of the cholera affected local communities, the nexus between the humanitarian and development health interventions will be strengthened to enhance the sustainability of the activities channeled through the strategy with far reaching outcomes supported by solid technical interventions such as disease surveillance, health education and advocacy, early detection and proper case management to ensure that the fatality rates do not exceed the globally set threshold of less than 1%.

# 4 THE CHOLERA EPIDEMIOLOGY IN SOMALIA

## 4.1 Cholera situation and trends

As in the most of Africa, Somalia was among the countries inflicted by the seventh cholera epidemic that was first recorded in the continent in 1970[17]. Although no explicit records are available from the early cholera outbreaks in the country, confirmed cholera outbreaks were reported from Somalia in the period from 1983 to 1990, when a study reported the isolation of over 4,000 cases with an overall case-fatality rate of 13%[18]. In the midst of the civil conflicts different INGOs have sporadically reported outbreaks of cholera and confirmed them through specimens sent to Ameref in Kenya. Among these are those reported from 1997 to the year 2000, where over 20,000 cases were reported over 50% being under-5 children, predominantly concentrated in the southern regions of the country and Mogadishu, while one of the outbreaks was reported from Bosaso in the eastern part of the country. Limited emergency response and outbreak containment interventions were then being carried out, considering the security challenges of that period, many of them with high CFR of over 4%[19,7]. A closer follow up of the disease outbreaks with better reporting of the affected population was only possible from 2009 onwards, when the health system was reorganized and a reliable level of reporting systems established.

[17] Am J Trop Med Hyg. 2007 Oct;77(4):705-13. Cholera: a new homeland in Africa? Gaffga NH1, Tauxe RV, Mintz ED

[18] Am J Trop Med Hyg. 1995 Oct;53(4):351-9. Vibrio cholerae in the horn of Africa: epidemiology, plasmids, tetracycline resistance gene amplification, and comparison between O1 and non-O1 strains. Coppo A1, Colombo M, Pazzani C, Bruni R, Mohamud KA, Omar KH, Mastrandrea S, Salvia AM, Rotigliano G, Maimone F.

[19] Weekly Epidemiol Rec. 1998 Jul 3;73(27):201-8. Cholera in 1997)

Table 1 below illustrates the cholera trend in the country from 2009 to 2019. The highest numbers were reported between 2016 and 2017 during which intense and widespread Cholera outbreaks occurred in most regions of the country. The case fatality rate (CFR) was relatively high in the early years when the country was recovering from civil conflicts and the health services system was poorly performing, while with the improvements made in the health system recovery process, the CFR dropped to a reasonable level. In all the 11 years, confirmed cholera cases were regularly registered illustrating the nature of these outbreaks and Vibrio Cholerae endemicity in the country, in which both Ogawa and Inaba serotypes were detected. It is important to note that in the earlier years, the country did not have the culture and PCR facilities and samples were regularly sent to a laboratory in Kenya for confirmation, a capacity now ably undertaken up by the FMOH national public health laboratory in Mogadishu. Efforts are being currently explored to establish other cholera diagnostic laboratories in at least two other regions of the country. It is worth noting that 51% of all the reported cases during the past 11 years, and 49% of deaths have occurred in the year 2017 alone. Moreover, of the total cholera confirmed cases over the years, 65% were caused by Ogawa serotype. Interestingly, during the past years the CFR dropped in relation to the earlier outbreaks, showing a visible improvement in both response and case management measures put into implementation.

**Table 1: AWD/Cholera cases from 2009 to 2019 in Somalia**

| Year | Cases by Age group | | Total Cases | Total Deaths | CFR | Vibrio Cholerea | | Serotype | |
|---|---|---|---|---|---|---|---|---|---|
| | Under 5 years | Over 5 years | | | | Positive | Negative | Ogawa | Inaba |
| 2009 | 4,372 | 906 | 5,278 | 84 | 1.6 | 2 | 15 | 1 | 1 |
| 2010 | 3,743 | 980 | 4,723 | 124 | 2.6 | 11 | 28 | 0 | 11 |
| 2011 | 9,463 | 3,874 | 13,337 | 384 | 2.9 | 44 | 141 | 0 | 44 |
| 2012 | 8,019 | 2,901 | 10,920 | 162 | 1.5 | 49 | 95 | 0 | 49 |
| 2013 | 8,397 | 2,695 | 11,092 | 107 | 1.0 | 5 | 14 | 1 | 4 |
| 2014 | 4,692 | 1,984 | 6,676 | 61 | 0.9 | 6 | 24 | 4 | 2 |
| 2015 | 3,797 | 1,772 | 5,569 | 54 | 1.0 | 36 | 36 | 13 | 23 |
| 2016 | 8,780 | 6,839 | 15,619 | 182 | 1.2 | 78 | 82 | 48 | 30 |
| 2017 | 32,337 | 46,364 | 78,701 | 1163 | 1.5 | 134 | 238 | 134 | 0 |
| 2018 | 3,792 | 2,656 | 6,448 | 45 | 0.7 | 104 | 256 | 100 | 4 |
| 2019* | 1,296 | 662 | 1,958 | 0 | 0.0 | 25 | 436 | 19 | 6 |
| **Total** | **84,316** | **70,727** | **155,043** | **2,366** | **1.5** | **492** | **1,350** | **319** | **173** |

*2019 data is Jan. to 15 Sept.

## 4.2 The District Cholera Risk Profile

As the country is constantly facing the threat of cholera outbreaks, it is important to assess the cholera risk exposure in the different districts based on the prevailing conditions and the probability of inter- or -intra-district transmission and which specific emergency preparedness interventions are necessary to consider, including the planning of OCV campaigns.

In the cholera risk profile assessment, the total absence of districts with low or medium cholera risk exposure was observed, where all the districts were classified either as of high or very high cholera risk in terms of their populations' high risk of contracting cholera, often resulting in cholera outbreaks. The districts having a very high cholera risk are 15 in South West State; nine in Jubbaland State; and 11 districts in each of Hirshabelle and Galmudug states, while the remaining districts of the country are considered to be exposed to high cholera risk. The 17 districts of Mogadishu although being qualified as high cholera risk districts, their recent epidemiological situation positions them as potentially of very high cholera risk profile. The high and very high cholera risk profile of all the districts in the country is indicative of the urgent need for nationwide cholera prevention and control interventions. This situation demands the imperative for intersectoral collaboration and action for the prevention and control of cholera outbreaks carried out by combining health and WASH humanitarian and developmental interventions across the country.

## 4.3 Cholera Persistent Endemicity

Table 2 illustrates the districts or areas affected by AWD outbreaks, from which vibrio cholerea positive cases were detected for three consecutive years and accordingly labeled as cholera endemic districts. These were the cities of Belet Weyne and Buloburte of Hiran region; Jowhar of Middle Shebelle region; Kismayo of Lower Jubba region and Merka of Lower Shabelle region, while the capital city of Mogadishu remained one of the cholera most endemic regions of the country.

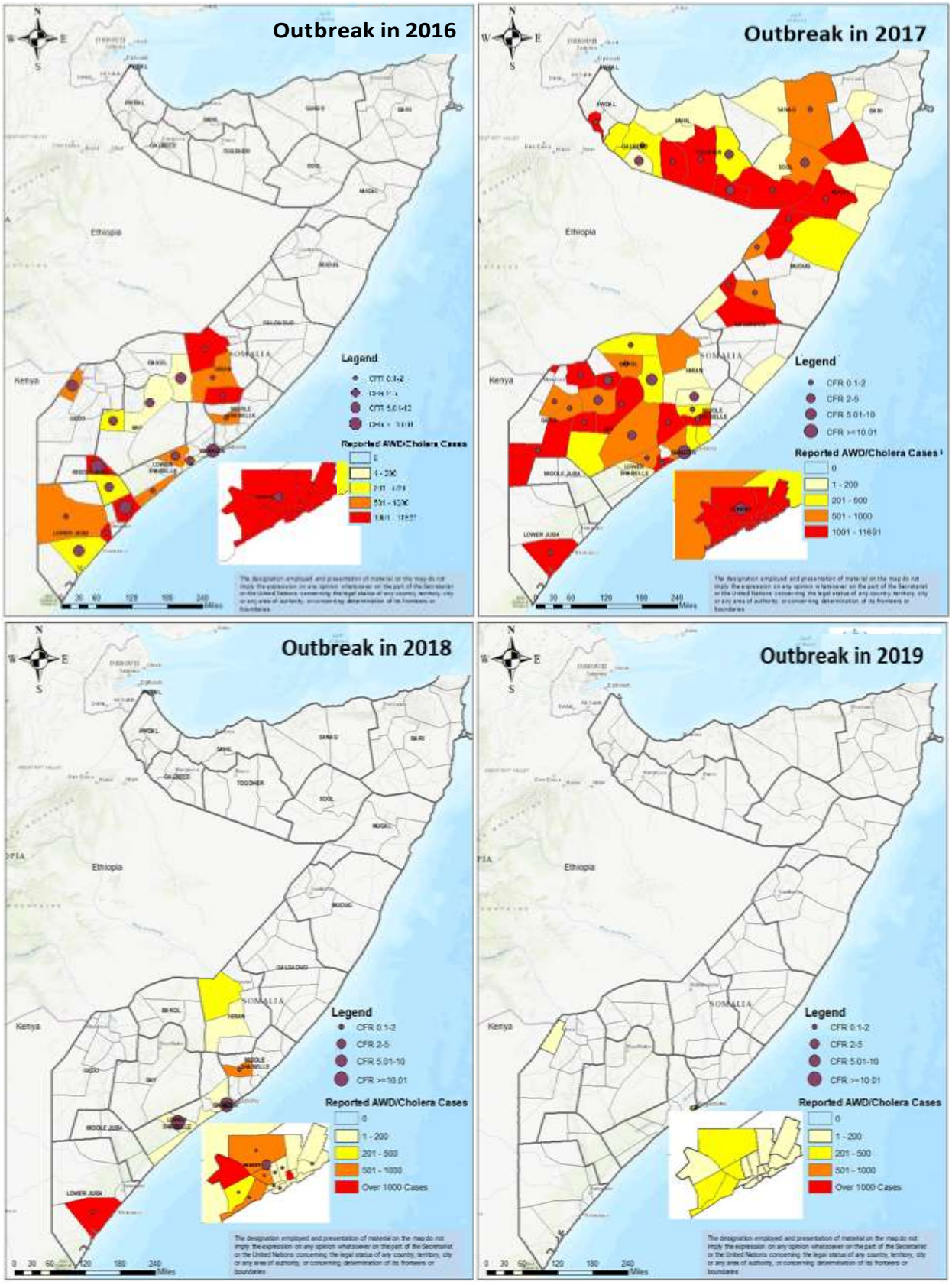
**Table 2: Cholera endemic districts from which confirmed Vibrio Cholerea cases were deteceted in three consecutive years**

| State | Region | District | Cumulative Cholera data from 2016 to 2018 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Gender | | Morbidity Cases | | | Mortality Cases | | |
| | | | Male | Female | <5yrs | ≥ 5 yrs | Total Cases | <5yrs | ≥ 5 yrs | Total Mortality |
| Benadir | Benadir | Benadir 17 district | 5,606 | 5,410 | 6,434 | 4,582 | 11,016 | 96 | 57 | 153 |
| Hirshabelle | Hiran | Belet weyne | 833 | 860 | 785 | 908 | 1,693 | 2 | 6 | 8 |
| Hirshabelle | Hiran | Buloburte | 172 | 135 | 129 | 178 | 307 | 2 | 0 | 2 |
| Hirshabelle | Middle Shabelle | Jowhar | 1,409 | 1,360 | 1,161 | 1,608 | 2,769 | 8 | 27 | 35 |
| Jubbaland | Lower jubba | Kismayo | 3,686 | 3,620 | 4,303 | 3,003 | 7,306 | 29 | 15 | 63 |
| SWS | Lower Shabelle | Merka | 1,356 | 1,347 | 1,228 | 1,475 | 2,703 | 27 | 22 | 49 |
| **Total** | | | **13,062** | **12,732** | **14,040** | **11,754** | **25,794** | **164** | **127** | **310** |

Figure 2 below illustrates the districts affected by cholera outbreaks during the past four years, where in 2017 the largest recent cholera outbreak was reported depicting how quickly the disease transmission and outbreaks could traverse across the country and cover most country regions in a relatively short period of time. The respite from the disease in the two following years of 2018 and 2019 can be partly attributed to targeted oral cholera vaccination to the transmission hotspots and to the immunity acquired after natural cholera infection in 2016 and 2017, though being for a relatively short duration relative to the longer-term immunity conferred by viral infections[20].

[20] Kashmira A. Date✉, Andrea Vicari, Terri B. Hyde, Eric D. Mintz, M. Carolina Danovaro-Holliday, Ariel Henry, Jordan W. Tappero, Thierry H. Roels, Joseph Abrams, Brenton T. Burkholder, Cuauhtémoc Ruiz-Matus, Jon Andrus, and Vance Dietz- Considerations for Oral Cholera Vaccine Use during Outbreak after Earthquake in Haiti, 2010−2011 Volume 17, Number 11—November 2011

**Figure 2: The districts affected by cholera outbreaks during the past four years in Somalia**

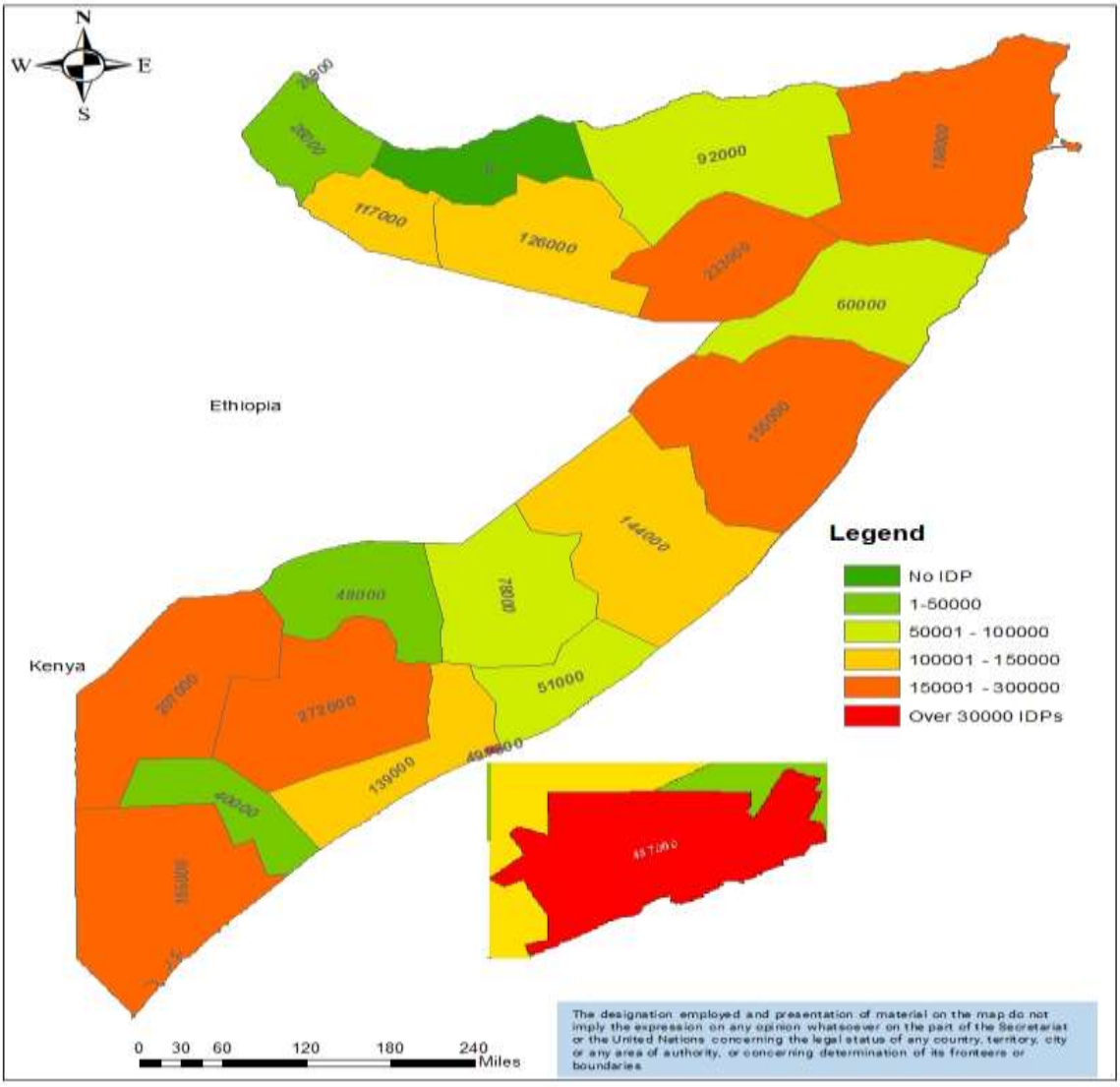



The non-confirmation of three consecutive years of cholera cases from many districts need to be taken with some reservation, as the district based endemicity is presumably much higher. Indeed cholera confirmation was repeatedly reported from many districts though not in three consecutive years, and most of these remained cholera high risk districts based on their repeated but not successive yearly Vibrio Cholerae

confirmation. Moreover, the cholera risk profile of these districts is corroborated by their extremely poor water and sanitation conditions; the regular seasonal internal inter-district migration of the agro pastoral and nomadic communities and the surveillance challenges encountered by the fragile national health system, all indicative of the wider transmission of the disease in a country known to be cholera endemic.

These and several other districts/areas in the country were also recognized as Hot Spots whenever the prevailing environmental and socioeconomic conditions have facilitated the cholera transmission, and the risk of outbreaks is very high in view of the present sizable concentration of IDPs with poor water and sanitation facilities or where the host vulnerable population is suffering from protracted insecure access to basic health services. The above outlined epidemiological situation of IDPs illustrates the need to organize cholera prevention and control measures in all IDPs´ high concentration districts. Figure 3 below illustrates the concentration density of IDPs in the different regions and geographical areas, a factor contributing to the potential risk variance of cholera transmission and outbreaks.

**Figure 3: The IDPs concentrations in the different georaphical areas of the country**




Moreover, In view of the week national health system, the surveillance system and the comprehensiveness of cholera reporting may suffer from operational limitations, However, this did not disguise the disease endemicity in the country. Table 2: below illustrates the district in which the endemic of cholera was firmly detected.

## 4.4 Antibiotic Sensitivity Patterns of V. Cholerae Isolates

The most recent *V. cholerae* isolates were found to be 100% sensitive to Chloramphenicol and 86.5% and 77.3% sensitive to tetracycline and Cotrimoxazole respectively, while 100% were resistant to Ampicillin and 91% to Nalidixic acid (Table 3). Accordingly, the antibiotic sensitivity needs to be constantly monitored and their variability between districts closely assessed to effectively manage the severe cases in a cholera outbreak.

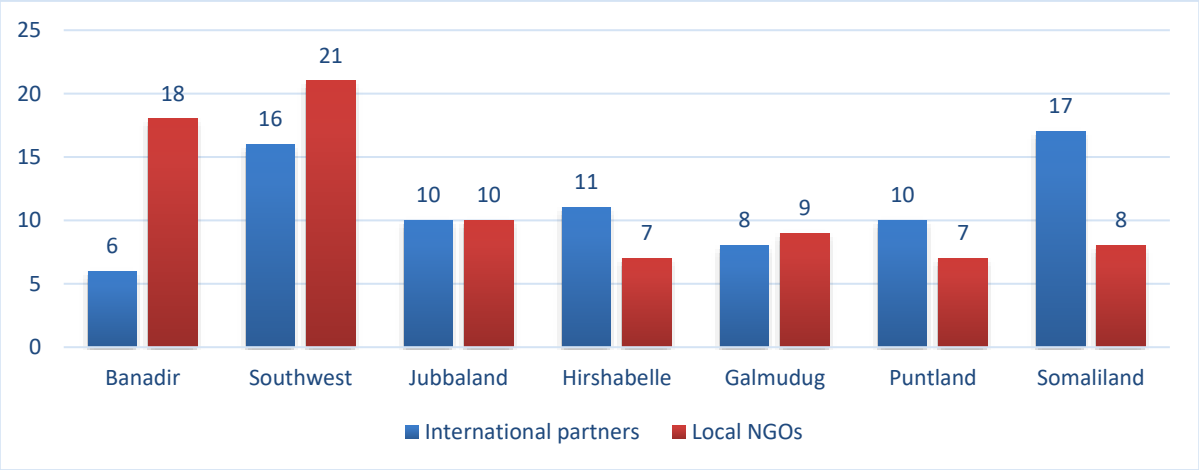
**Table 3: Antibiotic sensitivity patterns of V Cholerae isolates**

| # Positive cases | Antibiotics | Sensitive (%) | Intermediate (%) | Resistant (%) |
|---|---|---|---|---|
| **22** | Ampicillin | 0% | 0% | 100% |
| | Cotrimoxazole | 77.3 | 13.7 | 9 |
| | Nalidixic acid | 9% | 0% | 91% |
| | Chloramphenicol | 100% | 0% | 0% |
| | Ciprofloxacin | 18.2 | 77.3% | 4.5 |
| | Tetracycline | 86.5% | 4.5% | 9% |

## 4.5 Health Partners Supporting the Delivery of Health service

Figure 4 illustrates the national and development health partners engaged in the delivery of preventive, promotive and curative health services and supporting all the four care provision levels across the regions and districts of the country. Thirty-three international organizations and 36 local organizations that are predominantly supported by the development partners and UN organizations are actively engaged in the delivery of humanitarian and development health, nutrition and WASH interventions thus, providing tangible and necessary technical support to the country. The services being delivered are consistent with the Essential Package of Health Services, which include reproductive, maternal, neonatal, child and adolescent health services, the prevention and control of a range of communicable diseases and an integrated disease surveillance system through geographically distributed sentinel sites with district and sub-district-based surveillance system for the early detection and control of cholera, vaccine preventable diseases and other nine notifiable diseases and conditions reported also through the health facility based EWARN Reporting System, while DHIS-2 is only for routine HMIS reporting. The active surveillance and early detection of cholera as a priority notifiable disease and the prevention and control of cholera outbreaks are interventions that the health partners need to provide as a necessary response in the time of need.

**Figure 4: Health Sector Stakeholders Engaged in Disease and Outbreak Control Activities that include Cholera**




These partners may share the cholera prevention and control guidelines, the national case management protocols and the coordination of cholera surveillance and aligned planning and implementation of WASH humanitarian and development interventions.

## 4.6 Water and Sanitations

The access to WASH services is highly scarce in the country, with access to safe water supply estimated at 32%, while the access to improved sanitation is estimated at only 24%[21]. Based on these deficiencies, water supply needs are often accessed through water trucking. This situation has led to the frequent outbreaks of cholera in different regions of the country and consolidated the disease endemicity in the country. Lack of access to clean and safe water has exacerbated the incidence of many water-borne diseases especially cholera, where a preventable disease is causing rampant outbreaks in the country. Moreover, the scarce or absent network of water supply systems utilized both for domestic and livestock needs remains a major cause of conflict among the rural and pastoral communities in the country.

The WASH cluster member organizations collaborate and provide support to both the Ministry of Health and the Ministry of Energy and Water Resources to assist in the implementation of household water treatment activities by providing the AQUA tap water purification system. WASH regional focal points and water management committees coordinate activities at the state/regional level and organize the needed support in concert with the Ministry of Health and other partners, in terms of emergency response interventions. Efforts are also ongoing to develop and implement urban water and sanitation rehabilitation systems, an undertaking requiring major financial investment. These urban water supply and sanitation systems are currently envisioned for several state level cities, while bore well water supply systems constitute a feasible and cost-effective option being supported by the health and WASH partners in the country. It is worth noting, however, that water quality assessment functioning infrastructure systems are not present in the country, this being another area where the national and partner organizations need to act and strategize feasible interventions to resolve this gap.

Figure ***5*** below illustrates the availability of safe drinking water in the states and Somaliland. The bore wells in many regions of the country serve as the only source of safe drinking water and although their number is relatively higher in drier non-riverine regions of the country, their total number is relatively short of providing sufficient water supply that satisfies the basic human needs in the different geographical areas of the country. In these areas the shallow wells are widely used both for drinking and livestock. A smaller proportion of the shallow wells are protected with a hand pump system, although their operational maintenance has posed serious challenges that have restricted their wider utilization. These limitations have rendered the use of unsafe contaminated water sources widely spread across the country posing a permanent risk to the occurrence of acute watery diarrhoeal diseases, spearheaded by cholera outbreaks.

***Figure 5: Availablity of safe drinking water source of bore wells or shallow dug wells with handpumps***

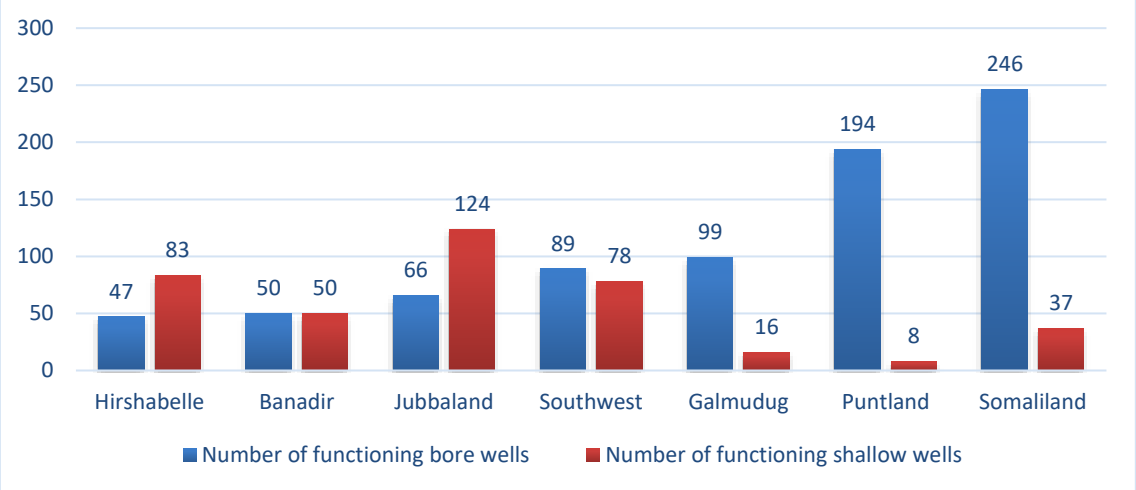


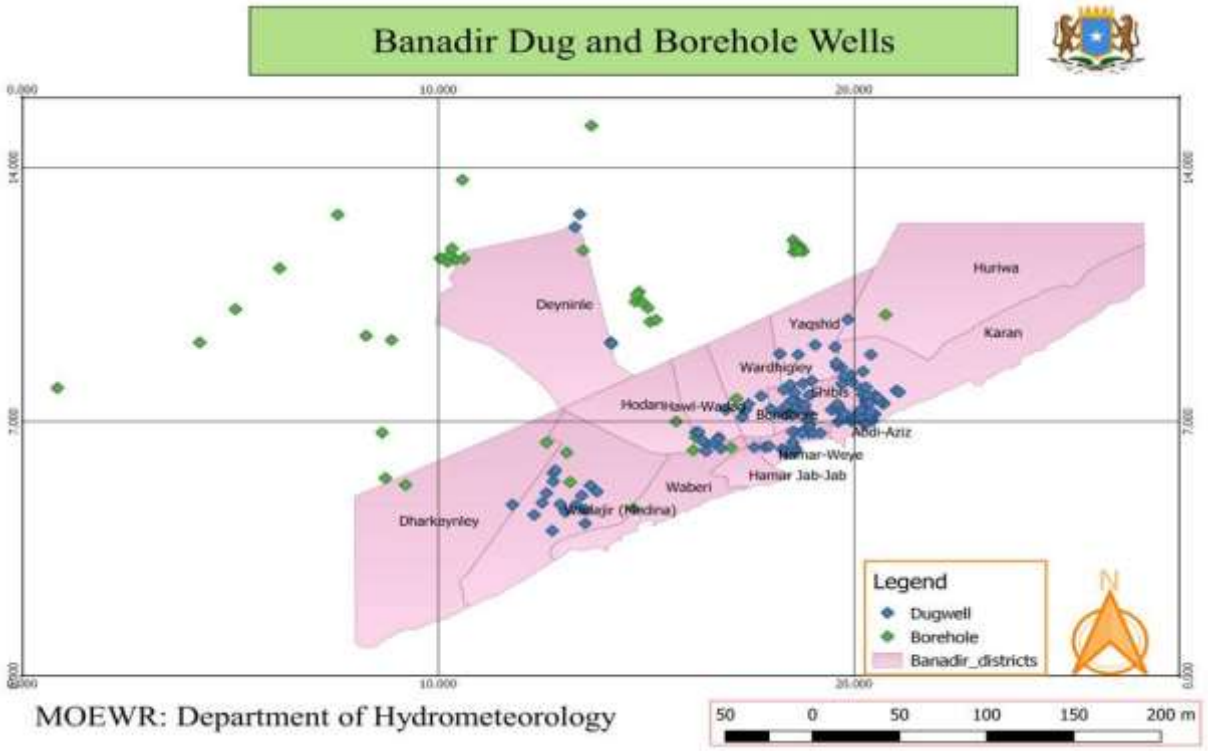

Figure 6 below illustrates the available water supply sources for the BRAA in which the national capital Mogadishu is located. The water supply of the Mogadishu city was provided before the civil war by a number of well-maintained and protected deep wells dug in the outskirts of the city. These were high

[21] Topics and Sectors / Initiatives & Partnerships / Multi-Partner Somalia Infrastructure Fund (SIF) / Project Title: Improving Access to Water and Sanitation Services in Somalia

production wells, of which 21 were located along the Balad city side of north Mogadishu and 32 at the Afgoi road on the south that were sufficient only for 50% of the demand in 1989 in view of the rapid population growth[22]. The water from these wells was distributed through a pipe line system that covered the entire city, while, the city had an underground sewerage system network of pipes that carried waste water and human excreta that was treated and disposed of 13. The water supply and sanitation system was seriously disrupted in the years that followed the civil war and hundreds of shallow wells were dug that were predominantly uncovered and not located at a safe distance from the large number of pit latrines that replaced the sewerage pipe system, posing serious public health risks to the population of the capital and to the large number of IDPs concentrations living in squalid condition in Mogadishu with inadequate water and sanitation. Efforts have been made in recent years through the private sector in rehabilitating some of the old deep bore wells and created new deep wells to ease the access to save drinking water to numerous quarters of the city. However, the poor continue to use the contaminated water attained from the hundreds of shallow wells, that are dug inside or close to the residential homes, as they could not afford purchasing private sector services.

Although the available ground water resources of the BRAA meet the current and medium-term needs, the quality does not conform to the WHO guidelines for potable supply and no regulation of the water market exist, when the Informal private sector water suppliers utilize over 500 shallow wells of which about 50 are with hand pumps and 50 bore wells respectively[13]. The poor quality of the Mogadishu water supply system is corroborated by the endemicity of cholera in the city being the only geographical region in the country where Vibrio Cholerae is regularly detected in the recent years. This situation undoubtedly requires a more active municipal planning and the setting of a regulatory framework for the rehabilitation of the water supply and sanitation infrastructures to improve the quantity and quality of water supply and sanitation systems in Mogadishu, by promoting public health and WASH strategies for protecting the large at-risk populations against cholera outbreaks. These strategies need to be complemented by OCV vaccination campaigns targeting the most at risk hot spot districts or sub-districts of the city, to significantly reduce the Vibrio Cholerae transmission in the city.

**Figure 6: Benadir Regional Administration water supply sources**




[22] 36 WEDC International Congress Egerton, Kenya 2013. Delivering water sanitation and hygiene services in an uncertain environment, In the state of uncertainty? Mogadishu water supply. C Pront (UK), M. Vander Plas & P.G.Nembrini. Refreed paper 1738.

## 4.7 Overview of the existing surveillance and response system

Cholera is one of the 15 priority notifiable communicable diseases in the national health system, where the active surveillance and immediate notification of cases is crucial for mounting a rapid response for epidemic control. The FMOH in collaboration with the states and WHO has established 490 Sentinel sites in all the regions of the country, where trained Communicable Disease Surveillance and response (CDSR) officers, at least one in each region have been trained and deployed to deliver this vital service. These officers submit daily and weekly reports, as necessary. Regional level Rapid Response Teams (RRTs) have also been trained, consisting of 6 members each including a physician, laboratory technician, CDSR, a Water and Sanitation and Hygiene (WASH) team member and a social mobilizer. To strengthen and complement the IDSR capacity, the Early Warning Alert and Response Network (EWARN) was introduced as part of the established early warning system for disease outbreaks, to improve disease outbreak detection in the context of humanitarian emergencies.

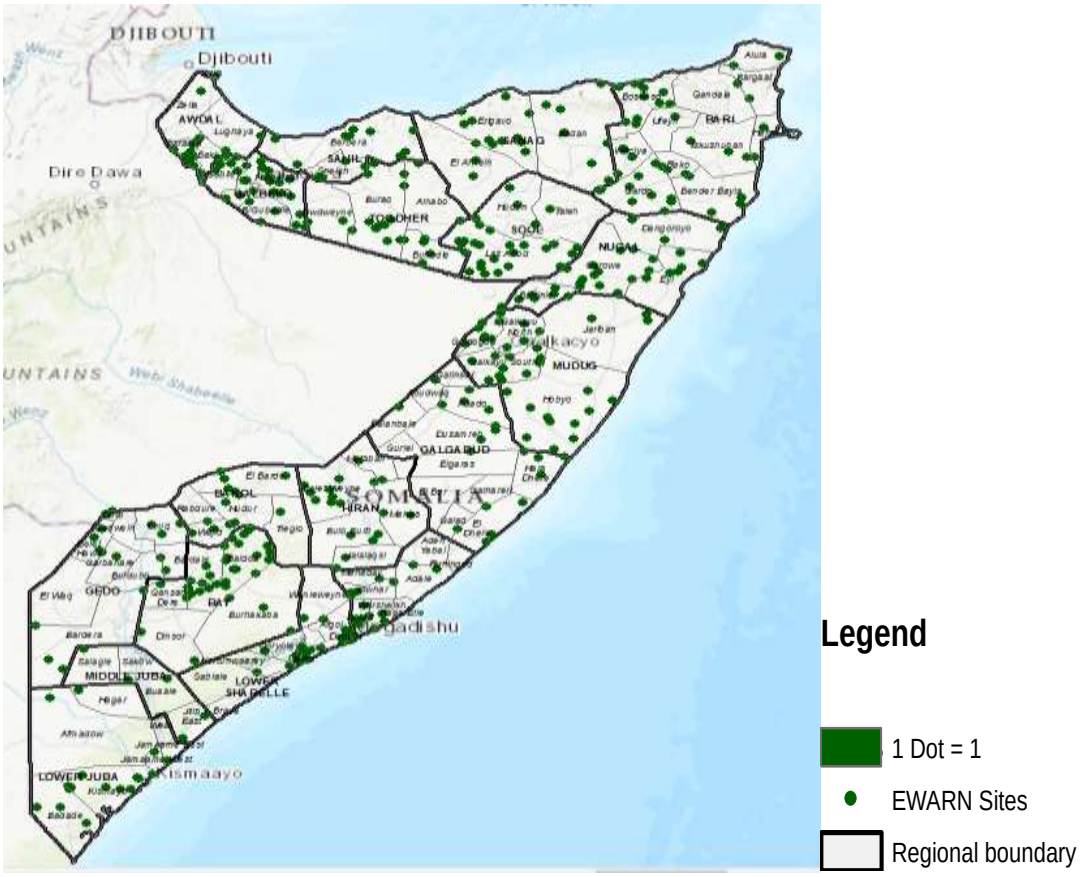
The FMOH has also established an emergency preparedness, surveillance and response unit (EPSRU) at National level, rendered fully operational, while similar state level EPSRUs have also been established. National and regional inter-agency Emergency committees that include the implementing partners have also been created to improve the collective performance and coordination of all EPSR interventions in the country, including the cholera prevention and control interventions. The FMOH, state level ministries and other health partners have jointly organized the training of trainers (TOT) courses on AWD/Cholera prevention, outbreak investigation, surveillance, rumor verification and case management, accompanied by similar accelerated training activities for the district level health teams. To consolidate the cholera prevention, control and effective surveillance, a national AWD/Cholera Preparedness and Response plan has been developed with World Health Organization (WHO) technical support and Information, Education and Communication (IEC) Materials on AWD/Cholera Prevention developed that include posters, pamphlets, key messages, Radio spots/messages and discussion talk shows. The coordination mechanisms and information sharing among stakeholders about disease surveillance has also been strengthened.

A National Public Health Reference Laboratory has been established in Mogadishu and properly equipped with trained health professionals that run and manage this nascent institution and play a vital role in communicable disease surveillance and control in the country.

An International Health Regulations (IHR) unit has been established and staffed in FMOH to meet core surveillance and response capacities and its status evaluated jointly by the FMOH and the WHO Eastern Mediterranean Regional Office (EMRO). The establishment of mobile phone coverage in all the sentinel sites has significantly improved the immediate reporting and outbreak control response. Further, the creation of cholera command and control centers, and introduction of laptops at all levels have jointly strengthen the surveillance system. From the above perspective, the institution of cholera surveillance is considered to be a significant milestone towards an integrated, rapid and effective response in the prevention and control of the ongoing cholera outbreaks. In view of the vast distances separating the different states and regions of the country, it will be essential to establish at least two additional cholera diagnostic laboratories to ease the early and timely detection, analysis, and rapid response, for which the necessary technical and financial resources need to be planned and mobilized to closely and effectively monitor the seasonality of cholera transmission and outbreaks across the country.

Numerous challenges are, however, impeding the effective implementation of cholera surveillance activities that include insufficient human resources especially at the rural level, paucity of specimens' collection media; transportation facilities and the shortage of supplies at the cholera treatment centers and units. These challenges could be resolved by strengthening the health emergency preparedness in general and that of cholera prevention and control in particular, while deploying trained community health workers in the rural villages across the country.

**Figure 7: A map illustrating the sentinel reporting sites of the notifiable diseases and conditions**




## 4.8 Oral Cholera Vaccines

The extensive and widespread cholera outbreaks in the country during 2016 followed by a significantly larger outbreak in 2017, underscored the need for conducting OCV campaigns in the country that subsequently materialized with the generous support of Gavi, the Vaccine Alliance. Through a process coordinated by the FMOH, WHO and UNICEF and with the state health authorities, an agreement was made to implement OCV campaigns in cholera hotspots identified by the health authorities to interrupt the transmission of cholera. Accordingly, OCV campaigns were consistently carried out in 2017, 2018 and 2019 while recognizing this opportunity to prevent cholera outbreaks for two to three years. The cholera hot spot localities were identified in each year and OCV vaccination campaigns successfully introduced with substantive support by the local health and administrative authorities that have resulted in impressive coverage rates at each operational level. It is evident that the OCV vaccination will complement the other cholera prevention and control health interventions including WASH bridging emergency response with the medium and long-term cholera control interventions. Table 4 below illustrates the OCV vaccination activities carried out in the hot spot areas.

**Table 4: Summary of OCV implementation and Coverage in the selected Hot Spots in 2017 and 2019**

| Region | District/ Section | OCV 1 and 2 Year | Target Pop. | % of OCV1 Coverage | % of OCV2 Coverage |
|---|---|---|---|---|---|
| Benadir | Hodan | 2017 | 174,600 | 100 | 87 |
| | Dharkeynley | 2017 | 29,100 | 100 | 91 |
| | Daynile | 2017 | 58,425 | 100 | 98 |
| | Wadajir | 2017 | 149,870 | 97 | 94 |
| Hiraan | Xawa- tako/Beletweyne | 2017 | 35,284 | 100 | 96 |
| | Koshin/Beletweyne | 2017 | 49,834 | 100 | 94 |

| Region | District/ Section | OCV 1 and 2 Year | Target Pop. | % of OCV1 Coverage | % of OCV2 Coverage |
|---|---|---|---|---|---|
| Lower Juba | Alanley /Kismayo | 2017 | 75,660 | 91 | 88 |
| | Farjano/Kismayo | 2017 | 54,784 | 106 | 83 |
| | Fanole/Kismayo | 2017 | 43,650 | 84 | 93 |
| Bay | Baiado | 2017 | 322,497 | 66 | 58 |
| Middle Shabelle | Jowhar | 2017 | 239,000 | 96 | 95 |
| Bakol | Hudur | 2018 | 84,842 | 91 | 87 |
| Lower Juba | Afmadow | 2018 | 104,933 | 94 | 90 |
| Lower Shabelle | Afgoi | 2019 | 132,275 | 96 | 97 |
| Middle Shabelle | Balad | 2019 | 71,449 | 97 | 98 |
| Benadir | Hamar Jabjab | 2019 | 101,710 | 97 | 99 |
| | Heliwa | 2019 | 165,018 | 94 | 95 |
| | Kahda | 2019 | 102,072 | 100 | 103 |
| Lower Juba | KISMAYO IDPs and Rural Area | 2019 | 70,389 | 100 | 98 |

## 4.9 Cholera Case Management

The national guidelines established for the assessment, rehydration to replace the fluid losses and the therapeutic protocols pursued at the cholera treatment centers (CTCs) and cholera treatment units (CTUs), need to be strictly pursued, including the provision of Zinc tablets to all under-5years old children. Moreover, health education and counseling of patients, attendants and the family, need to be regularly carried out. The strategy was jointly recommended by WHO and FMOH in the midst of the severe and widespread cholera outbreak of 2017 in which the epidemiological poor WASH conditions and the case management lessons gained from countries with similar status of social and environmental determinants of health were suitably employed. Strong recommendation was made,, supporting the supplementation of the current case management of "moderately dehydrated cases" with intensive oral rehydration therapy, by adding a single dose antibiotic treatment. This strategy that was jointly approved by the FMOH and WHO need to be sustained in view of the fragile health system, the inability of many cases to timely access the CTCs and CTUs, while the treatment guidelines set for the severely dehydrated cases currently followed in the CTCs and CTUs should remain unchanged.

During cholera outbreaks of 2017 CTCs and CTUs were established in all the affected districts and regions, where a total of 33 CTCs and 65 CTUs were operated by the health system. Most of these facilities were established in functioning regional hospitals, referral health centers at district headquarters and in few health centers, performing a function fully dedicated to the management of the acute cholera cases that seek care. The CTCs and CTUs were isolated from the rest of the hospital facilities and from the population. These facilities were readily accessible and have accommodated many patients and offered significant contribution to the control of cholera outbreak in the country. A contingency plan needs to be established in each region to promptly reactivate these centers in the time of need.

## 4.10 Emergency Supplies and Response

Cholera outbreaks can cause havoc with high morbidity and mortality rates in a relatively short period of time. The early detection, confirmation of cases, and effective response can mitigate the negative impact of the disease. The regularly supplied medicines and medical devices stipulated in the Interagency Diarrhoeal Disease Kits (IDDK) were revised in 2016. The modules of the kit have been updated and redesigned to better respond to the prevention and control of cholera outbreaks in each setting. The new guidelines help prepare for a cholera outbreak and ensure the provision of the necessary disease management support for the first month of the response intervention. WHO, UNICEF and all the engaged national and international health partners are pursuing these updated guidelines' package consisting of six different kits, each divided into several modules which can be procured separately to respond to the local needs of the programme. However, the compliance to the above updated kit needs to be closely monitored. The kits and modules can each be ordered separately. The IDDK six kits consists of, three specified for the treatment of cholera patients within the CTCs and CTUs; one kit provides the necessary material to set-up

a provisional structure for patient care, where CTCs/CTUs physical structures are not available, while two kits contain the equipment needed for the investigation of cholera outbreaks and for the laboratory confirmation of suspected cholera cases.

### 4.11 Lessons Learned during the State Level Consultation Workshops

The consultation workshops offered the opportunity to learn some valuable lessons that are relevant to the translation of this cholera prevention and control strategy into action. The most salien of these are outlined below:

- In all federal and state level consultation workshops participants gave strong support to the development of cholera prevention and control strategy
- The population of the hot spots visited by the mission identified the strong satisfaction and support to OCV campaigns and for their contribution to control the cholera outbreaks
- All the ministries engaged and represented in the consultation for their intersectoral role in cholera prevention and control expressed their commitment to join the drive of ending cholera by 2030
- Public private partnerships and community led efforts for the development of WASH, especially the supply of safe drinking water through bore wells were observed in view of all the states that were visited by the mission team
- The encountered health authorities at the state level reflected their strong belief that the control of the cholera outbreaks in 2017-2910 was highly linked to the introduction of OCV
- The visits to the states by the mission acted as a vehicle for cholera prevention and control promotion, awareness raising and the shared approval of the imperative for intersectoral collaboration and coordination on the subject
- There was a realization of the necessity for a strong government role and leadership and for the community to actively engage in promoting health and WASH activities
- The collective and intersectoral nature of cholera prevention and control was widely envisaged and strongly acclaimed for by the public and private stakeholders and the civil society stakeholders and the community at large
- The consultative Workshops offered the learning opportunity to the local state level stakeholders in understanding the epidemiological dimensions of cholera outbreaks and its endemicity in the country along with the technical and infrastructure tools necessary to monitor the progress in the efforts of disease control
- The criticality of improving the coverage and quality of cholera EWARS as complementary to IDSR was fully acknowledged for which the data systems need to be improved

The paucity of health services delivery to many areas due to security restrictions and the absence of bore wells and other sources of safe water in large geographical areas is a challenge that will need to be addressed collectively by the national and international stakeholders.

# 5 VISION, MISSION, GOAL, OBJECTIVES AND GUIDING PRINCIPLES

## 5.1 Vision

To free the Somalia population of cholera and eliminate the disease by implementing a national strategy capable of enabling the health system in preventing and controlling future risks of disease recurrence through community engagement, universal access to safe drinking water, sanitation and hygiene as well as coordinated partnerships that contribute to socio-economic wellbeing and human development.

## 5.2 Mission

To implement nationwide prevention, control and elimination of cholera through effective alert and response interventions led by state-level rapid response teams supported by coordinated, equitable and cost-effective intersectoral interventions to halt cholera endemicity and transmission.

## 5.3 Goal

To reduce the incidence of cholera cases by 80% and the case fatality rate to less than 1% by 2030.

## 5.4 Objectives

- To develop Somalia's long-term cholera control strategy within the framework provided by the GTFCC Ending Cholera Roadmap
- To conduct a situational analysis of the country's current capacity, progress, and critical gaps in each of the essential elements of an effective multisectoral cholera control plan
- To improve access to safe drinking water, sanitation, and hygiene in the country and particularly in the cholera hot spot localities and in cholera high risk districts
- To undertake a stakeholder mapping to improve the coordination and effectiveness of the cholera prevention and control interventions
- To identify the cholera hotspots that have the highest risk to cholera outbreaks
- To enunciate the ongoing surveillance, and outbreak response including case management and their operational consolidation
- To promote and emphasize the critical role of safe drinking water, sanitation and hygiene and the importance of intersectoral collaboration for effective social mobilization and outbreak prevention, control and elimination and their implementation
- To promote the complementary use of OCV in the cholera hotspot localities and among the vulnerable cholera endemic communities
- To reinforce monitoring and supervision and introduce implementation research to study and resolve the challenges on the ground for better strategy implementation

## 5.5 Guiding principles

To ensure the effectiveness of the strategy and attain the desired outcome and impact the following principles need to be pursued

i. The teamwork principle in cholera prevention and control is critical where the health team engaged in surveillance, in laboratory confirmation, in case management and those managing the rapid response, need to have a coordinated mechanism in place to streamline implementation among all stakeholders
ii. Multi-sectoral approach to cholera prevention, control and elimination for which the involvement of several sectors will be necessary to effectively produce the required outcomes, where the roles and responsibilities of the different stakeholders are coordinated, and task forces established where necessary
iii. Community engagement is a key principle in the prevention and control of cholera outbreaks where the local community leaders and religious groups play a major role in facilitating cholera prevention and control interventions and getting involved in the implementation of the complementary lifesaving role of the OCV
iv. The equity principle is critically relevant to cholera prevention and control, as the outbreaks' control efforts often suffer from lack of access opportunities of the underprivileged and displaced population groups and the hard to reach communities due to insecurity or geographical distances, making gender sensitivity and responsiveness an integral part of the prevention and control response process
v. Health partners' engagement is an important principle especially those managing health services' delivery in a large number of districts and regions of the country, who assist in the establishment of CTCs and CTUs when outbreaks take place

# 6 THE CHOLERA PREVENTION AND CONTROL STRATEGY: PRIORITY INTRVENTIONS

## 6.1 Cholera Prevention and Control Interventions: Coordination and Leadership

The cholera prevention and control challenges of socio-economic inequities faced by the Somali rural and urban populations are enormous and seriously restrict their access to essential basic health care and nutrition services as well as restricting the access to safe drinking water, sanitation and hygiene. The latter demands the active implementation of an effectively coordinated multisectoral response. Comprehensibly, however, the prevailing insecurity challenges make it imperative to engage the local communities in this coordination process.

Coordination Strategic Objective: To improve the leadership and coordination of cholera preparedness and response and reduce the risk of cholera transmission and effectively control the ensuing possible outbreaks, involving all the related sectors and engaging the local communities for their active participation.

The enormous inaccessibility into large areas of many districts has been further deteriorated by the poor health and WASH infrastructure, contributing to the observed burden and endemicity of cholera in many regions of the country. Accordingly, the public health service network will require the support of many other sectors to collectively facilitate the preparedness and early detection, response and control of cholera outbreaks. During the cholera prevention and control strategy development process and related state level consultations, the contributing role of the different sectors was strongly underlined. The coordination mechanism will address critical areas that include: the early detection and quick response to cholera outbreaks; the prevention of cholera recurrence in known hotspots and the mobilization of the collective necessary technical support for capacity building, to address the local contextual challenges and opportunities, with the relevant communication, monitoring and evaluation and financial resource mobilization. They will also bring health and WASH actors together to a working and collaborative relationships that will trigger all the important public and private sector tasks necessary for effective preparedness, prevention, early response and control of disease outbreak and its medium- and long-term elimination.

**Intersectoral Collaboration (ISC):** A major challenge faced by the health sector is its limitation to mobilize intersectoral collaboration for the prevention and control of cholera outbreaks despite the evident shared mission of collective actions of different specialized agencies for the common long term purpose of ending cholera in the country. Inopportunely, the essential non-health cholera interventions are not often factored by the health sector; while similarly, the cholera prevention and control interventions are not in the agenda of other relevant sectors, though this strategy is feasible and highly effective and leads to scaled up positive behavior change communication and improved health outcomes.

Based on the above, the national cholera response of cholera prevention and control should be supported by a different levels of coordinated ISC, with the establishment of intersectoral task force of all relevant stakeholders at the federal level headed by the Prime Minister, and at the state, regional and district levels headed by the State Presidents, the Regional Governors and District Commissioners respectively. The regular operational functions of these ISC taskforces will led and coordinated by the top public health authorities at each level. The key roles to be accomplished by these task forces include:

- To support the implementation of cholera prevention and control interventions and meaningfully contribute to its ultimate elimination
- To create a shared platform of coordination and partnerships and contribute to the recovery and capacity building for better cholera prevention and control health outcomes
- To closely monitor and periodically evaluate the progress made in implementation, capacity development, and the introduction and application of the cholera control priority strategies, technologies and operational guidelines

Table 5 below briefly summarizes the roles that important government sectors, international partners and civil society organizations and the community need to pursue to actively join the multisectoral dimensions of the health sector led cholera prevention and control interventions in all the regions of the country.

**Table 5: The Cholera prevention and control multisectoral roles of government departments, international partners, civil society organization and the community**

| The Contributing sector | Interventions Contributed to Cholera Prevention and Control | The Contributing sector | Interventions Contributed to Cholera Prevention and Control |
|---|---|---|---|
| Ministry of Interior | • Activities on internal coordination<br>• Addressing security and ease of access<br>• Linking with humanitarian aid workers and engaging locals<br>• Protection of IDPs and the social services they receive<br>• Planning/Profiling and Management of IDPs and facilitating the cholera vaccination campaigns by liaising with local leaders for coordination and support | Ministry of Women Affairs and Human rights | • Social mobilization & Advocacy<br>• Promoting community involvement women Participation<br>• Child Protection & advocacy for vulnerable community groups<br>• Support health services coordination |
| Local Government/ Municipality | • Developing drainage system for sewage and stagnant water with proper solid waste disposal.<br>• Regular sanitary inspection of food vendors and slaughterhouses<br>• Promotion of hygiene and sanitation in the neighborhoods | Ministry of Education | • Inclusion of health education subjects in school curricula<br>• School health educations.<br>• Advocacy Programs<br>• Sanitation and hygiene clubs in Schools<br>• Provision of Clean Water Trucking to Schools<br>• School health environment (Water, latrine with hand washing facilities and clean compound).<br>• Training of schoolteachers on hygiene and sanitation |
| Ministry of environment and Ministry of water & Energy | • Development of Borehole wells<br>• Assessment and Monitoring of water quality<br>• Establishment of urban and rural water supply distribution systems<br>• Building public private partnership waste disposal and recycling<br>• Sanitation and environmental protection<br>• Emergency preparedness for Water chlorination and Safety<br>• Establishment of intersectoral water management committees at state, regional and district levels<br>• Construction of embankments and desilting of rivers and conducting hydrological survey covering water quantities and quality<br>• Provision of Clean Water Trucking and setting hydrological Water testing Laboratory<br>• Developing standard design and identification of appropriate sites for open water sources | Ministry of Finance | • Setting Budgets for the emergency/resilience for sustainable Water supply development<br>• Resource mobilization<br>• Capacity building<br>• Participate and contribute to coordination meetings.<br>• Contingency budget for Cholera emergency response.<br>• Setting resource prioritization |
| | | Ministry of Internal Security | • Provide security Intelligence and Security escort<br>• Provide logistic support for hard to reach areas<br>• Facilitate accessibilities to difficult areas<br>• Support local interventions |
| | | Ministry of Agriculture | • Prevention of Flooding<br>• Improvement of weak Riverbanks<br>• Food security and food safety |

| The Contributing sector | Interventions Contributed to Cholera Prevention and Control | The Contributing sector | Interventions Contributed to Cholera Prevention and Control |
|---|---|---|---|
| Ministry of Planning | • Coordination with other organizations<br>• Participate Disaster Risk reduction<br>• Sustainable Water development Plan and Resource allocation<br>• Plan and facilitate Cholera situation assessments | Ministry of Information | • Public awareness raising<br>• Information dissemination |
| Ministry of Humanitarian affairs and Disaster management | • National level mobilization<br>• Resource Mobilization for Disaster affected areas<br>• Partner coordination<br>• Joint disaster assessment<br>• Participate Inter-agency Taskforce<br>• Planning emergency preparedness and response<br>• Management of IDPs and Profiling.<br>• Forecasting and early warning system | Community risk communication | • Inform and be mindful of community concerns<br>• Engaging community opinion leaders and gain their trust and support<br>• Promote community participation and ownership creation<br>• To be culturally sensitive and aim at producing results<br>• Enhancing ownership of partners<br>• Government to educate the public on risks associated with cholera outbreaks |
| UN organizations | • They provide Coordination.<br>• Enabling capacity building and support.<br>• Contingency Plan and Budgeting for Cholera emergency<br>• Review guidelines<br>• Support multispectral assessment | Civil Society organizations and Religious groups | • Community awareness and engagement & advocacy<br>• Human resource support Resource mobilization<br>• Water users and supply management committees<br>• Conflict resolution efforts<br>• Planning, monitoring and evaluation |

## 6.2 Integrated Disease Surveillance and Laboratory Capacity Strengthening Strategy

The Integrated Disease Surveillance and Response (IDSR) is a major priority strategy for the prevention, early detection and control of cholera outbreaks.

**IDSR Strategic Objective**: To strengthen the national capacity for cholera public health emergency preparedness, early detection and quick response, scaling up the national and sub-national laboratory capacity and improving the monitoring and supervision of cholera prevention and control.

The FMOH has in coordination with the public sector state entities and health partners established this integrated surveillance system and a national mechanism for early detection and early response to cholera outbreaks across the country. Key activities to pursue in the strategy include:

- Strengthening the health system through the consolidation of the district and sub-district surveillance network sentinel sites and improve the effectiveness and completeness of their reporting systems.
- The monitoring and supportive supervision of the managerial activities need also to be strengthened and the operational guidelines reviewed, and relevant training activities planned and put into implementation.
- The country wide IDSR surveillance network that has the potential of disease early detection and response need to be enacted and closely monitored
- The establishment of the national public health laboratory is a success story in the prevention and control of cholera in the country and additional Vibrio Cholerae diagnostic laboratories need to be established in several other states to perform culture and antibiotic sensitivity tests

- Establishing a National Institute of Health supported by Sweden to offer wider technical capacities and opportunities to engage the regions, academicians, and build the technical capacity through the training and motivating the critical front-line health workers in the fields of surveillance, diagnostics, confirmation and effective response
- Employing and upgrading the capacity of Laboratory Technicians to acquire the technical capacities and competencies necessary to manage the public health laboratory functions at state level

## 6.3 Cholera Case Management Strategy

The timely and efficient treatment of cholera affected patients is a key cholera prevention and control strategy for which the health care service delivery and health workforce are to be fully prepared and the logistic, operational and technical capacities for its implementation at all levels of the health system.

**Strategic Objective:** To reduce the mortality and morbidity due to cholera in the country through the effective case management and infection control with adequate prepositioning of the necessary medical supplies in all health facilities and the application of the nationally set standard treatment guidelines both at facility and community levels.

The occurrence of acute cholera disease is often associated with an explosive onset of diarrhoea with rapid loss of fluids and electrolytes which could lead to hypoglycemia, metabolic acidosis, acute renal failure and death in a very short period. The case management is predominantly characterized by prompt rehydration with the administration of ORS or intravenous fluids, solutions preferably Ringers lactate as deemed necessary. Antibiotics are also given when appropriately indicated, as recommended, in the national standard case management guidelines.

## 6.4 Oral Cholera Vaccination (OCV) Strategy

Oral cholera vaccines have been proven to be safe, effective, and acceptable and constitute an additional tool for cholera control to supplement the existing priority cholera control measures used either pre-emptively or reactively, targeting households in cholera transmission hotspot or communities with a probable or confirmed cholera case, supported by community social mobilization and engaging local leaders for greater awareness and utilization.

**OCV Strategic Objective:** To implement the OCV in cholera hot spot geographical areas identified through the surveillance teams' collected data to prevent or control cholera outbreaks as a supplementary control measure, in addition to the existing interventions of safe water supply, sanitation and hygiene.

In the national experience of OCV implementation, the interventions have targeted a number of identified hot spots, with a defined target population where a strategy similar to that of the polio supplementary immunization campaigns with well-designed micro-plans was pursued. The OCV strategy has proven to be a successful supplementary strategy that needs to remain an integral part of the national cholera prevention and control strategy. The latter is substantiated by weak WASH infrastructure in both rural and urban localities in the country and the prevailing poor environmental hygiene. Support from the Gavi vaccine alliance renders this intervention highly beneficial, while the high technical and programmatic feasibility, and the high acceptance and coverage rates observed during the two doses of OCV administration corroborated the opportunity to sustain the cholera vaccination initiative as a national health system strategic priority. The vaccine is to be used to significantly complement the immediate and medium-term efforts for cholera prevention and control both in the current humanitarian and developmental public health interventions in the country. To enhance the effectiveness of OCV implementation, the following supplementary activities need to be considered:

- Assess a regular exercise of cholera district risk profile to target the priority geographical areas and hot spots in the country
- Implement the OCV as a complementary strategy to the traditionally proven cholera control strategies of WASH and IDSR and laboratory support related activities

- Develop the necessary technical, managerial and leadership capacities of the health team on OCV and other cholera prevention and control pillar strategies
- Plan and undertake the necessary monitoring and evaluation of OCV campaigns

## 6.5 Water, Sanitation and Hygiene Strategy

A major risk factor of the endemicity of cholera in the country and the frequently occurring outbreaks is predominantly attributed to the poor access to safe water and sanitation and the quasi total lack of optimal infrastructure both in the urban and rural areas of the country. The situation is further deteriorated by the growing urbanization where the poor livelihoods and security challenges in many rural areas, have pushed large population groups into the impoverished urban slums that lack the basic WASH facilities.

**Strategic Objective Water, Sanitation and Hygiene**: To reduce the morbidity and mortality of cholera outbreaks in the country, both in humanitarian settings, and as a durable medium and long-term developmental interventions in the country by promoting and providing safe water and sanitation in addition to good hygiene practices among the population in both rural and urban settings.

The national cholera prevention and control strategy recognizes WASH as one of its central operational pillars, envisioning the attainment of SDG6 with universal and equitable sustainable access to safe drinking water, sanitation, and hygiene with upscaled actions to significantly reduce the practice of open defecation. In this perspective, the WASH strategy in the framework of cholera prevention and control, will also directly contribute to the improvement of the health and nutrition status of the population, as well as to social and gender equity and to the health resilience of the vulnerable population groups. WASH also contributes to numerous other goals, including those relating to education, poverty reduction and economic growth, gender equality, and resilience to the growing dramatic effects of climate change.

Key activities to pursue in the strategy include:

1. Supporting the implementation of WASH policy and strategy for optimizing health benefits with ensured government commitment and patronage
2. Promoting resource mobilization for the establishment of WASH infrastructure that include health facilities
3. Promoting drinking water quality through water treatment and regular testing and monitoring of the water quality in all districts of the country
4. Strengthening community-based hygiene promotion and water conservation practices
5. Installing water and sanitation facilities in all IDP camps to reduce the risk of cholera outbreaks
6. Development of large centralized national water and sanitation systems in the larger urban cities, while considering the establishment of smaller borewell network supply system in smaller towns and rural areas
7. Ensuring that all urban and rural health care facilities have improved sources of safe drinking water and sanitation as well as the necessary basic equipment, supplies and operational guidelines for action
8. Improving the preparedness and readiness of health facilities to respond to a cholera outbreak
9. Introducing cost-effective sustainable water and sanitation programmes at federal, state, regional and district and subdistrict levels effected through intersectoral action and public private partnership management solutions
10. Implementing a standard package of WASH interventions in schools guided by a set government policy and operated by the schools through community support and participation, creating a conducive environment for children's education and health
11. Protecting water sources from fecal contamination by encouraging the urban and rural households to construct and use family latrines that are sufficiently distant from the water source
12. Introducing the resilience and sustainability building concepts into the WASH pillar by bridging its humanitarian and development interventions, recognizing the decades-long chronic humanitarian situation, and the countrywide decentralized WASH cluster, which is among the clusters with the maximum participation of international and local agencies

13. Promoting the installation of solar water pumps in all endemic districts and identified hot spot areas to scale up the coverage of safe drinking water in the country

## 6.6 Risk communication and community engagement

Risk communication is an important element of public health that increases the national preparedness and response capacity for cholera outbreaks. For its effective implementation, it is necessary to develop a risk communication strategy (RCS) and messages for the targeted population. The latter will improve community awareness and knowledge capacities and help in adopting the behaviors change mechanism necessary and enhance the cholera prevention and control through appropriate community preparedness and response practices.

**Risk Communication and Community Engagement Strategic Objective:** To ensure the exchange of real-time information. advice and opinions on cholera prevention and outbreak control measures between the health authorities and professionals and the people facing the threat of the disease and engaging them in healthier practices that improve the well-being of the target population. Key activities to pursue in this strategy include:

- Promote the relevant IEC to enhance the community knowledge and understanding about the symptoms of the disease and on the related environmental risk factors that scale up the risks of infection
- Organize the necessary advocacy and communication interventions to translate the gained knowledge into healthier practices that improve the well-being of the target population.
- Mobilize the target communities' active participation in the cholera prevention and control preparedness and response interventions
- Engage the target community groups and their local leaders in the development of contextually relevant educational messages that will help address the local operational weaknesses of the response and strengthen leadership and coordination.
- Raise the awareness and capacity to improve the standards of hygiene within the communities and in health facilities
- Build mechanisms for collaboration across sectors and engage the community stakeholders in this partnership process.

**Table 6: Gap identification for the development of Cholera strategy in Somalia**

| Pillar | Gaps | Proposed activities |
|---|---|---|
| Coordination | Limited coordination of cholera response activities at national and state level including among clusters | Review and update contingency plans for cholera preparedness and response |
| | Inadequate funding dedicated to the control and prevention activities for cholera in Somalia | |
| | Lack of a monitoring and evaluation framework to track the implementation of different cholera related activities conducted by key partners | |
| Epidemiology / Surveillance activities | Early detection and confirmation<br>• Limited knowledge among health workers on the use of standard case definitions<br>• Limited supplies for the collection and shipment of stool samples from districts to NPHL for analysis<br>• Limited capacity in state-based laboratories to confirm cholera alerts<br>• There is systematic framework for water quality analysis for all drinking water sources | • Expansion of EWARN to cover all areas that are potentially cholera hotspots<br>• Review and update SOPs, Guidelines and protocols for the surveillance of cholera in Somalia<br>• Establishment of field epidemiology training program for surveillance officers as part of capacity building for cholera surveillance<br>• Build laboratory capacity in all states with focus on cholera hotspots |

| Pillar | Gaps | Proposed activities |
|---|---|---|
| | • No policy guidelines or standard operating procedures to conduct environmental surveillance | |
| Case management | Network of cholera treatment centers and ORPs in communities are not well structured | • Review national and update national guidelines for case management (including co-morbidities and pregnant women) and IPC to incorporate new evidence from other areas<br>• Review and update training plans for health workers and community health volunteers |
| | No referral mechanism of cholera suspected cases from communities to treatment centers | • Conduct geographical mapping of all cholera treatment facilities and ORPs in hotspots<br>• Identify and engage community-based volunteers and partners to conduct home based management of suspected cholera cases using ORS and refer severe cases |
| | Insufficient medical supplies for the treatment facilities to manage cholera cases as required | |
| | Insufficient WASH and IPC interventions in health facilities | |
| Oral cholera vaccination | • Poor linkages between OCV and other cholera preventive strategies e.g. WASH and Risk communication<br>• Insufficient planning for the implementation of OCV leading to delays after the arrival of vaccines | |
| Environmental community engagement and advocacy | • Limited information about environmental interventions in cholera hot spots<br>• No systematic monitoring of water quality assessment due to:<br>o Poor coordination between responsible sectors of government and other agencies<br>o Community engagement is limited if at all<br>o Standard Operating Procedures (SOPs) for environmental (Water, food and sewage management) engineering | • Review protocols and regulatory frameworks for environmental hygiene in Somalia<br>• Review training plans related to WASH at national and subnational level<br>• Mapping of water sources in cholera hot spots<br>• Mapping of sewage management systems in cholera hotspots<br>• Detailed analysis and description of food and water handing services in different communities |

# 7 CHOLERA PREVENTION AND CONTROL STRATEGIC PRIORITIES' PLANNING MATRICES

**Strategic Objective 1. To strengthen coordination and Leadership of cholera prevention and control activities at all levels of the health system**

**1.1. To improve leadership and coordination of cholera prevention and control through intersectoral approach and with development partners' support**

- Establishing national, State, regional and district level cholera prevention and control intersectoral task forces (ISTFs); update their terms of reference and develop a plan with a division of roles & responsibilities
- Engage leaders of every administrative level to champion cholera control and prevention at all operational levels and conduct periodic meetings to review progress and share information

- Establish regular inter/cluster coordination mechanisms between health, WASH & Nutrition and with their national counterparts of public sector institutions for well operated synchronized intersectoral actions
- Develop an intersectoral coordination system on cholera prevention and control efforts to be carried out by different public sector ministries and other partners engaged and promote its joint implementation

**1.2. To Implement rapid field investigations and response to reported alerts through state and regional level RRTs**

- Establish RRTs and joint health and WASH coordinated plan of implementation
- Develop contingency plans for all cholera prevention and control in terms of supplies provisions, warehousing, and effective supply management
- Establish federal and state-level health and WASH RRTs to assess and respond to cholera outbreak and introduce the mobile reporting system

**1.3. To develop M&E plans and translate the lessons leaned into practice and establish cross boarder coordination**

- Develop a joint monitoring and evaluation plan for all sectors involved in cholera preparedness and response
- Establish cross border coordination and communication mechanisms with neighboring cholera endemic countries

**Strategic Objective 2. To introduce Integrated Disease Surveillance and Response (IDSR) and Strengthening Laboratory Capacity: to develop and implement the IDSR for the prevention, emergency preparedness, early detection, quick response to, and control of cholera outbreaks, and scaling up the national and sub-national laboratory capacities and improving monitoring and supervision**

**2.1. To develop the capacity for data collection, analysis, and dissemination**

- Develop a training plan for data clerks and surveillance officers responsible for data collection and analysis in peripheral sites
- Adapt GTFCC standardized tools for data collection, analysis and dissemination to Somalia country context
- Translate, print and disseminate the updated cholera standard surveillance tools to all peripheral facilities in Somalia such as case detection, cholera investigation forms, and kits and their prepositioning in all the health facilities
- Ensure routine data analysis
- identify vulnerable communities and risk factors by place, person and time with particular emphasis on indicators to track progress of activity implementation
- Routine reporting of data statistics globally to contribute to the monitoring of achievement of global targets
- Organize basic training activities to facility-based health workforce and surveillance teams on cholera case detection and case management
- Identify and address risk Factors that contribute to cholera outbreaks in the country
- Ensure a comprehensive IDSR implementation in all district especially those identified to be of high-risk
- Strengthen the National Laboratory capacity and its supportive role and coordination to other state-level laboratories and cholera surveillance units for effective prevention and response coordination
- Train laboratory staff on Proper handling and testing of cholera samples
- Strengthen the capacity of the Central laboratory to conduct water sources surveillance and testing
- Review and update SOPs for the flow of laboratory referral
- Enhance capacity for cholera culture and sensitivity testing and establish these capacities in at least two other state/regional centers
- Preposition essential laboratory supplies and equipment i.e. cold-chain, transport media, reagents

**2.2. To ensure that all reported cholera alerts are investigated and confirmed within 48 hours of notification**

- Organize basic training activities to facility-based health workforce and surveillance teams on cholera case detection and case management
- Expand the existing Early Warning Alert and Response Network to treatment facilities to submit alerts immediately
- Establish community event-based surveillance network for community health volunteers to identify and report suspected cases of cholera using community case definitions
- Train and deploy district-based Rapid Response Teams (RRTs) for the verification of cholera alerts as well as instituting community- based control measures

- Develop job aids and SOPs for alert verification, stool samples collection and transportation of samples at all levels

To strengthen laboratory capacity at the national and state level to be able to confirm cholera alerts/Referral of samples

- Conducting capacity assessment (including infrastructure, HR and training needs and supplies) for the state-based laboratories
- Establishing mechanisms to transport cholera samples from different labs in the country and to international reference laboratories
- To provide laboratory supplies, equipment, and reagents for the confirmation of cholera alerts including use of RDTs in communities
- Develop a training plan for the laboratory staff on stool culture and biochemical studies for cholera confirmation
- Provide necessary hardware, reagents, and supplies for the confirmation of toxigenic V. Cholerae O1/O139 in state-based laboratory
- Establish a laboratory information management system to store records for all samples collected and their results including from reference laboratories
- Develop and implement quality control activities at the central and peripheral laboratories in the country
- Laboratory supply and equipment (i.e. cold-chain, transport media, reagents etc,
- Train laboratory staff on proper handling and testing of cholera samples
- Strengthen the capacity of the central laboratory to conduct water sources surveillance and testing
- Review and update SOPs for the flow of laboratory referral
- Enhance capacity for cholera culture and sensitivity testing and establish these

**Strategic Objective 3: To reduce the mortality and morbidity due to cholera in the country through the effective case management and infection control with adequate prepositioning of the necessary medical supplies in all health facilities and the application of the nationally set standard treatment guidelines both at facility and community levels.**

**3.1. To ensure that cholera case fatality rate is maintained at below 1% in treatment facilities and communities**

- Establish permanent CTCs in all regional hospitals and CTUs in all RHCs, HCs, and PHUs in the event of cholera outbreaks and regularly assess their performance capacity
- Develop a training plan for health workers and CHWS for the management of cholera cases at facility & at the community
- Ensure the provision of adequate quantities of medical supplies (Cholera kits and WASH supplies) for the management of cholera cases in CTC/U and at the community

**3.2. To ensure early and easy access to standard cholera treatment in treatment facilities and communities in cholera hotspots**

- Preposition medical supplies in all cholera hot spots to effectively respond to cholera outbreaks
- Provide operational support for the management of CTC/Us across the country
- Treat all cases of AWD as cholera cases without waiting for laboratory confirmation in areas where Vibrio Cholerae has been previously culture confirmed

**3.3. To improve the implementation of Infection Prevention and control interventions in CTC/CTUs to prevent vertical transmission of cholera infections**

- Develop guidelines, SOPs, protocols, and Job aided for IPC implementation in to be admitted at CTC/Us and ORP
- Develop and implement segregation and flow of patients inside CTC/Us and train staff on IPC guidelines
- Develop and implement plans for waste disposal and management including dead body management
- Identify the community sites where to establishes Oral Rehydration Points and train local community health workers/volunteers on cholera prevention and management
- Preposition stocks of essential supplies (ORS, Intra Venous (IV) fluids, cholera kits, HTH chlorine, IPC supplies, cholera logistic module) in all health facilities with CTC, CTU or ORP
- Preposition of WASH kits (basic water quality, hygiene kits and personal water filters) to be distributed to patients when discharged from CTC, CTU or Oral Rehydration Post (ORP)

**OCV Strategic Objective 4: To implement the OCV in cholera hot spot geographical areas identified through the surveillance teams' collected data to prevent or control cholera outbreaks as a supplementary control measure, in addition to the existing interventions of safe water supply, sanitation and hygiene**

| | |
|---|---|
| **4.1.** | **Implement OCV in the high-risk cholera hot spots in Somalia as guided by surveillance data collected by the surveillance teams** |
| | • Utilize surveillance records to identify potential cholera hotspots for OCV Implementation as a complementary cholera prevention and control strategy<br>• Develop contingency plans including budgets and resources required for the implementation of OCV in identified hotspots<br>• Collect, analyze and disseminate OCV campaign data using proven methods in line with established procedures<br>• Develop the necessary technical, managerial and leadership capacities of the health team on OCV and other cholera prevention and control pillar strategies<br>• Plan and undertake the necessary monitoring and evaluation of OCV campaigns' implementation processes and impact |

**Strategic Objective 5 Water, Sanitation and Hygiene: To reduce the morbidity and mortality of cholera outbreaks in the country, both in humanitarian settings, and as a durable medium and long-term developmental interventions in the country by promoting and providing safe water and sanitation as well as good hygiene practices among the population in both rural and urban settings**

| | |
|---|---|
| **5.1.** | • Promoting the drinking water quality through water treatment and regular testing and monitoring of drinking water quality in all districts of the country<br>• Installing water and sanitation facilities in all IDP camps and cholera hot spot areas to reduce the risk of cholera outbreaks<br>• Promoting the development of centralized water and sanitation systems in large urban cities and smaller borewell network supply systems for smaller towns and rural areas<br>• Ensuring that all urban and rural health care facilities are provided with safe drinking water and sanitation infrastructures as well as the necessary basic equipment, supplies and operational guidelines for action<br>• Implementing a standard package of WASH interventions in Schools guided by a set government policy and operated by the schools through community support and participation, creating a conducive environment for children's education and health<br>• Protecting water sources from faecal contamination by encouraging the urban and rural households to construct and use family latrines that are sufficiently distant from the water source<br>• Introducing the resilience and sustainability building concepts into the WASH pillar by bridging its humanitarian and development interventions, recognizing the decades-long chronic humanitarian situation, and the countrywide decentralized WASH cluster, which is among the clusters with the highest participation of international and local agencies<br>• Promoting the installation of solar water pumps in all endemic districts and identified hot spot areas to scale up the coverage of safe drinking water in the country |

**Risk Communication and Community Engagement Strategic Objective 6: To ensure the exchange of real-time information. advice and opinions on cholera prevention and outbreak control measures between the health authorities and the people facing the threat of the disease, and engaging them in healthier practices that improve the well-being of the target population. Key activities to pursue in this strategy include**

| | |
|---|---|
| **6.1.** | **Strengthen the coordination and implementation of risk communication and community engagement at all levels** |
| | • Involves federal, state, regional and district level political and administrative leadership and from the relevant sectors to mobilize the local communities and their leaders' active participation in all cholera prevention and control interventions<br>• Identify community stakeholders (religious organizations, cultural institutions, NGOs etc.) and leaders who should be engaged to conduct community education and sensitization<br>• enhance the community knowledge and understanding about the symptoms of the disease and on the related environmental risk factors that scale up the risks of infection<br>• Engage communities through participatory approaches like meetings and Focal Group Discussions ( FGDs) to get feedback on the implementation of community-based interventions<br>• Review and update EIC materials and have them translated and disseminated using available and most effective channels of communication<br>• Build mechanisms for collaboration across sectors, and engage the community in this partnership process<br>• Organize the necessary advocacy and communication interventions to translate the gained knowledge into healthier practices that improve the well-being of the target population. |

| | |
|---|---|
| | • Review and update community social mobilization committees at all levels with special TORs for each of the responsible parties<br>• Identify and recruit community social mobilisers in all hotspots areas in harmonization with C4D structures<br>• Develop linkages between CHWs and health workers in STCs and STUs and surveillance sentinel sites |
| **6.2.** | **Reduce community level transmission through creating awareness, improve community knowledge and adopting potential behaviors change mechanisms through appropriate community preparedness practices** |
| | • Promoting IEC through community hygiene promoters, posters, radio broadcasts and other platforms<br>• Promoting safe disposal of all excreta by stopping open defecation in fields, and using safe household latrines, and promoting hand washing with soap<br>• Increase physical access to safe water supply and safe environmental sanitation and hygiene services, water chlorination, point-of-use water treatment and safe storage,<br>• Promote the role of schools as part of community action of cholera prevention and control through environmental cleaning and safe disposal of human feces by launching the WASH Friendly Schools Initiative |

# 8 THE BUDGET ESTIMATES

The budget for the implementation of the strategic objectives and their respective interventions for the five years plan was at about US$ 9,268,000. It is important to note that the cholera prevention and control development sector funding is insufficient. There is a need, therefore, to establish an operational platform that combines the development health component with the humanitarian assistance for communicable diseases prevention and control, cholera in particular. The latter will contribute to building long-term resilience of the community and that of the health system, in which the attained coverage levels will effectively interrupt the transmission of cholera in all the high-risk districts of the country. It is self-evident that the need to invest in the urban water and sanitation sector, especially the few larger cities poses a real challenge. The latter can be addressed partially but requiring a much higher level of investment to build the necessary and complex water and sanitation infrastructures, that is far beyond the capabilities of the current funding. The implementation of this strategy amid high level of institutional fragility will require close supervision, monitoring and evaluation and operational research for which some financing is earmarked.

**Table 7: A Summary of Total Earmarked budget estimate for all the six Strategic Objectives of the Cholera Prevention and Control Strategy in US$ (000)**

| Intervention | 2020 | 2921 (000) | 2022 (000) | 2023 (000) | 2024 (000) | Total USD (000) |
|---|---|---|---|---|---|---|
| 1. Strengthening coordination and Leadership of cholera prevention and control activities at all levels of the health system | 150 | 150 | 150 | 159 | 100 | 709 |
| 2. To introduce Integrated Disease Surveillance and Response (IDSR) and Strengthen Laboratory Capacity: to develop and implement the IDSR for the prevention, emergency preparedness, early detection, quick response to, and control of cholera outbreaks, and scaling up the national and sub-national laboratory capacities and improving monitoring and supervision | 300 | 250 | 300 | 250 | 200 | 1300 |
| 3. Cholera Case Management Strategic Objective: To reduce the mortality and morbidity due to cholera in the country through the effective case management and infection control with adequate prepositioning of the necessary medical supplies in all health facilities and the application of the nationally set standard treatment guidelines both at facility and community levels. | 400 | 400 | 300 | 300 | 200 | 1600 |

| Intervention | 2020 | 2921 (000) | 2022 (000) | 2023 (000) | 2024 (000) | Total USD (000) |
|---|---|---|---|---|---|---|
| 4. OCV Strategic Objective: To implement the OCV in cholera hot spot geographical areas identified through the surveillance teams' collected data to prevent or control cholera outbreaks as a supplementary control measure, in addition to the existing interventions of safe water supply, sanitation and hygiene | 400 | 300 | 300 | 350 | 250 | 1600 |
| 5. Strategic Objective Water, Sanitation and Hygiene: To reduce the morbidity and mortality of cholera outbreaks in the country, both in humanitarian settings, and as a durable medium and long-term developmental interventions in the country by promoting and providing safe water and sanitation as well as good hygiene practices among the population in both rural and urban settings | 600 | 500 | 550 | 500 | 200 | 2350 |
| 6. Risk Communication and Community Engagement Strategic Objective: To ensure the exchange of real-time information. advice and opinions on cholera prevention and outbreak control measures between the health authorities and the people facing the threat of the disease and engaging them in healthier practices that improve the well-being of the target population. Key activities to pursue in this strategy include | 300 | 250 | 250 | 200 | 200 | 1200 |
| 7. Supervision, monitoring, evaluation and operational research | 149 | 100 | 80 | 100 | 80 | 509 |
| **Total** | **2299** | **1950** | **1930** | **1859** | **1230** | 9268 |

# 9 INDICATOR MATRIX

| Pillar | Indicator | Baseline | Target | Time frame | | | Means of verification | Responsibility |
|---|---|---|---|---|---|---|---|---|
| | | | | 2020 | 2022 | 2025 | | |
| Coordination and leadership | Proportion of states with active cholera response task committees | | 7 including BRA | X | | | Minutes of committee meetings | MOH |
| | Proportion of states with cholera champion such as high-level political figure responsible for spearheading cholera response activities | 0 | 6 | X | | | Na | MOH |
| | Proportion of states with cholera contingency plans | 1 | 6 | X | | | Contingency plans | MOH/WHO |
| | Number of joint supervision and monitoring visits conducted in cholera hot spots | NA | | | | | Supervision report | MOH/OCHA |
| | Number of surveys conducted in cholera hot spots | NA | | X | | | Survey reports | Wash and health cluster |
| | Number of states with established EOC to coordinate the response to cholera and other epidemics | NA | 6 | X | X | X | Reports | WHO and MOH |
| Surveillance and laboratory capacity | Number of health facilities in cholera hotspots submitting reports in EWARN on a regular basis | 485 | 1200 | X | X | X | EWARN report | WHO and MOH |
| | Number of health workers/data clerks and surveillance officers trained in basic epidemiology and outbreak response | 2 | 7 | X | | | Training report | |
| | Proportion of health facilities submitting alerts in EWARN according to the timelines | 70% | 80% | X | X | X | EWARN reports | |
| | Proportion of communities with functional community event-based surveillance teams | | | | | | | |
| | Proportion of alerts reported from the communities verified within 48 hours of notification | | | X | X | X | | WHO/MOH |
| | Proportion of regions with functional Rapid Response teams | NA | 50 | | X | | | WHO/MOH |
| | Proportion of states with functional laboratories with capacity to confirm cholera cases | 0 | 6 Including NPHL | | X | | | WHO/MOH |
| | Proportion of health facilities with standard case definitions for cholera and other epidemic prone diseases | | 500 | X | | | | WHO AND MOH |
| | Proportion of cholera alerts with stool samples confirmed with RDTs | <1% | 30% | X | X | X | | MOH |
| Case management | Number of health workers trained in management of cholera cases using standard protocols | NA | NA | X | X | X | | WHO/MOH |

| Pillar | Indicator | Baseline | Target | Time frame | | | Means of verification | Responsibility |
|---|---|---|---|---|---|---|---|---|
| | | | | 2020 | 2022 | 2025 | | |
| and Infection prevention and control | Proportion of health facilities with required medical supplies, IPC tools | Na | All | X | X | X | Cholera sitreps | MOH |
| | % of cholera cases that have been cured during an outbreak | 0.5% | <1% | X | X | X | Cholera sitreps | MOH/Health cluster |
| | # community health workers/volunteers trained in home-based management of AWD/Cholera | 285 trained in Benadir | 1000 | X | X | X | Training reports | MOH |
| Oral Cholera Vaccination | Proportion of vulnerable communities who have received OCV | <20% | 80% | X | X | X | OCV reports | MOH and partners |
| | Proportion of states with contingency plans for the implementation of cholera vaccination campaigns | | | | X | X | Plans | MOH and partners |
| Community engagement and risk communication | Proportion of states with communication strategies developed | | | X | X | X | Strategic plans | C4D/Unicef |
| | Proportion of communities oriented in key messages for cholera prevention and control | | | X | X | X | Training reports | C4D/Unicef |
| | Proportion of communities with adequate knowledge for cholera prevention and control | | | | | X | Survey reports | C4D/Unicef |
| Environmental health | Proportion of people (including IDPs) with access to safe drinking water during emergencies | 53% | 90% | X | X | X | Wash cluster reports | WaSH cluster |
| | Proportion of people with access to VIP latrine during emergencies | NA | 90% | X | X | X | Wash cluster reports | WaSH cluster |
| | Proportion of districts with capacity to conduct water quality testing | NA | 90% | X | X | X | Wash cluster reports | WaSH cluster |
| | Proportion of public places and schools with public toilets and hand washing facilities | NA | 90% | X | X | X | Wash cluster reports | WaSH cluster |

# 10 SUPERVISION, MONITORING AND EVALUATION

During the implementation of the cholera prevention and control strategy, regular supervision and Monitoring will be carried out by trained health professionals and the experts implementing the WASH components of the programme pursued through an intersectoral coordinated system. This integrated approach will be planned and implemented in close collaboration with WHO, UNICEF and other international and national health partners operating in the field with particular focus on cholera high risk communities. Regular weekly feedback reports on the set performance indicators will be reported and data reviewed, and the lessons gained translated into action to interrupt disease transmission and avert future outbreaks. The monitoring and evaluation of the IDSR activities of outbreak investigation, laboratory confirmation, and response interventions will assess the cholera outbreak management capacity of the health system. Stringent M&E will address the level of coordination and intersectoral collaboration between the health and other sectors such as those engaged in WASH, as well as the level of community engagement in the prevention and control of cholera control interventions and the progress made in behavior change communication.

Following each cholera outbreak an evaluation needs to be performed and the report shared with all partners and programme teams sharing the lessons learnt and the gaps identified in the different strategic components of cholera prevention and control encompassing coordination and integration programmatic inputs, the IDSR coverage and performance level, the case management both at facility level and at the community, the vaccination campaigns in the hot spots and the coverage and effectiveness of the WASH interventions and scale of community engagement.

The pursued M&E framework will be streamlined into the implementation plan and the set indicators in the strategy document will be used as appropriate and relevant to the different cholera prevention and control interventions. A standard monitoring and supervision guide will be developed and disseminated to all operational levels for their effective outbreak prevention and control. The indicators to be measured will reflect all the six cholera control intervention areas and their outcome results in terms of reduction in cholera case fatality rate, access of the community to safe drinking water and interruption of the disease transmission.

# 11 OPERATIONAL RESEARCH

To continuously improve the implementation of the cholera prevention and control selected strategic objective and their respective interventions requires the proactive undertaking of an agenda that generates significant evidence. The dissemination of the latter will increase the visibility of cholera as an important nation public health problem, mobilize multisectoral support, improve resource mobilization and the overall effectiveness of programme operations. In specific terms, the OR will study the response of the IDSR teams to cholera alerts, the mobilization of local community health workers, volunteers and the community at large, whose processes and outcomes need to be assessed and the relevant lessons learned to improve performance The study of the cholera epidemic trends, its seasonality, information on hotspots and time of epidemics, and the establishment of a Geographical Information System database will give better understand about the spatial distribution of the endemicity of cholera in the country, improve risk prediction and rigger the necessary preparedness actions for response.

OR is also to be directed on the access to and effectiveness of the CTCs and CTUs organized in the health facilities of the districts affected by the disease, relative to case management and reduction of CFR to the desired level of <1% as well as the community level case management with oral rehydration therapy to identify opportunities for improving cholera prevention and control operational practices. The development of OCV has provided an additional tool to prevent and control cholera outbreaks, where OR contributed in assessing the immunization campaigns targeting the highest risk hot spot areas and their effectiveness in successfully attaining the desired coverage and the necessary corrective measures to undertake

# 12 IMPLEMENTATION

The national cholera prevention and control strategy will be implemented for a period of five years with the collective support of the federal and state and regional level health authorities. The latter will be supported by the active participation of the international health partners, the private health sector, the CSOs, and the wider community. The strategy recognizes the numerous technical competencies to be delivered by the national health system, spearheaded by timely detection through IDSR, early detection, effective case management, laboratory support and skilled health workforce

The plan development took into consideration objectives of epidemic preparedness and response which include: prediction so that epidemics can be prevented; detected early; rapidly and effectively responded to; and availability of resources such as guidelines/trained staff/SOPs/supplies before epidemics occur. Using the preparedness logic model, the target users and key public health preparedness The implementation of the cholera prevention and control planning process will consider the following key interventions:

i. **Coordination:** A major area for effective cholera prevention and control implementation is the coordination of the different interventions that the technical stakeholders are to deliver and the synergies for the expected outcome results to be jointly assessed and identified gaps addressed. The cholera coordination hubs at federal, state, regional, and sub-regional levels operated under the leadership of the health authorities under the MoH are responsible for coordinating information and human resources and physical infrastructures.

ii. **Reinforcing the Existing Health Care System:** The range of activities outlined as priority interventions need to be carefully pursued during implementation. These include revamping the health facilities at district and regional level, with comprehensively functioning CTCs & CTUs for the management of severe cases that are easily accessible for the local population in which trained health workers are deployed and supply provisions secured. The IDSR, the RRTs, the necessary laboratory diagnostic support, and the effective use of trained community based female health workers (CBFHW) for the rural areas to bring the disease prevention and control interventions to the community. Key factors for effective surveillance include existence of a standard case definition, clear and simple data collection, reporting and analysis, rapid diagnosis of suspected cases and laboratory confirmation, routine feedback, and appropriate coordination at all levels

iii. **The complementary use of OCV:** Cholera vaccinations should be progressively aligned with periodic review efforts of the districts\ cholera risk profile and with the identified hot spots. These critical high-risk areas should attain the assistance of an intersectoral task force, where health interventions such as case management, integrated disease surveillance and strengthening the health system technical capacities and infrastructure are compliant with the standards set in the implementation plan. Community mobilization and vaccine promotion should be an integral part of the prevention and control of cholera outbreaks. Vaccination Campaigns' micro-planning and related preparation activities should be carried out for the selected hot spots. This effort will include community social mobilization conducted early while ensuring the launching of the vaccination campaign when the vaccines are made available at the operational level.

iv. **Factoring in the dual role of WASH interventions in implementation:** WASH interventions that are often sidelined by the public health programs need to assume a central role in the cholera prevention, control and response implementation plan. The latter needs to be harmonized with the immediate and long-term local community efforts in restoring social cohesion and reconciling their potential economic and social groups' perceived needs, rights and interests. In the Somali context, it is a known fact that the equitable access to a safe drinking water source is a culturally valued peace dividend, Inversely the unequal distribution of these vital resources can become a cause of conflict, hence the need for a negotiated process when these cholera prevention and control infrastructure are being established. Moreover, the currently absent regular testing of water sources and the water consumed at the household level for free chlorine residual and Escherichia coli (E. Coli) need to be initiated and sustained, regularly, assessing the level of contamination to ensure that safe drinking water is provided to the target population.

v. **The Multisectoral Approach to Cholera Prevention and Control:** The multisectoral challenges of cholera prevention and response could only be addressed with the establishment of multisectoral cholera taskforces to improve the coordination, cooperation, and collaboration of the different intersectoral response interventions. In the implementation phase, joint WASH and health training activities need to be organized; social mobilization, logistics, and supplies provision to be collectively planned to improve the response. Moreover, multisectoral efforts for mobilizing the financial and technical resources necessary are to be coordinated effectively, the multisectoral taskforces need to secure the support of the competent public sector executive authorities and health partners at national, state, regional and district level. This task force should also include members of the private sector stakeholders and influential representatives from the community.

vi. **Community role in implementation:** Communities are to be engaged and encouraged to place value in utilizing safe drinking water and sanitation and promote the appropriate case definition and community level case management protocols, while community mobilization stands out as the cornerstones for cholera control. They also need to undertake health promotion and education activities and raise their risk perception and adopt risk reduction behaviors and practices. The latter includes the adoption of community-led total sanitation, advocacy to stop the practice of open defecation, managing the funeral rites to prevent the risk of disease transmission, and the imperative of active community participation in all local cholera prevention and control interventions. The principles of coordination, partnerships, collective ownership and shared managerial accountability are key social assets that secure the success and long term sustainability of these measures and meaningfully contribute to cholera prevention by breaking the chain of disease transmission.

# 13 CONCLUSION

Large regions of the world population have successfully achieved cholera control in both their rural and urban areas through the universal provision of safe drinking water and sanitation and simply by adopting basic hygiene principles through behavior change. This epidemiological knowledge was successfully used by many developing countries who in the recent decades were able to end both the endemicity and outbreaks of cholera within their domains[23]. In Somalia along with some other developing and fragile states, the burden of cholera remains high. This strategy aims to place the foundation for a set of effective and renewed efforts to curb or at least significantly reduce the risk of cholera transmission, pursuing the globally set unified approach to cholera prevention and control. These nationally endorsed measures of cholera prevention and control include the implementation of multidisciplinary intersectoral coordination mechanisms and efforts of resource mobilization to accelerate and synchronize the preventive and control action against cholera; a well performing geographically distributed IDSR with early detection, effective laboratory support and quick response to contain outbreaks; Promoting the access to safe water, sanitation, and hygiene globally recognized as human rights reflecting the need to ensure ensuring their sustainable provision to communities, schools and health care facilities; appropriate treatment of cases with cholera; community engagement and social mobilization as principal and critical cholera control measures and the complementary use of OCV in the high risk hot spot areas/districts in the country to interrupt disease transmission and its spread to new geographical areas. In order to successfully fight against cholera, the strategy will appeal for the formation of a national and international coalition partnership to collectively serve as an effective drive for advocacy, resource mobilization and the effective prevention and control of the disease in the country, leading to its elimination.

[23]Glass RI, Claeson M, Blake PA, Waldman RJ, Pierce NF. Cholera in Africa: lessons on transmission and control for Latin America. Lancet. 1991;338:791–5. [PubMed

# 14. ANNEX 1. LIST OF PARTICIPANTS IN THE CHOLERA PREVENTION AND CONTROL STRATEGY DEVELOPMENT CONSULTATION WORKSHOPS

**List of Jubbaland State Participants**

| S No | Participant's Name | Institution/ Organization | Title |
|---|---|---|---|
| 1. | Mohamed Abdullahi Hassan | MOH | Director of planning & Policy |
| 2. | Liban Mohamed Abdullahi | MOMEW | Planning & Directing |
| 3. | Abdullahi Ali Hirabey | MOMEW | M&E Director |
| 4. | Mohamed Bashir Yusuf | HUDA | PITMIS |
| 5. | Jabril Abdi Ahmed | SCI | Head of Planning |
| 6. | Idiris Mohamed Samaan | WHO | H. Assistance |
| 7. | Idiris Yusuf Mohamed | IOM | Health Program |
| 8. | Bashir Mohamed Mukhtar | IOM | Field coordinator |
| 9. | Abdinasir Mohamed Abdi | MOH | Regional Medical Officer (RMO) |
| 10. | Mohamed Abdullahi Shaciye | MOH | CSR |
| 11. | Amina Mohamed Abdi | SCI | Wash Officer |
| 12. | Fowzia Yasin | ARC | H& Nutrition Officer |
| 13. | Ibrahim Abdi Budal | ARC | Wash Officer |
| 14. | Abdi Hussein Gabow | MOA | Planning, Policy & Research |
| 15. | Abdirashid Yusuf Ibrahim | MOH | Acting DG |
| 16. | Abdifitah Mohamed Jamac | MOH | Deputy |
| 17. | Mohamed Abdirahman Ismail | Local Government | Wash Officer |
| 18. | Abdullahi Ali Allow | MOH | RMO |
| 19. | Maslax Mohamed Abdi | Local Government | |
| 20. | Hassan Hussein Haji | | |
| 21. | Ahmed Ibraahim Isack | MOH | Gedo RMO |
| 22. | Abdi Nor Ahmed | MOH | PITMis |
| 23. | Mohamed Abdullahi Hussein | WHO | PHED |

**List of South West State Participants**

| S No | Participant's Name | Institution/ Organization | Title |
|---|---|---|---|
| 1. | Yusuf Bare Mohamed | MOH | DOP |
| 2. | Lul Isack Adan | SWAWED | Choirlayt |
| 3. | Fatima Sh. Mukhtar Ali | MOL.SWSS | DOP |
| 4. | Mohamed Abdirahman Mohamed | SANA | Health Cluster Focal Point |
| 5. | Ahmed Abukar Hassan | MOE | Advisor |
| 6. | Mohamed Bashir Mohamed | MOHADM.SWSS | Policy & Planning |
| 7. | Abdirahman Hussein Mohamed | MOH SWSS | DMO |
| 8. | Abdi Hassan Ibraahim | MOH | MOH |
| 9. | Suleyman Abdirahman Hassan | MSF | CE Manager |
| 10. | Hassan Ahmed Ali | ACTED | WASH-PO |
| 11. | Safia Fowzi Mohamed | Civil Society | Represented |
| 12. | Hussein Abdirahman Ibrahim | MOAI | Ag-Extentgul Project |
| 13. | Malia Malaq Isack | MOH | RH |
| 14. | Abdirashid Osman Adan | MOH | RMO |
| 15. | Nor Moallim Adan | MOH-SWS | CSRbay |
| 16. | Farima Abshir Mohamed | MOH-SWS | Medical |
| 17. | Adan Abdirahman Ahmed | MOH-SWS | RS-SWS |
| 18. | Jamalo Ahmed Hussein | MOH | WASH Dept |
| 19. | Abdifitah Mohamed Abdi | DC Office | Staff |
| 20. | Abdikadir Ibrahim Mohamed | SCI | PO |
| 21. | Isak Mohamed Nor | Hudur Hospital | Director |
| 22. | Naima Ahmed Adow | MOH | FH&OPD |
| 23. | Jamaal Sh. Yusuf Haji | MOH | Shabelle RMO |

## List of Galmudug State Participants

| S No | Participant's Name | Institution/ Organization | Title |
|---|---|---|---|
| 1. | Mohamed Adan Hassan | MERCY USA | Team Leader |
| 2. | Nasra Mohad Jamac | MERCY USA | H & Nutrition coordinator |
| 3. | Fowziya Mohamed Omar | SCI | WASH |
| 4. | Salad Ahmed Halane | SCI | Health Program |
| 5. | Abdiasis Dahir Mohamed | Galmudug- Biyaha | Community |
| 6. | Abdullahi Shire Olad | New Ways | Doctor |
| 7. | Omar Abubakar Haji | IRC | Senior Health Manager |
| 8. | Abdirahman Omar Beereey | Tous | Medical Activity Manager |
| 9. | Ali Mohamed Abdi | PAH | WASH OFFICER |
| 10. | Ard Mohamed Hassan | IRC | Mwtwn Hanon |
| 11. | Hassan Mohamud Farah | CRC | Director |
| 12. | Osman Abdi Mohamed | CPD | Project Manager |
| 13. | Mohamed Isack Hassan | MCC | Chairman |
| 14. | Hussein Abdi Ahmed | SSWC | Case work |
| 15. | Ifrah Abdi Yusuf | IRC | Senior Medical Officer |
| 16. | Abdirahman Abdullahi Abdi | GMOH | RMO |
| 17. | Abdinasir Ali Jaamac | MOH | DMO |
| 18. | Abdinasir Mohamed Dirie | MOH | Malaria FP |
| 19. | Mohamed Abdullahi Haji | MOH | Prevention & Control |
| 20. | Abdi Mohamed Hersi | MOH | RMO Mudug |
| 21. | Mohamed Sheikh Ismail Warsame | GMOH | RMO |

## List of Hirshabelle State Participants

| S No | Participant's Name | Institution/ Organization | Title |
|---|---|---|---|
| 1. | Abdi Hashi Shimey | HIDIG | Program officer |
| 2. | Hassan Ibrahim Galbed | Mercy USA | HBN Coordinator |
| 3. | Mohamed Kasey Adow | Wardi | Program officer |
| 4. | Mustaf Rashid Mohamed | RI | HRM Assistant |
| 5. | Hassan Addow Hassien | MOH | Project |
| 6. | Mohamed Issack Dalafey | SCI | Wash Cluster |
| 7. | Ayan Mohamud Ahmed | Social | Member |
| 8. | Awil Mohamed Jabril | MOW | |
| 9. | Hassan Ahmed Barkhadle | Humanitarian | Coordinator |
| 10. | Guled Osman Addow | ERCS | IMM |
| 11. | Abdifitah Mohamed Abdi | AADSOM | Vice Officer |
| 12. | Muktar Ahmed Ibrahim | MOW | Supervisor |
| 13. | Jaamac Issack Ahmed | Midnimo Organization | Program Officer |
| 14. | Haawo Ahmed Mohmaed | | Administrator |
| 15. | Mohamed Ibrahim Sheikh Ahmed | WHO | OHEO |
| 16. | Ahmed Mohamed Khalif | MOH | RMO |
| 17. | Tahlil Ibrahim Abdi | MOH | DG |
| 18. | Muhudin Ahmed Mohamud | Maamulka | Supervisor |
| 19. | Mohamed Osman Moallim | SMOH | Planning |
| 20. | Farah Abid Ali | Local Government | Member |
| 21. | Ahmed Bare Osman | Local Government | Supervisor |
| 22. | Ali Abdi Awil | Humanitarian | Program |
| 23. | Ahmed Bare Abdulle | | Program |

## List of Benadir Regional Administration Authority Participants

| S No | Participant's Name | Institution/ Organization | Title |
|---|---|---|---|
| 1. | Ali Hussein Yusuf | Sopha | Wash |
| 2. | Mohamed Ahmed Sufi | MOEWR | H. Section |
| 3. | Abdulkadir Hussein Walal | MOA | Madaxa dhexe |
| 4. | Abdirahman Mohamed Ali | Local Ngo | supervisor |

| S No | Participant's Name | Institution/ Organization | Title |
|---|---|---|---|
| 5. | Ismahan Mohamed Osman | ARC | Health and nutrition officer |
| 6. | Naima abdikadir | WHO | PHEM |
| 7. | Farhia Mohaudiin | Benadir hospital | Nursing |
| 8. | Abdisalam Ibraahim Hussein | MOH | DEPUTY |
| 9. | Adam Isse Adam | Benadir hospi | Doctor |
| 10. | Abdikhaliq Ali Adan | FMOH | CSR |
| 11. | Mohamed Dubad Mohamed | FMOH | CSR |
| 12. | Abdikadir Mohamed abdi | WHO | PHS |
| 13. | Iran Ali Hashi | NPHL | …… |
| 14. | Sahra Ese Mohamed | NPHRL | Director |
| 15. | Mohamed Ahmed Omar | Benadir university | researcher |
| 16. | Hassan Warsame Nor | Benadir university | researcher |
| 17. | Abdikani Mohamed Jeylani | MOHADM | DRR |
| 18. | Mariam Ibraahim Salah | MOHADM | Humanitarian |
| 19. | Abdirisak Yusuf Ahmed | FMOH | HSS team leaser |
| 20. | Abdullahi Abdihakin Ismail | FMOH | M&E |
| 21. | Farhan Mohamed Mohamud | FMOH | Wash |
| 22. | Adan Hussein Ali | FMOH | E-unit |
| 23. | Ahmed Moallim | FMOH | Co-coordinator |
| 24. | Mohamed Abukar Ubeyd | FMOH | Benadir |

## List of Puntland State Participants

| S No | Participant's Name | Institution/ Organization | Title |
|---|---|---|---|
| 1. | Dr.Abdirizak Hersi Hassan | MOH | Director General |
| 2. | Ali Dirie Said | MOH | Director Of Public health |
| 3. | Abdirizak Hassan Isse | MOH | Director of Planning and Policy |
| 4. | Abdirizak Abshir Hersi | MOH | Director of Primary health care |
| 5. | Edil Abdikhalif Hassan | MOH | Director of Human Resource |
| 6. | Mubarak Abdinur Isse | MOH | CSR |
| 7. | Dr.Abdirahman Y. Musse | MOH | Advisor |
| 8. | Naima Nur Musse | MOH | WASH Manager |
| 9. | Adam Hasan Adam | MOH | WASH Assistance |
| 10. | Warsame Said Mohamed | MOH | Nutrition Manager |
| 11. | Naima abdirizak Hussein | MOH | Nutrition Officer |
| 12. | Abdikarim Hussein Hassan | MOH | Malaria Manager |
| 13. | Abdikamil Mohamed | MOH | Consultant |
| 14. | Abubakar Sheikh Ahmed | MOH | HIV Manager |
| 15. | Hawo jama Abdirahman | MOH | Secretary |
| 16. | Johra muse elmi | MOH | EPI-Supervisor |
| 17. | Mohamed abdinasir siraad | TASS | Health Officer |
| 18. | Adan Hassan adan | MOH | WASH Officer |
| 19. | Jama ahmed moha | NODO | Health&Nutrition Officer |
| 20. | Shamsa ahmed Osman | MOH | Public health Officer |
| 21. | Khadro Mohamed salah | Ministry of Women | Advisor |
| 22. | Naima ahmed abdalla | MOH | EPI-Officer |
| 23. | Nasteho abdirizak abshir | Ministry of Internal affairs | Consultant |
| 24. | Hodan ahmed Mohamed | MOH | Training Coordinator |
| 25. | Faduma omar abdirahman | MOH | WASH assistant |
| 26. | Hawo yasin Mohamed | MOH | Health Officer |
| 27. | Abdisamad mohamud | MOH | Planning officer |
| 28. | Hafsa Mohamed saed | MOH | WASH Supervisor |
| 29. | Halim saed Abshir | MOE | Education Officer |
| 30. | Mohamoud Suleiman Yusuf | MOH | HR Officer |
| 31. | Ahmed Mohamed ahmed | Garowe | MoH |
| 32. | Abdirahman ismail | MOH | HMIS officer |
| 33. | Abdisalan farah Mohamed | MOH | Quality Control Officer |

| S No | Participant's Name | Institution/ Organization | Title |
|---|---|---|---|
| 34. | Asho ali muse | MOH | TB Programme Asssitant |
| 35. | Sacdio abdi ali | Ministry of Environment | EIA Officer |
| 36. | Fadumo abdi mohamud | MOH | Admin Officer |
| 37. | Mohamud jama Osman | MOH | RH Officer |
| 38. | Sahro mahamed farah | MOH | MoH |
| 39. | Khadijo ali Hassan | MOH | PHC Manager |
| 40. | Khadro abdinasir Mohamed | Ministry of Water and Energy | Water drilling Engineering |
| 41. | Hani ahm,ed Mohamud | Garowe | MoH |
| 42. | Hamdi mohamud bare | Garowe | MoH |
| 43. | Maryan Abdirizak Warsame | MOH | Public health specialist |
| 44. | Ahmed Khalif Mohamed | MOH | Supply Officer |

## List of Somaliland Participants

| S N | Name | Title | Work Location |
|---|---|---|---|
| 1. | Dr Bashir Diiriye Jama | Sahil RMO | Sahil |
| 2. | Dr Mukhtar Jama Nour | Awdal RMO | Awdal |
| 3. | Dr Nasir Abdi Mohamed | Sanag RMO | Sanag |
| 4. | Omar Dahir Omar | D. Food Security | MoAD |
| 5. | Ahmed Mohamed Dirie | DoPP&SI | MOHD |
| 6. | Dr Mohamed Abdirahman | EPI Program | MOHD |
| 7. | Dr Muhumed Askar Ibrahin | Gabilay RMO | Gabilay |
| 8. | Dr Mohamed Khalif Farah | Sool RMO | Sool |
| 9. | Hamze Hashi Odwaa | Communication Officer | MOHD |
| 10. | Jamal A. Yousuf | HMIS/CSR | Gabilay |
| 11. | Dr Abdi Abdillahi Ali | NMCP | MOHD |
| 12. | Asha Mohamed Hirsi | EPI Program | MOHD |
| 13. | Hamze Mohamed Farah | Public Health | MOHD |
| 14. | Naema Ahmed Hasan | Planning | MOHD |
| 15. | Bashir Awil Ismail | Policy & Planning | MOHD |
| 16. | Hasan Omar Haga | Research officers | MOHD |
| 17. | Aidarus Musse Ismail | B.of Planning | MOE |
| 18. | Abdirahman Mumin Habane | C4D | MOHD |
| 19. | Abdirahman Diirie | FNSM | MOHD |
| 20. | Ahmed Yusuf Mohamed | Wash Officer | MOHD |
| 21. | Kayse Kosar Elmi | Communication Officer | MOHD |
| 22. | Dr Bashir Idiris Aw Ali | Director of H.S | MOHD |
| 23. | Abadir Ibrahim | DoPP&SI | MOHD |
| 24. | Dr Mohamed Elmi | MOHDTechnical adviser | MOHD |
| 25. | Mohamed Yusuf Warsame | DoPH | MOHD |
| 26. | Mohamed Dahir Khayre | MOHD Technical adviser | MOHD |
| 27. | Abdillahi A. Yusuf | Epid/Surveillance NC | MOHD |
| 28. | Mohamed Yusuf Shabel | Wash section Coordinator | MOHD |
| 29. | Mutawe Lubogo | Epidemiologist | WHO |
| 30. | Nimo Hussein Guleid | C4D Officer | UNICEF |
| 31. | Ahmed Mohamed Jama | Malaria Coordinator | UNICEF |
| 32. | Dr Farhan Omar Muse | Medical Coordinator | MSF MEDCO.Supp |
| 33. | Eng Kamal Mohamed Farah | WASH specialst | Ministry of Water Dev. |