

THE UNITED REPUBLIC OF TANZANIA



MINISTRY OF HEALTH

**Department of Preventive Services
Epidemiology Section**

**IDENTIFICATION OF PRIORITY AREAS
FOR MULTISECTORAL INTERVENTION
FOR CHOLERA CONTROL IN
TANZANIA, 2025**

ANALYSIS REPORT

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Suggested Citation:

Tanzania Ministry of Health. Identification Of Priority Areas for Multisectoral Intervention for Cholera Control in Tanzania
United Republic of Tanzania, 2025

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Published by:

United Republic of Tanzania,
Ministry of Health,
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Foreward



Tanzania is one among the countries undertaking roadmap for achieving global cholera elimination and control, as set by the Global Task Force on Cholera Control (GTFCC), which aims to reduce cholera deaths by 90% by the year 2030. To achieve this global goal, GTFCC provided guidelines to countries on identify Priority Areas for Multisectoral Interventions (PAMIs) formerly referred to as “hotspots”, for the sustainable elimination of cholera as a threat to public health.

The strategy provides clear path and actionable steps towards control or elimination of cholera outbreaks in the cholera affected countries. These approaches focus on prevention, early detection, and effective response to outbreaks, with an emphasis on strengthening water, sanitation, and hygiene (WASH) practices, social mobilization, and surveillance by prioritizing the PAMIs.

The identification of PAMIs is a vital decision-making process that directly informs our intervention planning and is essential for developing and updating our National Multisectoral Cholera Control Plan (NMCCP). This process guides the geographic targeting of efforts, ensuring that resources are allocated efficiently and effectively to areas with the greatest need. The roadmap for development of PAMIs in Tanzania involved a series of well-organized steps, beginning with establishing and building the capacity of the PAMI Task Force, followed by data collection and analysis, validation by the stakeholders.

This report details the process undertaken to identify the PAMIs and is submitted for review by the GTFCC. It is intended to guide the country in optimizing its cholera control strategies, including the revision of the existing National Multisectoral Cholera Control Plan

A handwritten signature in blue ink, appearing to be 'G. Magembe', written over a horizontal line.

Dr. Grace E. Magembe
CHIEF MEDICAL OFFICER

Acknowledgement



The process of conducting PAMIs in Tanzania began in early 2025 involving a series of consultative workshops with different local stakeholders using a specific methodology and consisting of several steps of data collection, assigning scores for each vulnerability factor and calculation of a cholera vulnerability index and finally, involve the country stakeholders to conduct validation of the final list of PAMIs. All these processes would not be accomplished with a meaningful list of PAMIs without a multi- sector approach applied to involve national and

international experts with well-coordinated roles and functions of different partners.

The Ministry of Health extends its deepest gratitude to experts from various sectors, Institutions and programs, partners and other stakeholder who have participated in the performance of country's identification of PAMIs. We recognize the coordination of the Epidemiology and Disease Control Section of the Ministry of Health for spearheading this exercise under the leadership of the Director of Preventive Services but also involving other National response pillar members including case management, Risk communication and Community Engagement (RCCE), WASH and Points of Entry. We highly commend the tireless efforts of the IDSR focal persons from the selected districts in data collection for this exercise.

We express our special thanks to the WHO for the initiatives, technical and financial support which was very much significant towards achieving this assignment. We appreciate the collaboration from other partners including UNICEF, U.S. Centers for Disease Control and Prevention (CDC), CIHEB, PATH, AMREF, Health Africa, MSF and other collaborators for their continuous Technical and financial support, which has been indispensable for enabling this process and broader Cholera control initiatives.

Finally, we appreciate the hard work by all health care workers who work tirelessly in prevention, and control of cholera outbreaks in Tanzania to ensure that we end cholera

Dr. Otilia F. Gowelle

ACTING DIRECTOR OF PREVENTIVE SERVICES

Abbreviations

ANC	Ante Natal Care
CDC	Centers for Disease Control and Control
CFR	Case Fatality Rate
DHS	Demographic and Health Survey
e-IDSR	Electronic Integrated Surveillance and Response
GDP	Gross Domestic Product
GTFCC	Global Task Force on Cholera Control
IMS	Incidents Management System
MMR	Maternal Mortality Ratio
MoH	Ministry of Health
MSF	Médecins Sans Frontières
NCD	Non-Communicable Diseases
NMCCP	National Multisectoral Cholera Control Plan
NMCPCP	National Multisectoral Cholera Prevention and Control Plan
NMR	Neonatal Mortality Rate
PAMI	Priority Area for Multisectoral Intervention
PATH	Partnership for Active Travel and Health
PCR	Polymerase Chain Reactions
RCCE	Risk Communication and Community Engagement
RDT	Rapid Diagnostic tests
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization

Chapter 1: INTRODUCTION

1.1 Background

Tanzania has the National Multisectoral Cholera Prevention and Control Plan (NMCCPCP) 2023–2027, focusing on controlling cholera through integrated Multisectoral approaches. Despite these efforts, significant challenges persist particularly in Water, Sanitation, and Hygiene (WASH) services especially in identified cholera hotspot areas. The situation has been further exacerbated by the effects of climate change, resulting in more frequent, prolonged, and severe cholera outbreaks. As a result, cholera has spread to new regions marked by high incidence and mortality rates, along with disruptions to routine health services and livelihoods. These developments prompted the initiation of a process to identify Priority Areas for Multisectoral Interventions (PAMIs) as a strategic measure to enhance cholera outbreak control efforts.

As Tanzania moves to update its National Multisectoral Cholera Prevention and Control Plan (NMCCPCP), it is essential to revise the list of cholera hotspots using the latest methodology developed by the Global Task Force on Cholera Control (GTFCC). This updated GTFCC approach was employed to identify Priority Areas for Multisectoral Interventions (PAMIs) for cholera control. This report details the process used to identify PAMIs an essential step in the development and revision of the NMCCPCP. The goal is to maximize the impact of limited resources by targeting high-risk populations through both immediate and long-term interventions.

In Tanzania, access to basic drinking water has significantly improved where according to the Ministry of Water report by 2025, 96% of the urban population and 79.6% of the rural population had access to basic drinking water, this represents a steep increase from the 49% recorded in 2015/2016 ¹. Regarding sanitation, 1.2% of households in the country lack toilets, while 77.4% have improved toilets. However, 98.8% of households have access to some type of toilet ².

1.2 Justification of PAMIs identification over previous cholera hotspots identified in Tanzania

Tanzania is updating its approach toward controlling cholera outbreaks

1 World Health Organization & UNICEF. (2023). Progress on household drinking water, sanitation and hygiene 2000-2023: Special focus on inequalities. JMP Report. Retrieved from <https://washdata.org/reports>

2 Tanzania Ministry of Health, National Sanitation Management Information System (NSMIS) Portal: <https://nsmis.moh.go.tz/nsmisportal/>

where instead of focusing on “cholera hotspots,” the country is focusing on targeting the Priority Areas for Multisectoral Intervention (PAMIs) due to the following reasons;

Adaptation to evolving outbreaks; cholera outbreaks have extended to new areas and that “hotspot areas keep on changing.” The PAMI approach, which uses the new GTFCC method, allows the country to update its NMCP/CP based on current data. This is a more dynamic and responsive strategy than relying on the fixed Cholera hotspot maps that have been identified previously.

Multisectoral focus; The PAMI strategy explicitly prioritizes Multisectoral interventions, which is a more comprehensive approach. Cholera outbreaks are fueled by multiple factors not just disease presence including limited access to clean water, inadequate sanitation, and strained health infrastructure. PAMIs are designed to address these interconnected issues holistically.

Resource Optimization; Tanzania faces “limited resources.” The PAMI approach is a critical step in developing the National Cholera Control Plan, with the specific aim to optimize limited resources and focus efforts on populations at the highest risk. This strategic allocation of funding and resources is a more efficient use of public funds compared to a less targeted approach.

Improved method; Previous hotspot approach is being updated using the “new GTFCC method suggesting that the PAMI identification process is based on a more current and effective methodology for defining high-risk areas, which is a stronger foundation for developing a National Multisectoral Cholera Prevention and Control Plan (NMCP/CP).

Holistic vulnerability assessment: While the old hotspots focused on epidemiological data, the rationale for PAMIs highlights the need to address public health, water and sanitation (WASH), and socio-economic vulnerabilities. This indicates that the PAMI method incorporates a wider range of factors to identify areas where interventions will have the greatest impact.

1.3 Rationale of the PAMI identification in Tanzania

The rationale for identifying Priority Areas for Multisectoral Interventions (PAMIs) in Tanzania stems from the complex nature of cholera, which is

rest of the country has temperatures usually not falling lower than 200c. The hottest period spreads between November and February (250c -310c) whereas the coldest period is often between May and August (150c- 200c)³.

Tanzania experienced robust economic growth in 2024, this is due report from International Monetary Fund and the Africa Development Bank both forecasted a real growth in gross domestic product (GDP) of over 5% for the year 2024, with projections of an increase in 2025. Still, poverty reduction has progressed more slowly than anticipated (from 26.5% to 26.2% based on the national poverty line); the poverty rate, based on the international poverty line, is projected to decrease from 43.0% in 2024 to 41.7% by 2026. The World Bank projects Tanzania's GDP growth to reach 5.1% in 2023.

The total fertility rate in Tanzania mainland is currently 4.8 children per woman, according to the 2022 Tanzania Demographic and Health Survey (DHS), however this rate varies between urban and rural areas, with rural women having more children on average. 2022 is 5.2. The most recent TDHS-2022 indicate a decline in the Maternal Mortality Ratio (MMR) from 556 deaths per 100,000 live births in 2016 to 104 deaths per 100,000 live births in 2022. The report also shows to have a decline and highlight improvements in factors like antenatal Care (ANC) attendance, reduced teenage pregnancies, and increased facility-based deliveries. The Neonatal Mortality Rate (NMR) was reported as 24 deaths per 1,000 live births in 2021/2022. This signifies that approximately 44,000 to 50,000 neonatal deaths occur annually in Tanzania. infant mortality rate was reported to be 33 per 1000 live births and Under- Five Mortality rate was 43 per 1000 live births. The population is very young, with 55% under age 20 and only 4.7 percent 65 or older. (Tanzania Demographic and Health Survey and Malaria Indicator Survey, 2022). The country is administratively divided into 26 regions and 184 districts, further subdivided into wards and villages.

1.5 Basic Socio-demographic, Socio-economic and Epidemiological Indices

The estimated population for Tanzania in 2024 was around 67.5 million. For the entire country in 2024, the population was projected with 49.57% males and 50.43% females with growth rate projected at 2.87 percent. Urban population growth (annual %) in Tanzania was reported at 4.799% in 2024, indicating continued strong urbanization trends across the country, with significant impact on Mainland regions. The population density estimated around 2024 was approximately 65.2 persons per square kilometre.

Tanzania continues its commitment to host refugees. As of 2024, Tanzania hosted approximately 231,000 refugees and asylum seekers, primarily from Burundi (63%) and the Democratic Republic of Congo (37%). The vast majority of these individuals reside in Nduta (around 57,000) and Nyarugusu (around 133,000) refugee camps in the north-western Kigoma region of Mainland Tanzania.

Life expectancy at birth for Tanzania as a whole in 2024 was 66.67 years. Tanzania's GDP per capita in 2024 was recorded at US\$1,120.77. The World Bank continues to classify Tanzania as a lower-middle-income country. The economy in 2024 is driven by agriculture, mining, construction, financial services, and manufacturing, with a projected real GDP growth of 5.1% in fiscal year 2023/24, expected to increase to 5.4% in 2024/25. Government policies are focused on economic diversification, industrial capacity enhancement, and public investments in infrastructure projects like the Julius Nyerere Hydropower Plant and Standard Gauge Railway.

In terms of healthcare improvements in 2024, significant investments have been made in infrastructure, medical equipment, and personnel training. The number of health facilities increased to 9,826 in 2024, and hospitals with emergency medicine departments surged to 113 in 2024.

Mortality and Fertility rates projections for Tanzania in 2024 was;

- The crude birth rate for Tanzania was 34.85 per 1,000 people
- The crude death rate for Tanzania was 7.61 deaths per 1,000 people
- The total fertility rate for Tanzania was 4.57 births per woman
- The infant mortality rate for Tanzania was 33.02 per 1,000 live births
- The under-five mortality rate for Tanzania for 2023 was reported at 38.9 per 1,000 live births.

1.6 Epidemiological Indices

The epidemiological profile of Tanzania Mainland in 2024 continues to be characterized by both communicable diseases (like malaria, HIV/ AIDS, TB) and a growing burden of non-communicable diseases (NCDs) such as cardiovascular diseases, diabetes, and cancers. Efforts are ongoing to address both categories, with initiatives in 2024 focusing on NCD prevention and control, including policy advocacy and community engagement. Maternal and child health remains a priority, with continued focus on reducing maternal and under-five mortality through expanded Emergency Obstetric and Newborn Care centres and improved service delivery.

1.7 Key Socio-Demographic and Health Indicators

Table 1: A table indicating the key demographic and health indicators of Tanzania as per 2024 projections

Indicator	Data Point
Population (Overall Tanzania Est.)	67.5 million
Male Population (Overall Tanzania Est.)	33.4 million (49.57%)
Female Population (Overall Tanzania Est.)	34.1 million (50.43%)
Population Growth Rate (Overall Tanzania)	2.87%
Urban Population Growth (Annual %)	4.799%
Population Density (Overall Tanzania Est.)	65.2 per Km ²
Number of Refugees Hosted (Mainland)	231,000
Crude Birth Rate (Overall Tanzania)	34.85 per 1,000
Crude Death Rate (Overall Tanzania)	7.61 per 1,000
Total Fertility Rate (Overall Tanzania)	4.57 births per woman
Infant Mortality Rate (Overall Tanzania)	33.02 per 1,000 live births
Life Expectancy at Birth (Overall Tanzania)	66.67 years
GDP per capita (Overall Tanzania)	US\$1,120.77
Real GDP Growth Rate (Fiscal Year 2023/24)	5.1%
Healthcare Facilities (Overall Tanzania)	9,826
Hospitals with Emergency Medicine Dept.	113

1.8 Overview of Cholera outbreaks in Tanzania

The persistent and cyclical nature of cholera in Tanzania, as evidenced through Epidemiological data for Cholera outbreaks from 1977 to 2025, presents a significant public health challenge. The epidemiological data reveals a pattern of major epidemics, such as the ones in 1992, 1997, and 2015-2018, which were marked by tens of thousands of cases and high

mortality rates. The 1997 outbreak alone, recorded a case fatality rate (CFR) of 5.6%. While more recent outbreaks, including those in 2019, 2021, and 2023, have recorded lower case counts but still highlight the continued risk with fluctuating CFRs. The most recent period from 2024 to 2025 shows a significant surge in cases, though with a relatively lower CFR of 1.1%, suggesting improvements in case management and timely response to the outbreaks despite the high disease burden in the country. This long-term trend of recurrent Cholera outbreaks, is often linked to inadequate water, sanitation, and hygiene (WASH) infrastructure and climatic changes.

Ultimately, the repeated occurrence and evolution of these major cholera outbreaks in Tanzania underscore the critical need to identify the Priority Areas for Multisectoral Intervention (PAMIs) for resources allocation to effectively control the disease. (Table 2).

Table 2: Major Cholera Outbreaks Summary in Tanzania (1977-2025)

Years	Cases	Deaths	Cases Fatality Rate (CFR)
1977	1671	135	8.7%
1992	18,526	2173	11.7%
1997	40,226	2,268	5.6%
2006	14,297	254	1.8%
2015-2018	33,319	550	1.7%
2019	408	7	1.7%
2021	82	3	3.6%
2022	356	12	3.4%
2023	1457	32	2.2%
2024-2025	16012	184	1.1%

1.8.1 The longest cholera outbreak in Tanzania from January 2015 to 2018

From August 2015 to December 2018, the country recorded the longest cholera outbreak with a total number of 33,319 cases and 550 deaths (CFR 1.7%). The epidemic affected all the 26 regions and was first reported in Dar es Salaam, the busiest and populous city, stretching to other parts of the regions. All age groups and both males and females were affected including vulnerable populations in informal temporary settlements such

as in mining, fish camps, and casual workers in small-scale and large-scale farms. Cholera cases occurred throughout the three-years with higher numbers reported during the rainy.

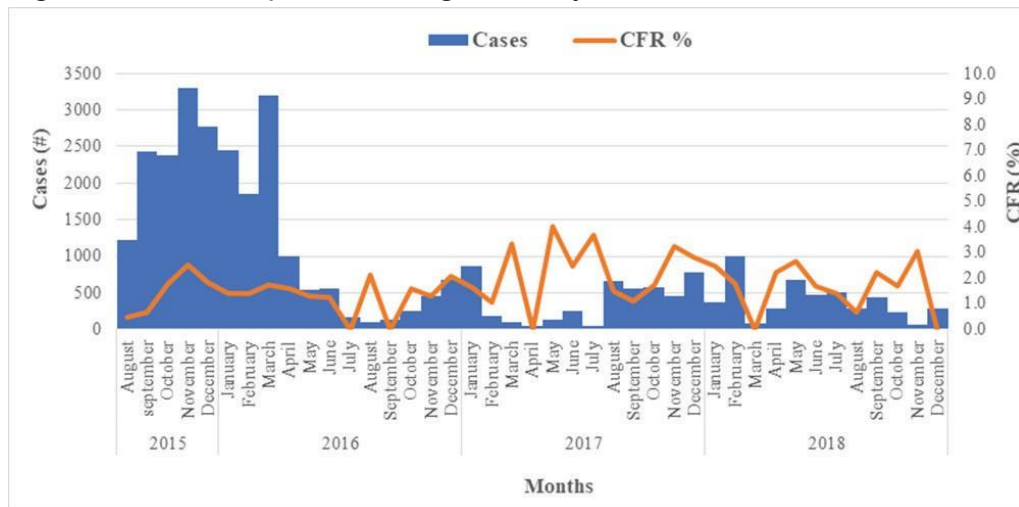


Figure 2: Trend of cholera cases and CFR by months, Tanzania, August 2015 – December 2018

1.8.2 Current cholera outbreak situation in Tanzania from 2024 to June 2025

The epidemiological curve for the cholera outbreak in Tanzania from 2024 to 2025 reveals several key facts about the disease’s dynamics and spread. The outbreak occurred in distinct waves, with the most severe epidemic wave spanning from late July to late December 2024 and peaking dramatically in late October and early November with over 140 daily cases. This pattern suggests a strong seasonal or environmental trigger, as a prolonged period of low outbreak activity from March to July 2024 preceded the major outbreak. Even after the main peak subsided, the disease continued to circulate, with smaller, recurring waves in early and mid-2025, indicating a persistent public health threat rather than a one-off event. While the low number of deaths relative to cases points to effective clinical management, their presence confirms that Cholera is fatal disease.

These epidemiological findings are very crucial to identifying Priority Areas for Multisectoral Interventions (PAMIs) for cholera control. The data not only justifies the prioritization of cholera control by demonstrating the massive scale a single outbreak can reach, but it also provides critical information for intervention strategy. The seasonal pattern indicates that

preventative actions should be timed to begin before the high-risk season, while the recurring nature of the outbreaks underscores the necessity for long-term, Multisectoral approaches that address underlying issues in water, sanitation, and hygiene. Ultimately, these findings allow health authorities to move from a reactive emergency response to a strategic, data-driven approach that can prevent future Cholera outbreaks. (Figure 2)

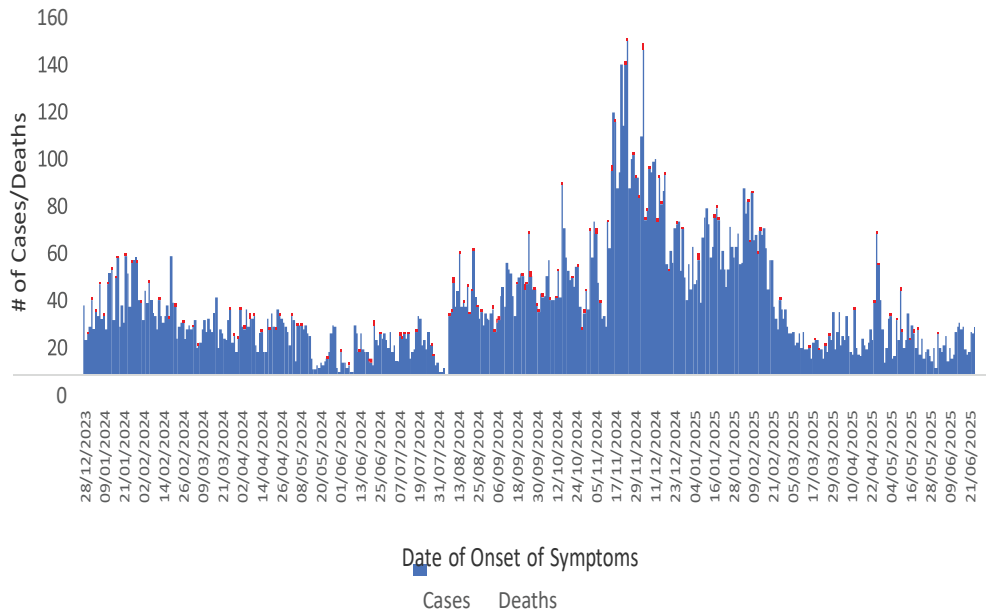


Figure 3: An Epi-curve showing cholera outbreak situation in Tanzania from 2024 to June 2025

The distribution of Cholera Outbreaks in Tanzania for the Year 2024 to June 2025

A map below (Figure 4) indicates that the highest burden of the Cholera outbreak was observed in the Northern and Western regions of the Tanzania. Mara region was the most severely affected, reporting the highest number of cases in the range of 4001-5200. Other regions with high case counts include Kigoma (1001-2000 cases), and a cluster of regions around Lake Victoria, such as Mwanza (801-1000 cases) and Geita (601-800 cases). The concentration of populations in certain geographical areas especially along major water bodies such as Lake Victoria and Lake Tanganyika indicates a strong connection between cholera outbreaks and lakeshore communities, where many people depend on nomadic fishing for their livelihoods.

Moreover, In the eastern and central parts of the country, cases were present but at a lower magnitude. Dar es Salaam, Dodoma, and Morogoro regions were in the 201-400 cases range. The southern regions of Lindi and Mtwara also shown moderate numbers of cases (401-600). The map also identifies several regions with very low or no cases reported, including Arusha, Iringa, Njombe, and Manyara which reported no cases, and Kagera, Simiyu, and Ruvuma, which reported 1-200 cases.

This distribution indicates that Cholera outbreaks is widely distributed in the whole Tanzania and therefore highlights more emphasizes for Identification of Priority Areas for Multisectoral Intervention with an ultimate targeted goal to control Cholera Outbreaks in the Country. (Figure 4).

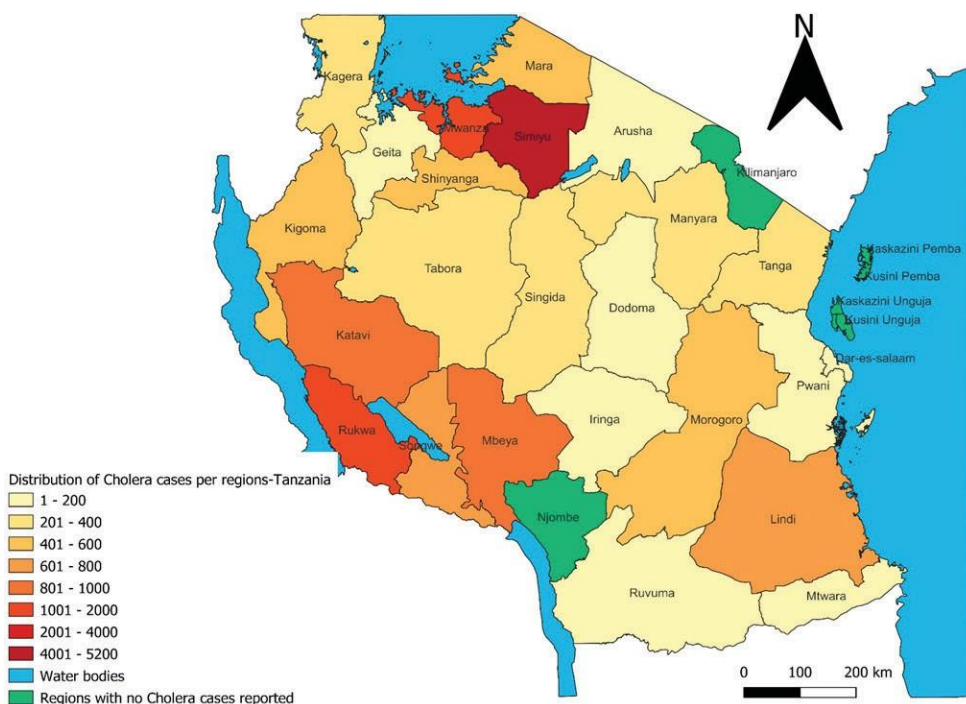


Figure 4: A map of Tanzania showing the distribution of Cholera outbreaks in Tanzania for the year 2024/ 2025

1.8.4 Strategy to control cholera outbreak in Tanzania

Tanzania’s strategy for controlling cholera focuses on strengthening Water, Sanitation, and Hygiene (WASH) systems, enhancing surveillance, ensuring rapid outbreak response, and fostering strong community engagement. Priority actions include expanding access to safe and reliable water sources, promoting Community Led Total Sanitation

(CLTS) to eliminate Open Defecation (OD) and distributing hygiene kits while educating communities on proper handwashing and safe hygiene practices. The intervention focus extends to the conduct of sanitation and hygiene inspections at household and public places, supporting household drinking water treatment options as well as supervising safe burial practices during cholera outbreaks.

The country aims to reinforce cholera surveillance across all health facilities by training health workers and community volunteers to detect, report, and respond to cases quickly, supported by mobile technology for real-time data collection and early warning. Rapid response teams are to be trained and deployed nationwide to conduct case investigations, manage treatment, contain outbreaks, and ensure sufficient supplies, including oral rehydration salts and essential medicines.

Community engagement remains central, involving local leaders, religious institutions, and community-based organizations in culturally sensitive campaigns that promote sustainable behavior change in hygiene and sanitation. Additionally, the strategy underscores the importance of capacity building and multisectoral collaboration, bringing together health, water, sanitation, education, and local government actors through coordinated platforms. Continuous monitoring and evaluation will guide improvements by tracking case trends, reviewing response effectiveness, and integrating community feedback to strengthen accountability and long-term cholera control efforts.

1.9 Cholera Surveillance System

Surveillance serves as a crucial means for outbreak preparedness, timely detection, reporting and confirmation and response to cholera outbreak. It also plays a significant role in monitoring the effectiveness of an outbreak control measure. This section highlights the key surveillance and laboratory activities essential for preparedness and response to cholera outbreaks, ensuring timely detection and guiding diseases response efforts. Cholera surveillance engages all tiers of the healthcare system including preparedness, detection, reporting, and confirming of cholera outbreaks.

In Tanzania, cholera is classified as an immediately notifiable disease. To support preparedness, response, and post-outbreak interventions, the country has developed comprehensive guidelines for cholera surveillance, case management, and laboratory practices. Further, it uses the IDSR

guidelines to identify, report, test and respond to cholera. Training and orientations at all levels (from the Community to National level) have been conducted to ensure capacity among healthcare workers and communities to respond accordingly to signal and outbreaks of cholera. The lowest healthcare units that receive the cases are the health facilities. Further, the eIDSR system has been operationalized to ensure timely reporting of cases both case-based and in the event- based surveillance system.

1.9.1 Case detection

Case detection becomes important before and during the outbreak. Case definition becomes important for use to detect a case of cholera. Cholera case definitions used in different tiers includes;

1.9.2 Alert at Community level

Passing of watery stool in a person 2 years old or above.

1.9.3 Suspected case

In an area where a cholera outbreak has not been declared, any patient aged two years and older presenting with acute watery diarrhoea and severe dehydration and or dying from acute watery diarrhoea. In an area where a cholera outbreak has been declared, any person presenting with or dying from acute watery diarrhoea.

1.9.4 Probable cases

Any person aged 2 years or older with acute watery diarrhea and severe dehydration or death from acute watery diarrhea, occurring in a geographic area where a cholera outbreak is suspected or confirmed.

1.9.5 Confirmed cases

A suspected case with *Vibrio cholerae* O1 or O139 confirmed by culture or Polymerase Chain Reaction (PCR).

1.9.6 Recording and reporting suspected cholera cases to the next level.

In Tanzania, the immediate notification of a suspected cholera case is mandatory. The initial report is sent to the next administrative level using the eIDSR system, and when necessary, other rapid communication methods such as telephone, email, or radio-call are also utilized.

1.9.7 Timeline for Reporting Suspected Cholera Cases

Facility level; A report from the health facility must be submitted through the eIDSR system within 24 hours of case identification, in line with the Integrated Disease Surveillance and Response (IDSR) guidelines. If the system is not functional, the report should be sent by the fastest possible alternative means.

District Level; The district is responsible for notifying the Chief Medical Officer, through the regional level, within six hours. This timeline is a requirement of the Public Health Act of 2009.

1.9.8 Ongoing reporting during an Outbreak

During a declared outbreak, health facilities are required to maintain and submit detailed line lists. At the district, regional, and national levels, Situation Reports (SITREPs) are mandatory. These reports summarize key information including new cases, deaths, bed availability, and ongoing interventions. This reporting is required to continue until the outbreak is officially declared over.

1.9.9 Suspected Cholera Outbreaks information flow in Tanzania

The information flow for cholera outbreaks in Tanzania is a multi-level, integrated system. The process begins at the community level, where cases are reported to the nearest Health Facility. Separately, cases may also be detected at a Port of Entry. Both the Health Facility and the Port of Entry report upward to the district level, which then aggregates the data and reports it to the Region. The Region consolidates information from all its districts and sends a comprehensive report to the Ministry of Health (MoH), the central coordinating body. The MoH, in turn, reports the outbreak to the World Health Organization (WHO), fulfilling its international surveillance obligations and seeking support.

The system is not just a one-way reporting chain, but also includes a crucial downward flow for response and control. The MoH issues policies, directives, and resources to the Region, District, Port of Entry, and Health Facility to ensure a coordinated national response. This guidance is then implemented at each level, reaching back down to the Community to facilitate treatment, prevention, and public health education.

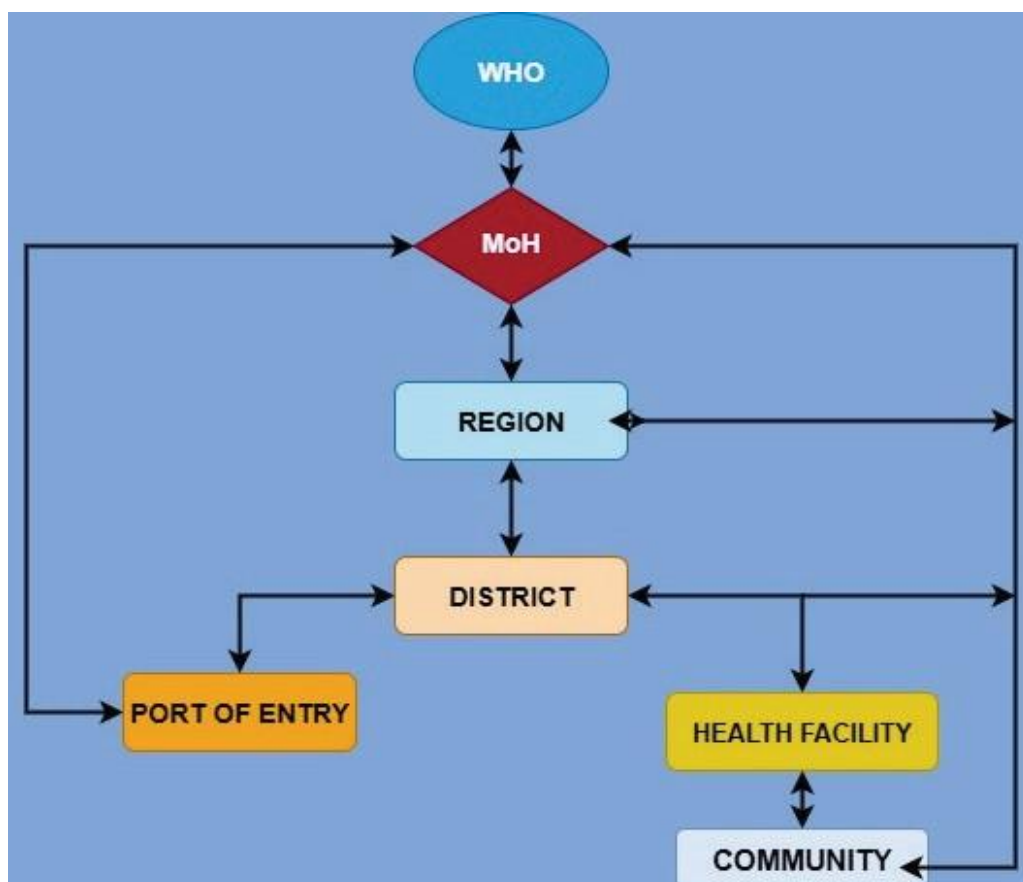


Figure 5: Algorithm for information flow of Suspected Cholera Outbreaks in

1.9.10 Data analysis and feedback

Data is analysed according to person, time and place at all levels to inform interventions. Information products including situation reports and epidemiologic reports are produced on a regular basis. These information products are one way of giving feedback to districts where data is generated.

1.9.11 Response to reported Cholera outbreaks

Districts, Regional and the national level activate the incident management system (IMS) upon the confirmation of an outbreak according to the level of response. The IMS is responsible for guiding the response activities. The response activities are done through pillars to ensure all aspects of the response are addressed.

1.9.12 Cholera testing strategy

Tanzania's cholera testing strategy adapts to the state of an outbreak. During an active outbreak, the primary method for confirming cases is culture testing. However, to quickly identify potential cases, antigen-based rapid diagnostic tests (RDTs) are used for initial screening. Any case that tests positive with an RDT is then sent for a culture test to get a definitive confirmation.

A case is considered confirmed if it is culture-positive. For more in-depth analysis, culture-positive samples are further sent for polymerase chain reaction (PCR) and whole genomic sequencing.

1.9.13 Periodic testing

Outside of outbreaks, however, testing has been poor, and efforts are being made to increase community surveillance of cases with acute watery diarrhea who meet the case definition from the oral rehydration corners that remain as sentinel sites in selected communities.

1.9.14 Testing algorithm for Suspected Cholera cases

i. Suspected Cholera Case and clinical assessment

The process begins with a patient presenting with clinical symptoms of cholera, primarily acute, severe watery diarrhea (often described as "rice-water stool") and signs of dehydration. A healthcare worker makes a clinical assessment to determine if the case is a suspected cholera case, which is the trigger for the testing algorithm.

ii. Stool sample collection

A fresh stool sample or a rectal swab is collected from the suspected patient. The quality and freshness of the sample are critical for accurate results.

iii. Rapid Diagnostic Test (RDT)

The collected stool sample is used to perform a Rapid Diagnostic Test (RDT). This is a crucial step, especially in field settings or during an outbreak, as it provides a quick preliminary result (within 15 minutes). The RDT typically detects antigens specific to the toxigenic *Vibrio cholerae* serogroups O1 and O139.

- a. **Positive RDT Result;** A positive RDT result does not provide a final diagnosis, but it does classify the case as a probable cholera case. This result prompts immediate action, including the initiation of appropriate intervention and the mandatory step of sending a second sample to a laboratory for definitive confirmation.

b. **Negative RDT Result;** A negative RDT result suggests that the illness may not be cholera. In this case, the algorithm advises healthcare providers to consider alternative diagnoses for the patient's symptoms while continuing to monitor their condition. It's important to note that a negative RDT does not completely rule out cholera, but it lowers the suspicion.

iv. Laboratory Confirmation (Culture and Serotyping)

This is the definitive and final step in the algorithm. A sample from a probable case (positive RDT) is sent to a public health laboratory. The lab follows a multi-step process:

a. **Enrichment and Plating;** The sample is cultured on selective media, which encourages the growth of *Vibrio cholerae*.

b. **Identification;** Colonies with the characteristic appearance of *Vibrio cholerae* are then subjected to biochemical tests for identification.

c. **Serotyping;** The identified bacteria are then tested with specific antisera to determine their serogroup (O1 or O139). This is the key step that confirms if the isolate is an epidemic-causing strain.

v. Final Diagnosis of Cholera Cases

The results from the laboratory confirmation lead to the final diagnosis:

a. **Confirmed Cholera Case;** If the culture and serotyping tests are positive for *Vibrio cholerae* O1 or O139, the case is officially a confirmed cholera case.

b. **No *V. cholerae* Isolated;** If the laboratory tests do not isolate the cholera bacterium, the case is considered negative for cholera, and the final report will indicate no *V. cholerae* isolated. All the testing Algorithm for Cholera testing are displayed on the (Figure 5).

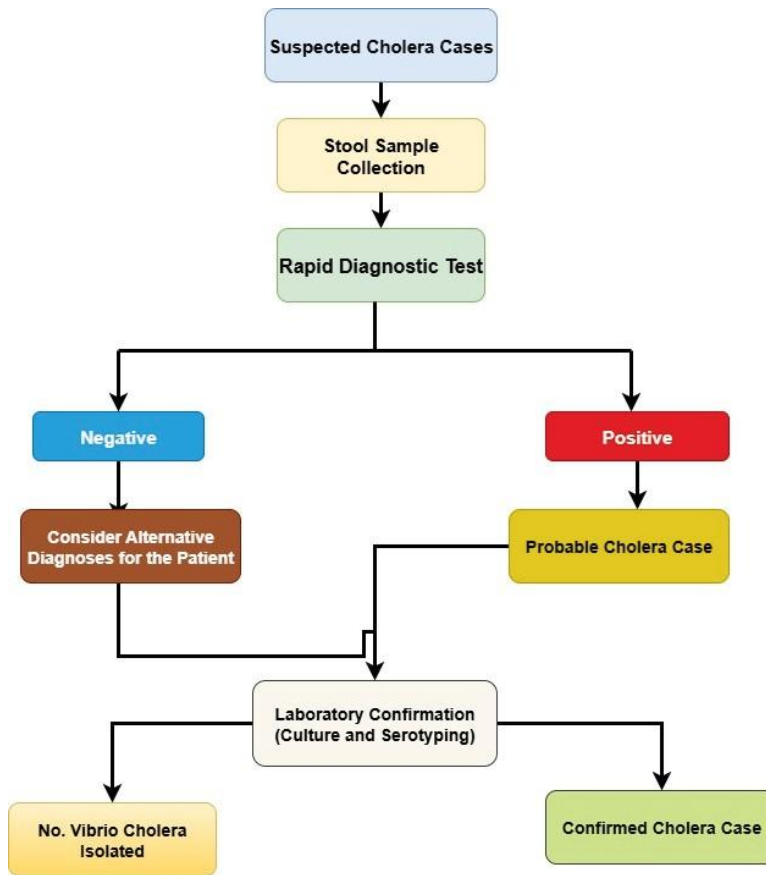


Figure 6: The testing Algorithm of Cholera suspected cases in Tanzania

Chapter 2. OBJECTIVES

2.1 Broad objective of PAMI identification

The broad objective was to identify the priority areas for multi-sectoral interventions serving as a strategic tool for evidence-based decision-making and providing a clear roadmap to guide all efforts toward the effective Cholera control.

2.2 Specific Objective for Identifying PAMI

- i. To identify the geographic units to be used in identifying PAMIs for Cholera Control in Tanzania
- ii. To calculate the priority index for each operational geographic unit and agree on the Priority index threshold value for selecting the initial list of PAMIs
- iii. To develop a roadmap for development/updating the National Multisectorial Cholera Plan
- iv. To draft the PAMI identification report and submit to the GTFCC PAMI review committee for review

Chapter 3: METHODOLOGY

This chapter outlines the specific procedures followed to identify cholera priority areas for multisectoral interventions. It describes the processes involved, including the preparation of relevant datasets, assessment of vulnerability factors, computation and scoring of epidemiological indicators, assessment of the representativeness of testing data, calculation of the overall priority index, and validation by key stakeholders. The section is organized into two main parts: dataset preparation and priority index scoring.

3.1. Datasets

2.1.1 Definition and administrative level of geographic operational unit

The geographical unit selected as operational for the identification of PAMIs for cholera control was administrative level 2 which is district council. Tanzania is administratively divided into regions, districts, wards, and villages (or mitaa in urban areas). Among these, districts are typically considered the most suitable units for operational planning in national programs due to their political authority, administrative capacity, and availability of reliable data. Districts serve as the primary administrative units for decentralized service delivery and governance, making them an appropriate and functional level for the integration of multisectoral interventions. The district councils are administratively managed under the President's Office – Regional Administration and Local Government and are responsible for preparing development and strategic plans that can allow PAMIs to be embedded into existing operational systems, ensuring sustainability and resource alignment.

2.1.2 Duration of analysis period

The identification of PAMIs was based on a retrospective analysis of data spanning five years, from January 2020 to December 2024, encompassing 260 epidemiological weeks in total.

2.1.3 Priority index

Sources of data for epidemiological and testing indicators

The process of identifying PAMIs followed a systematic and collaborative approach involving collaboration between WHO, National, and sub-national surveillance teams. The World Health Organization (WHO) initially disseminated the standardized PAMI assessment tool to national and regional Integrated

Disease Surveillance and Response (IDSR) focal persons. The tool provided clear guidance on the indicators to be used, data requirements, scoring methodology and vulnerability factors. Upon receiving the tool, regional IDSR focal persons cascaded it to all districts within their respective regions. At the district level, IDSR focal persons were responsible for completing the tool, and ensuring that all required fields were properly filled using available cholera surveillance information. The information included estimated population, number of reported cholera cases (suspected, probable, and confirmed), number of reported cholera deaths, number of weeks with at least one reported cholera case, number of cases tested, number of cholera cases tested positive and vulnerability factors. After the completion of the tool, a meeting that involved regional IDSR focal persons was organized aiming to review and validate data from all districts ensuring consistency and completeness before submission to the national level. This collaborative review helped to maintain data quality and foster consensus on the prioritization of districts

Assessment of data quality

Ensuring the quality of data used in identifying PAMIs was a critical component of the entire process. High-quality data is essential for accurately assessing disease burden, identifying risk areas, and informing targeted interventions. As such, the quality assessment process involved cross-verification of reported data across multiple sources. Epidemiological and laboratory data submitted through the PAMI tool by district focal persons were compared with official records from the linelist available at the national level. The review meeting conducted, provided an opportunity for clarification, corrections and assessing whether all required indicators had been properly filled. Data quality check included the following attributes;

- **Completeness:** Ensuring that all mandatory fields and indicators in the tool were filled.
- **Timeliness:** Confirming that the data covered the full reference period (January 2020 to December 2024) without significant gaps.
- **Accuracy:** Verifying the correctness of figures, especially for reported cases, deaths, and laboratory test results.
- **Internal consistency:** Checking that related indicators logically aligned (e.g., number of confirmed cases should not exceed number of suspected cases).

2.1.4 Management of missing data

Handling missing data was a critical component of the PAMI identification process, as any gaps in information had the potential to affect the accuracy and reliability of the priority index outcomes. When instances of missing or inconsistent data were detected, district and regional IDSR focal persons were engaged to offer clarifications or submit explanations. Furthermore, to address data gaps, cholera line list data available at the national level were utilized to supplement and complete missing information.

2.1.5 Vulnerability factors

List of vulnerability factors selected

The selection of vulnerability factors for identifying PAMIs in Tanzania was guided by the country’s specific environmental, social, and infrastructural challenges. Key factors included limited access to safe drinking water, poor sanitation coverage, high population density, and a history of recurrent cholera outbreaks. Additional considerations such as population mobility, flood-prone areas, informal urban settlements, open defecation practices, limited health service accessibility, and non-functional WASH infrastructure further highlight the systemic vulnerabilities that contribute to cholera transmission. These are the factors that were identified as relevant in the country context, as shown in (Table 3).

Table 3: The list of vulnerability factors

Vulnerability factor	Vulnerability factor definition
Location adjacent to cross-border cholera-affected areas or identified PAMIs	District councils with the probability of introduction of cholera cases from neighbouring geographical units in other countries
Location along major travel routes with transportation hubs	District councils with the probability of introduction of cholera cases from geographical units connected along major transportation network.
Areas at high-risk for extreme climate and weather conditions (e.g., heavy rains, floods, droughts)	District councils of which during extreme weather conditions, cholera transmission may increase and the ability of the public health response to control outbreaks may be significantly reduced.

Major population gatherings	District councils with the probability of introduction of cholera in unaffected locations due to major and prolonged population gatherings such as religious gatherings, seasonal agricultural worker camps, etc.
Areas with high population density or overcrowded settings (e.g., urban slums, refugee camps)	District councils with high population density/ overcrowding with inadequate access to water, sanitation, hygiene
Areas with high-risk populations (e.g., seasonal workers/ fishermen/ miners in informal settlements)	District councils with high-risk populations with inadequate access to water, sanitation, hygiene
Hard-to-access populations	District councils of which populations live areas not regularly accessible to health and humanitarian actors for the purpose of sustained health services. Cholera outbreaks in such areas could challenge the capacity of surveillance and public health response.
Areas with more than 30% of the population using unimproved water facility type	District councils with high proportion of the population using unimproved water facility type may increase the vulnerability transmission especially when in conjunction with other vulnerability factors.
Areas with more than 50% of the population using unimproved sanitation facility type	District councils with high proportion of the population using unimproved sanitation facility type may increase the vulnerability transmission especially when in conjunction with other vulnerability factors.
Areas with more than 50% of the population with no handwashing facility on premises	District councils with high proportion of the population without handwashing facilities (no soap and no water at home) may increase the vulnerability transmission especially when in conjunction with other vulnerability factors.

2.1.6 Data sources for vulnerability factors

Data was abstracted from all 184 district councils of Tanzania Mainland using a PAMIs tool for the identification of priority areas for multisectoral interventions for cholera. The tool covered various parameters such as sanitation and hygiene coverage, population gathering, major pathways, bordering cholera affected area, natural calamities, areas with high-risk population, health facility accessibility and population density. However, two vulnerability factors were not included in the PAMIs tool for the following reasons; 1. Population received oral cholera vaccine more than three years ago was not included into PAMIs tool because no vaccination have been used in council with previous Cholera outbreaks in our country. 2. Complex humanitarian emergencies was not included because no humanitarian crisis that has occurred in a country during the analysis period. Sources of information for these vulnerability factors are as shown in the (Table 4).

Table 4: Data sources for different vulnerability factors

Vulnerability factor	Data source
Location adjacent to cross-border cholera-affected areas or identified PAMIs	MoH, WHO, IOM, PORALG
Location along major travel routes with transportation hubs	Ministry of Transport, PORALG
Areas at high-risk for extreme climate and weather conditions (e.g., heavy rains, floods, droughts)	PMO's Office - DMD, Tanzania Meteorological Authority, Council Profile Reports
Major population gatherings	Council Profile Reports
Areas with high population density or overcrowded settings (e.g., urban slums, refugee camps)	National Bureau of Statistics, Council Profile Reports, PORALG
Areas with high-risk populations (e.g., seasonal workers/ fishermen/ miners in informal settlements)	Council Profile Reports
Hard-to-access populations	Council Profile Reports
Areas with more than 30% of the population using unimproved water facility type	Ministry of Water (Water Coverage Report 2024),
Areas with more than 50% of the population using unimproved sanitation facility type	TDHS, Ministry of Health – Environmental Health Department

Areas with more than 50% of the population with no handwashing facility on premises	TDHS, Ministry of Health – Environmental Health Department
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2.1.7 Criteria to identify District Councils for vulnerability assessment

In the process of identifying PAMIs, vulnerability assessments played a key role in refining the selection of districts that may not have met the initial priority index threshold but still presented a high risk of cholera transmission. To ensure a more inclusive and risk-sensitive approach, additional criteria were applied to determine which district councils required further evaluation based on contextual vulnerability factors

The criterion was that, any district council that had a priority index score of 5 but demonstrated the presence of at least 9 out of the total vulnerability factors was considered eligible for inclusion as an additional PAMI. From these criteria, 11 additional district councils were identified and included in the final list of PAMIs. This ensured that the prioritization process not only relied on historical outbreak data but also incorporated structural and environmental risk factors that could increase the likelihood of future outbreaks.

2.1.8 Method for assessing vulnerability factors

The assessment was conducted using a list of vulnerability factors known to influence cholera transmission, such as poor access to safe water, inadequate sanitation, high population density, recurrent flooding, informal settlements, and limited access to health services. Data for each of these factors were filled by the district IDSR focal person and verified from reliable national sources such as the Tanzania Demographic and Health Survey (TDHS), National Bureau of Statistics (NBS), Ministry of Health, Ministry of water, Local Government Authority profiles and other sector-specific databases. Each district was then evaluated for the presence or absence of each vulnerability factor. A binary scoring system (1 for present, 0 for absent) was applied to each factor, and the scores were summed to determine the total number of vulnerability factors present in each district.

2.2 Priority index calculation

The priority index was calculated by summation of the four scores: incidence, mortality, persistence, and cholera test positivity over the 5 years of analysis period.

2.2.1 Justification for the Selected Testing Indicator Based on representativeness

Cholera testing representativeness was assessed using the automated PAMI identification tool. The selected testing indicator for the PAMI prioritization process was weekly testing coverage, defined as the proportion of epidemiological weeks during which at least one sample from suspected cholera cases was tested and results reported. This indicator was chosen because it provides a more stable and representative measure of testing consistency over time, rather than relying solely on total tests or individual case confirmations. By selecting this indicator, it was recognized that there was a consistently reported testing across multiple weeks (84%) hence considered representative and reliable. This has allowed positivity rate to be included in calculation of priority index.

2.2.2 Calculation of epidemiological indicators

Table 5. The definitions and calculation for indicators.

Indicator	Calculation and definition
	<p>Calculation</p> <p>Cholera incidence rate in District Council is calculated by dividing: the total number of cholera cases (including suspected cases and cases tested positive) reported in the unit over five years of the analysis period by The cumulative person-time (i.e., the sum of population of the district council for each year over five years of the analysis period), then multiplied by 100,000</p>
Incidence	<p>Definition</p> <p>This indicator is the number of cholera cases reported per 100,000 person-years over five years of the analysis period.</p>

Mortality	<p>Calculation</p> <p>Cholera mortality rate in a district council is calculated by dividing: the total number of deaths attributed to cholera reported in the district council over five years of the analysis period by The cumulative person-time (i.e., the sum of the annual population over the period), then multiplied by 100,000.</p>
	<p>Definition</p> <p>This indicator is the number of deaths attributed to cholera reported per 100,000 person-years in the district council over five years of the analysis period.</p>
Persistence	<p>Calculation</p> <p>Cholera persistence in district council is calculated by dividing: The number of weeks with at least one reported suspected cholera case over five years of the analysis period by the total number of weeks over five years of the analysis period</p>
	<p>Definition</p> <p>This indicator is the percentage of weeks with at least one reported suspected cholera case in the unit over the period of interest.</p>
	<p>Calculation</p> <p>positivity rate is calculated by dividing: the number of reported suspected cholera cases tested positive for cholera over the analysis period (regardless of the testing method) by the number of reported suspected cholera cases tested for cholera over the analysis period (regardless of the testing method).</p> <p>Definition</p> <p>This indicator is the cholera positivity rate in the unit over the analysis period</p>

2.2.3 Scoring of epidemiologic indicators

The scoring of epidemiologic indicators for each District Council was done in the PAMI identification tool. A score ranging from zero to three points was attributed to each Districts Councils for each epidemiologic indicator. (Table 6).

Table 6: Scoring of epidemiological indicators for each District council

Epidemiological Indicators	Score			
	0 Point	1 Point	2 Points	3 Points
Incidence	No case	> 0 and < median	≥ median and < 80th percentile	≥ 80th percentile
Mortality	No death	> 0 and < median	≥ median and < 80th percentile	≥ 80th percentile
Persistence	No case	> 0 and < median	≥ median and < 80th percentile	≥ 80th percentile
Positivity rate	0	≤ 10%	> 10% and ≤ 30%	> 30%

2.2.4 Calculation of priority index

The Priority Index was calculated as a composite score derived from four key cholera-related indicators: incidence, mortality, persistence, and cholera test positivity. Each of these indicators was scored on a standardized scale from 0 to 3, reflecting the severity or intensity of cholera burden in a given district. The total possible score across the four indicators was 12 points. These steps for calculation were followed;

- Assign Scores to Indicators- Each district was assessed for the following:
 - Incidence Rate: Number of cholera cases per 100,000 population.
 - Mortality (CFR): Case Fatality Rate over the past five years.
 - Persistence: Number of years cholera was reported during the 2020–2024 period.

- Test Positivity: Proportion of suspected cases that were laboratory-confirmed.

Each indicator was scored independently based on predefined thresholds as shown previous scoring table.

Summation of Scores- The scores for all four indicators were summed to generate a cumulative priority index score for each district

2.2.5 Priority index threshold

Stakeholders selected the value of the priority index threshold through consensus based on public health impact and the feasibility of implementing the interventions. After a considerable period of in-depth discussions and reflections, the team reached a consensus and selected six (6) as the **priority index threshold**. All District councils that had a priority index score ≥ 6 were selected to form the initial list of PAMIs.

2.2.6 Selection of PAMIs

2.2.6.1 Initial list of PAMIs

The selection initial PAMIs was based on the value of priority index threshold. The priority index value of six (6) was selected as a threshold so that all district councils with priority index of 6 and above were included in the priority areas for multi-sectoral interventions.

2.2.6.2. Additional PAMIs

Vulnerability factors were used to identify the additional PAMIs. These additional PAMI had the priority index value of below 6. A district council with a Priority index of 5 with at least 9 vulnerability factors was chosen as an additional PAMI.

3.0 Stakeholder validation

The stakeholder validation process played a crucial role in ensuring the accuracy, transparency, and ownership of the identified Priority Areas for Multisectoral Interventions (PAMIs). An in-person stakeholder validation meeting was conducted in Four Points by Sheraton Hotel- Dar es Salaam region from 7th to 13th July, 2025. The validation meeting organized by the Ministry of Health, in collaboration with WHO brought together partners, national, regional, and district- level stakeholders. Facilitators presented the methods and findings from the PAMI identification exercise, followed by group sessions where stakeholders were divided into smaller groups to review and discuss the process and findings in detail. During these sessions, the preliminary results were presented, and stakeholders were given the opportunity to review the data, verify local context, raise concerns, and suggest adjustments based on their ground-level experience. During these discussions, stakeholders noted inconsistencies—such as locations known to be cholera hotspots that nonetheless scored below the priority threshold—and recommended revisiting certain vulnerability indicators. This collaborative process enabled appropriate adjustments, refinement, and consensus on the Priority Index threshold for selecting the initial PAMIs, guided by a balance between the feasibility of implementing multisectoral interventions and public health impact. In addition, stakeholders deliberated and agreed on criteria for including councils that were not on the initial list but exhibited vulnerabilities associated with an increased risk of cholera transmission. A vulnerability index threshold was established, resulting in the selection of 11 additional councils as PAMIs. This process was essential, as it fostered ownership of the exercise and secured buy-in from all stakeholders. The list of Stakeholders participated in the validation (Annex 1) and list of stakeholders involved is shown in the table below;

Table 7: List of Stakeholders represented during PAMIs validation process

No.	STAKEHOLDERS
1	President Office-Regional Administration and Local Government Authority
2	Prime Minister's Office
3	Ministry of Health
4	Ministry of Water

5	World Health Organization
6	US CDC
7	UNICEF
8	CIHEB-TANZANIA
9	MSF

Chapter 3: RESULTS

3.1 Priority index

3.1.1 Data overview

A total of 184 District Council representing 100% of geographical units in Tanzania Mainland, were included in the analysis where 96 out of 184 councils (52.2%) had recorded at least one cholera case. A cumulative 14,143 suspected cases were recorded and 4,182 were tested, among which 2,887(69%) tested positive. (Table 8).

Table 8: An overview of data used for calculating the priority index for PAMIs identification in the Tanzania Mainland

Data description *	
Number of District Council operational geographic units	184
Study period: start year	2020
Study period: end of the year	2024
Study period: number of years	5
Number of District Councils operational geographic units with at least one case	96
Total number of cases	14,143
Total number of deaths	181
Overall case fatality	1.3%
Total number of suspect cases tested **	4,182
Total number of suspect cases that tested positive **	2,887
Overall positivity rate **	69.0%

Key

*The totals are calculated for the entire set of Districts councils over the study period

** Regardless of the testing method applied

3.1.2 Epidemiologic indicators score thresholds

Among the epidemiological indicator score thresholds, incidence had the highest median (3.41) over the analysis period. (Table 9).

Table 9: Epidemiological indicators score threshold.

Epidemiological indicator scores thresholds		
Incidence (100,000 pers. y-1) *	Median	3.41
	80th percentile	9.88
Mortality (100,000 pers. y-1) *	Median	0.17
	80th percentile	0.27
Persistence (% of weeks with \geq one case) *	Median	1.5
	80th percentile	5.3

Key

* Calculated out of geographic units with indicator value >0

3.1.3 Assessment of the representativeness of testing

A total of 81 District councils had the weekly testing coverage of equal to or greater than 50%. Moreover, it was revealed that 84.4% of District council had the weekly testing coverage of greater than 50%. Hence, the level of representativeness of testing was acceptable, (Table 10).

Table 10: Assessment of representativeness of cholera testing *

Step 1	No./ Rate/ %
Number of District Councils operational geographic units with weekly testing coverage \geq 50%	81
Percentage of District council operational geographic units (with at least one case) with testing coverage \geq 50%	84.4%
Is weekly testing coverage \geq 50% in at least 80% of the District Councils operational geographic units of the country?	Yes
Level of representativeness of testing	Acceptable
Inclusion of positivity rate score into the priority index	Yes, positivity rate score is included in the priority index
Step 2	No/Rate/%
Number of District Council operational geographic units with weekly testing coverage $>$ 0%	NA
Percentage of District Council operational geographic units with testing coverage $>$ 0%	NA

Is the weekly testing coverage > 0 in at least 80% of the District Council operational geographic units of the country?	NA
Level of representativeness of testing	NA
Inclusion of the num. of years with case(s) tested positive score into the priority index	NA

Key;

NA: Not applicable

* Regardless of the testing method applied

3.1.4 Priority index scores

A total of 71 District councils had a priority index ranging from 6 – 12 while 25 District councils had a priority index ranging from 2 – 5 and 88 District councils had a priority index of zero.

Over 26 million people in priority index ranging from 6 – 12 followed by 10 million people in priority index, ranging from 2 – 5 and 22 million people are in the priority index of zero.

District Councils with the highest priority index value (12) had the highest number of cholera cases over the analysis period, with 5,177 (36.6%) cases, while the District Councils with the lowest priority index score had reported no deaths during the analysis period.

The distribution of deaths also showed an increasing trend in the number of deaths with increasing priority index value. District Councils with the highest priority index value (12), had 29.3% of the total number of deaths recorded over the reporting period.

Priority index of 10 had the highest positivity rate of 81.5% followed by priority index 12 with 79.3%. Priority index 11 had a positivity rate of 75.2%. (Table 10).

Table 11: Summary table of key parameters stratified by priority index values

Summary table of key parameters stratified by priority index values

										Assessment of representativeness of cholera testing				
										Level of representativeness of testing		Acceptable		
										Testing indicator score included into the priority index		Positivity rate		
Priority index values	Number of geographic units	Cum. number of geographic units	Rel. % of num. of geographic units	Total population	Rel. % of population	Cum. % of population	Num. of cases	Rel. % of num. of cases	Cum. % of cases	Num. of deaths	Rel. % of num. of deaths	Cum. % of deaths	Average of positivity rate	Mean of number of years
12	6	6	3.3%	2108954	3.5%	3.5%	5177	36.6%	36.6%	53	29.3%	29.3%	79.3	1.8
11	3	9	1.6%	1053888	1.8%	5.3%	1225	8.7%	45.3%	17	9.4%	38.7%	75.2	1.3
10	6	15	3.3%	2860909	4.8%	10.0%	1899	13.4%	58.7%	21	11.6%	50.3%	81.5	1.7
9	12	27	6.5%	3609367	6.0%	16.1%	2078	14.7%	73.4%	22	12.2%	62.4%	68.7	1.3
8	14	41	7.6%	4832025	8.1%	24.1%	1305	9.2%	82.6%	36	19.9%	82.3%	61.2	1.3
7	10	51	5.4%	3247303	5.4%	29.5%	982	6.9%	89.6%	10	5.5%	87.8%	63.9	1.1
6	20	71	10.9%	9203974	15.3%	44.9%	945	6.7%	96.2%	14	7.7%	95.6%	69.0	1.3
5	23	94	12.5%	10061604	16.8%	61.6%	518	3.7%	99.9%	8	4.4%	100.0%	74.5	1.3
4	1	95	0.5%	287495	0.5%	62.1%	11	0.1%	100.0%	0	0.0%	100.0%	18.2	1.0
2	1	96	0.5%	169838	0.3%	62.4%	1	0.0%	100.0%	0	0.0%	100.0%	0.0	1.0
0	88	184	47.8%	22569144	37.6%	100.0%	2	0.0%	100.0%	0	0.0%	100.0%	1.1	NA
Grand Total	184		100.0%	60004503	100.0%		14143	100.0%		181	100.0%		36.54	1.3

3.2 Stakeholder validation

3.2.2 Initial list of PAMIs

A total of 71 councils with a priority index score of ≥ 6 was selected, forming the initial list of PAMIs. These councils accounted for 38.6% of all district councils and encompassed a population of 26,916,420 people (44.9% of the national total). Collectively, they represented 13,611 cholera cases (96.2% of all cases) and 173 deaths (95.6% of all deaths) recorded during the analysis period. (Table 12).

Table 12: Number of geographical units selected as initial PAMIs and associated population, number of cases and deaths

Indicators	N (%)
Districts Councils operational geographic units selected as initial PAMIs	71
Population and percentage of population living in these units	26,916,420 (44.9%)
numbers and percentages of cholera cases and cholera deaths reported in these units over the analysis period	13,611(96.2%)
numbers and percentages of cholera deaths reported in these units over the analysis period	173(95.6%)

Table 13: Initial list of PAMIs

Region	Council	Priority Index
Arusha	Arusha DC	9
	Arusha CC	8
	Karatu DC	8
Dar es Salaam	Ilala	6
	Temeke	6
Dodoma	Bahi DC	6
	Kondoa DC	6
Geita	Geita MC	6

Kagera	Muleba DC	10
	Missenyi DC	8
	Bukoba DC	6
	Bukoba MC	6
Katavi	Tanganyika DC	12
	Mpimbwe DC	9
Kigoma	Kigoma MC	12
	Kigoma DC	12
	Kasulu DC	8
	Uvinza DC	7
Kilimanjaro	Moshi MC	8
Lindi	Kilwa DC	12
	Lindi MC	7
	Ruangwa DC	6
Manyara	Babati Tc	7
	Hanang' Dc	7
	Babati Dc	6
	Kiteto Dc	6
Mara	Musoma MC	9
	Butiama DC	9
	Tarime TC	9
	Rorya DC	8
	Musoma DC	8
	Tarime DC	6
Mbeya	Chunya DC	9
	Mbeya CC	7
Morogoro	Morogoro DC	11
	Gairo DC	9
	Malinyi DC	7
	Morogoro MC	7
	Ifakara TC	6
Mtwara	Masasi DC	6

Mwanza	Kwimba DC	10
	Ilemela MC	9
	Magu DC	9
	Mwanza City	8
	Ukerewe DC	7
	Misungwi DC	6
	Sengerema DC	6
Pwani	Rufiji DC	8
	Mkuranga DC	6
Rukwa	Sumbawanga DC	10
	Nkasi DC	9
	Kalambo DC	6
Ruvuma	Nyasa DC	8
Shinyanga	Kishapu DC	10
	Kahama MC	8
	Shinyanga MC	6
Simiyu	Itilima	12
	Meatu	12
	Bariadi DC	11
	Bariadi TC	10
	Maswa	10
	Busega	7
Singida	Singida DC	8
	Ikungi DC	8
	Manyoni DC	8
Songwe	Momba DC	11
	Songwe DC	9
	Ileje DC	7
	Mbozi DC	6
Tanga	Mkinga DC	9
	Kilindi DC	6

Note: Priority index value threshold was set at 6.

Table 14: List of Additional PAMIs Based on Vulnerability Factors

Region	Council	Priority index	Vulnerability factors	Additional reasons for inclusion
Singida	Iramba DC	5	9	<p>Presence of rivers like Ndurumo, Kisukwani, Mpura in the district of Iramba and the Sibiti river along Meatu DC, which had a prolonged cholera outbreak in 2024/2025, and that borders Iramba DC</p> <p>Fishing activities at Doromani dam are characterized by temporary settlements</p> <p>Small-scale mining activities at Shelui and Konkilangi areas</p> <p>Only 29.57% of households have basic hand-washing facilities with soap and water available</p> <p>Located along major travel routes (to Rwanda, Burundi, DRC, South Sudan, Uganda, Kahama, Mwanza) with transportation hubs like Misigiri and Shelui centres</p> <p>Presence of major plantations like sunflower and groundnuts attracting movements of people in and out of the district</p>

Mwanza	Buchosa DC	5	9	<p>Major fishing activities characterized by temporary settlements</p> <p>Presence of Islands in Lake Victoria, like Kome and Maisome</p> <p>About 39.9% of people lack access to a clean and safe water supply</p> <p>Presence of major plantations like maize, cassava, rice, and pineapples, encouraging regular movement of people across the district</p> <p>Hard to access the population in the islands within the district</p>
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Tabora	Igunga DC	5	9	<p>Presence of major plantations like rice, sunflower, mung beans, lentils, and cotton, encouraging regular movement of people across the district</p> <p>History of repeated cholera outbreaks, including in 2023, 2024, and 2025</p> <p>Located along major travel routes (to Rwanda, Burundi, DRC, South Sudan, Uganda, Kahama, Mwanza) with transportation hubs like Igunga Centre</p> <p>Regular floods across the district during the rainy season</p> <p>Only 30.47% of households have basic handwashing facilities with soap and water available</p> <p>Small-scale mining activities in the villages of Bulangamilwa, Imalilo, Igurubi, Matinje, Ntobo, and Buchengele</p>
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Ruvuma	Tunduru DC	5	10	<p>Nomadic pastoralism- there is a persistent influx of Masai and Sukuma Pastoralists, characterized by poor water and sanitation coverage About 34.3% of people lack access to a clean and safe water supply Repeated cholera outbreak in a short time, 2024 2025, with under-reporting and delayed detection</p> <p>Mining – Sapphire mining at the Muhuhesi area has a significant influx of population accompanied by poor sanitation, inadequate water supply (depending on the river as a primary water source), and insufficient waste management</p> <p>Located at the border with Mozambique- a nearby area prone to cholera outbreaks</p>
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Mbeya	Mbeya DC	5	<p data-bbox="817 154 1170 262">It is a major travel route with major bus/truck stations at Mbalizi.</p> <p data-bbox="817 272 1184 458">There is are movement of people to and from the rest of the country, including international travel (Zambia and DRC)</p> <p data-bbox="817 468 1177 687">It is a Squatter with inadequate WASH facilities Poor sanitation coverage (42.4% latrine coverage) for the district -NS-MIS-2024</p> <p data-bbox="817 696 1163 991">Gold mining activities nearby Chunya DC with poor sanitation facilities Coal mining activities nearby Ileje DC with camps using water from Songwe River, which is contaminated</p> <p data-bbox="817 1001 1163 1188">Repeated cholera outbreak in a short time, 2024- 2025, with under-reporting and delayed detection</p>
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Manyara	Simanjiro DC	5	10	<p>Mining activities- Massive with a total of 360 mining blocks (including the big Tanzanite companies at Mirerani). Other minerals include Graphite and Ruby. Communities around have overcrowded and face relative water shortage and poor sanitation.</p> <p>Presence of Themis River flowing from Arusha DC/CC to Simanjiro DC</p> <p>Presence of Ruvu river across Same and Simanjiro</p> <p>Fishing activities at Nyumba ya Mungu dam, with characteristic poor toilet coverage</p> <p>Suboptimal sanitation</p> <p>Water access/service by 47.9%-</p> <p>Basic sanitation facilities (52.1%), leading to open defecation- NSMIS-2024</p> <p>The area has historically been prone to cholera outbreaks, driven by inadequate water and sanitation facilities</p>
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Morogoro	Kilosa DC	5	10	<p>Prone to flooding due to Mkondoa river at town center major source of frequent floods and Ruaha river (near Mpwapwa and Kilolo) leaving the area in poor sanitation due to destruction of sanitary facilities</p> <p>Open defecation due to seasonal movement of pastoralists in search of pasture and water</p> <p>Major population gathering through agricultural crops marketing and livestock marketing</p> <p>Two major roads to Zambia and Dodoma with major truck hubs at Mikumi and Dumila towns in area with inadequate clean and safe water and sanitation facilities</p> <p>Inadequate sanitation and hygiene due to overcrowding resulting from the presence of big sugar cane plantations and sugar factories</p> <p>Illegal mining activities with inadequate sanitation facilities</p> <p>73.6% of the population has no hand washing facility on premises</p>
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Morogoro	Mvomero DC	5	10	<p>Prone to flooding due to Wami and Ruvu river a major source of frequent floods leaving the area in poor sanitation due to destruction of sanitary and safe water supply facilities</p> <p>Open defecation due to seasonal movement of pastoralists in search of pasture and water</p> <p>Major population gathering through agricultural crops and livestock marketing</p> <p>Inadequate sanitation and hygiene due to overcrowding resulting from the presence of big sugar cane and rice plantations</p> <p>73.5% of the population has no hand washing facility on premises</p>
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Dodoma	Mpwapwa DC	5	9	<p>Agricultural activities along Ruaha River with inadequate sanitation and safe water supply (not access clean and safe water)</p> <p>Presence of high – risk population due to mining activities in informal settlements with adequate WASH in year</p> <p>Repeated outbreak of cholera in year 2024 and 2025</p> <p>Overcrowded area (fishers from Ruvuma and Iringa Regions) with inadequate sanitation and safe water supply due to fishing activities along Mtera Dam</p> <p>52.2% of the population has no hand washing facility on premises</p>
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Dar es Salaam	Kigamboni MC	5	9	<p>Overcrowded settlement with population density of 584.3/km² and numerous fishing camps located at Tungi, Vijibweni, Mjimwema and Kigamboni wards.</p> <p>The areas have inadequate access to clean and safe water supply and the main source of water for domestic use are shallow wells and boreholes.</p> <p>Communities have inadequate sanitation (14.0% shared latrines and 15.0% hand washing facilities and hygiene practices). NSMIS 2025 High water table that causes pit latrines and septic tanks to fill up rapidly or even overflow, especially during heavy rainfall</p> <p>The area is very proximal (<1KM) to the biggest country fish market (Ferry market) where traders within and outside of the country continuously converge for fishing business</p>
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Pwani	Mafia DC	5	9	<p>An Isolated Island which is hard to reach as the only means of transport is water and air.</p> <p>The areas have inadequate access to clean and safe water supply and the main source of water for domestic use are shallow wells and boreholes.</p> <p>Inadequate sanitation hand washing facilities and hygiene practices (15% share latrines and 60% hand washing facilities)</p> <p>It consists high-risk populations (fishermen and fish traders) with numerous fishing camps surrounding the island</p> <p>High water table that causes pit latrines and septic tanks to fill up rapidly or even overflow, especially during heavy rainfall.</p> <p>Mafia is close proximity with Comoro were in May 2024 10142 cholera cases reported and 147 deaths in Ngazidja and Anjouan)</p>
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3.2.4 Final list of PAMIs

A total 82 District councils were identified in the final list of PAMIs (both initial 71 PAMIs with priority index greater than and equal to 6, and the additional 11 PAMIs with extenuating vulnerability factors. (Table 14).

Table 15: Final list of PAMIs identified Tanzania Mainland

Region	Council	Priority Index
Arusha	Arusha DC	9
	Arusha CC	8
	Karatu DC	8
Dar es Salaam	Ilala CC	6
	Temeke MC	6
	Kigamboni MC*	5
Dodoma	Bahi DC	6
	Kondoa DC	6
	Mpwapwa DC*	5
Geita	Geita MC	6
Kagera	Muleba DC	10
	Missenyi DC	8
	Bukoba DC	6
	Bukoba MC	6
Katavi	Tanganyika DC	12
	Mpimbwe DC	9
Kigoma	Kigoma MC	12
	Kigoma DC	12
	Kasulu DC	8
	Uvinza DC	7
Kilimanjaro	Moshi MC	8
Lindi	Kilwa DC	12
	Lindi MC	7
	Ruangwa DC	6

Manyara	Babati TC	7
	Hanang' DC	7
	Babati DC	6
	Kiteto DC	6
	Simanjiro DC*	5
Mara	Musoma MC	9
	Butiama DC	9
	Tarime TC	9
	Rorya DC	8
	Musoma DC	8
	Tarime DC	6
Mbeya	Chunya DC	9
	Mbeya CC	7
	Mbeya DC*	5
Morogoro	Morogoro DC	11
	Gairo DC	9
	Malinyi DC	7
	Morogoro MC	7
	Ifakara TC	6
	Kilosa DC*	5
	Mvomero DC*	5
Mtwara	Masasi DC	6
Mwanza	Kwimba DC	10
	Ilemela MC	9
	Magu DC	9
	Mwanza CC	8
	Ukerewe DC	7
	Misungwi DC	6
	Sengerema DC	6
	Buchosa DC*	5
Pwani	Rufiji DC	8
	Mkuranga DC	6
	Sumbawanga DC	10
	Nkasi DC	9
	Kalambo DC	6

Ruvuma	Nyasa DC	8
	Tunduru DC*	5
Shinyanga	Kishapu DC	10
	Kahama MC	8
	Shinyanga MC	6
Simiyu	Itilima DC	12
	Meatu DC	12
	Bariadi DC	11
	Bariadi TC	10
	Maswa DC	10
	Busega DC	7
Singida	Singida DC	8
	Ikungi DC	8
	Manyoni DC	8
	Iramba DC*	5
Songwe	Momba DC	11
	Songwe DC	9
	Ileje DC	7
	Mbozi DC	6
Tanga	Mkinga DC	9
	Kilindi DC	6
Tabora	Igunga DC*	5
Key; *Additional PAMIs		

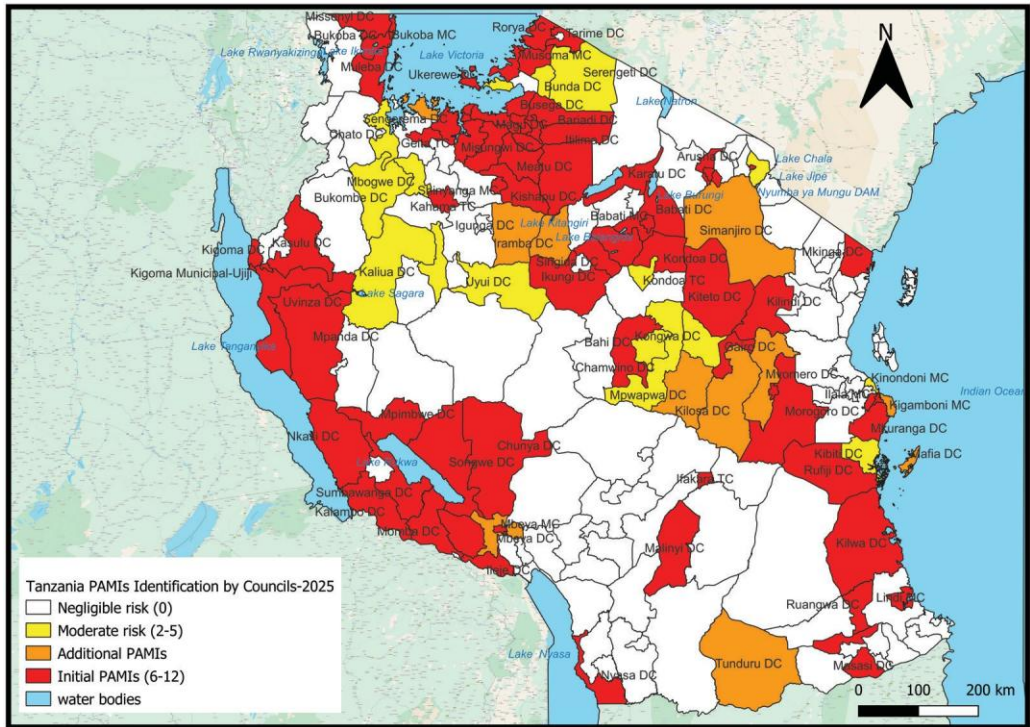


Figure 8: Map of Tanzania showing the District Councils by priority index value and vulnerability factors for final PAMIs-2025

Chapter 4: CONCLUSIONS, AND RECOMMENDATIONS

4.1 Conclusion

The identified 82 District councils as priority areas for Multisectoral interventions underscore an urgent need for a reinforcement cholera control strategy in Tanzania. The targeted populations in the initial and additional Priority Action and Multi-sectoral Intervention areas (PAMIs), which represents approximately 52% of the national population (≈ 31 million), was assessed through burden-based prioritization, institutional readiness, and implementation capacity considerations. The large cumulative population coverage reflects the concentration of WASH-issues and other vulnerability burdens predisposing these areas to experiences recurrent cholera outbreaks rather than an intention to deliver uniform interventions to all individuals simultaneously.

Tanzania is committed to implementing multisectoral interventions across **all identified Priority Action and Multi-sectoral Intervention Areas (PAMIs)**; however, the specific package of interventions will be tailored to the needs, readiness, and capacity of each area rather than applied uniformly. To ensure effective and sustainable implementation, the Government will leverage its decentralized governance structures, empowering regional and council-level authorities to plan, coordinate, and deliver context-appropriate interventions.

The initial and additional PAMIs collectively cover approximately **52% of the national population (≈ 31 million people)**. This coverage reflects a burden-based prioritization that targets areas with the highest concentration of WASH deficiencies and socioeconomic vulnerabilities that predispose communities to recurrent cholera outbreaks — not an intention to deliver identical or simultaneous interventions to all individuals at once. PAMIs were selected to align geographic need with population density, thereby maximizing public health impact.

Within these areas, interventions will be directed at specific high-risk groups and delivered through **existing multisectoral platforms** — including health, WASH, education, economic, and social protection systems — capitalizing on established delivery mechanisms to enhance operational feasibility. Feasibility has been further assessed against governance and coordination capacity at decentralized levels, where multisectoral coordination structures are already in place or can be strengthened.

Financially, implementation is supported through full alignment with ongoing sectoral programmes and the council **own-source budgets**, that will use

PAMIs to plan and allocate resources efficiently for effective implementation of multisectoral interventions. This approach ensures that, despite the large population coverage, multisectoral interventions remain **realistic, manageable, and feasible** within Tanzania's national implementation framework. By strategically targeting resources through decentralized, context-sensitive, and multisectoral action, Tanzania advances its goal of sustainably controlling — and ultimately eliminating — cholera, while protecting its most vulnerable communities.

4.2 Limitations to the findings of the PAMI report

The cholera outbreak is still ongoing, particularly from January 2025 to the present in the country. Some councils that had not previously reported cases are now reporting more cholera cases than in the past. However, the data from this 2025 period was not included in this assessment.

4.3 Recommendations

- i. To review the Multisectoral Cholera prevention and control plan 2023-2027 to align with PAMI's result.
- ii. The PAMIs needs to be disseminated to all stakeholders for use when planning Cholera control interventions in Tanzania.
- iii. The PAMIS should be reviewed periodically as new vulnerability data emerge or existing data changes
- iv. Capacity building on cholera PAMIs to subnational levels

Annex 1: List of Stakeholder participated in the validation.

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