IDI CDC WASH Project in Amuru District

Handover Report

Strengthening Partnerships for Preparedness and Response in Uganda Project

OCT 2020 - SEPT 2023

TABLE OF **CONTENT**

Acronyms

CDC	Centers for Disease Control and Prevention
FGD	Focus Group Discussion
HCWs	Health care workers
IDI	Infectious Diseases Institute
IPC	Infection Prevention and Control
KII	Key Informant interview
POE	Point of Entry
PopCAB	Population Connectivity Across borders
ABHR	Alcohol Based Hand Rub
MGHWS	Management Guidelines for Hand Washing Stations
MOH	Ministry of Health

Message from Program Manager

Practicing appropriate hand hygiene (HH) through handwashing with soap and water or using alcohol-based hand rub (ABHR) is a key prevention measure recommended to reduce the disease burden worldwide. Hand hygiene adherence (HHA) among healthcare workers (HCWs) is particularly important to reduce disease transmission in healthcare settings.

Health facilities in low and middle-income countries (LMICs) often lack the necessary funds to purchase commercial Alcohol Based Hand Rub (ABHR) and local production may be a more economical option. The WHO developed a protocol for local production of ABHR to guide the production procedure within health facilities.

The Infectious Diseases Institute (IDI) received funding from the Centres for Diseases Control and Prevention (CDC) under the Strengthening Partnerships for Preparedness and Response project to scale up handwashing and Alcohol Based Hand-Rub (ABHR) use in priority health facilities in six districts in Uganda (Kabarole, Kasese, Amuru, Tororo, Moroto and Kotido). This included setting up ABHR production units, training producers, and establishing distribution structures as well as hand hygiene mentorship and impact evaluation.

This report provides an account of project activities in Amuru district from inception in 2021 to September 2023. We extend our sincere thanks to the Ministry of Health Environmental Department (EHD) for the project above-site oversight and continuous technical support throughout the implementation. Special thanks to the Amuru District Local Government for leading the implementation through the office of the District Health Officer, all in charge of supported health facilities and community locations as well as the producers and quality assurance team for ABHR in the district.

Finally, as a project, we thank the IDI project staff who have provided technical support in the implementation of the project especially Mr. Francis Ocitti, who successfully coordinated the district-level activities throughout the implementation period with enthusiasm and diligence.

As we hand over the project to the district, we are confident that the capacity that has been built, complimented by the structures and supportive environment, the project will continue to thrive, and IDI will continue to provide technical assistance whenever there is a need.
Thank you.

Judith Nanyondo S
Senior Project Manager
Strengthening Partnerships for Preparedness and Response in Uganda Project

Supporting Staff

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IDI CDC
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Executive Summary

Background:

The CDC WASH project to locally produce Alcohol Based Hand Sanitizer (ABHS) was established in Amuru district Uganda in March 2021 in the midst of COVID-19 outbreak. There is continues production and distribution of ABHR for routine and emergency situations for Amuru and other districts in Uganda. Other activities includes response to disease outbreaks such as COVID-19 and Crimean Congo Haemorrhagic Fever (CCHF) outbreak, water quality testing, pilot of management guidelines for hand washing situations.

Methods:

Amuru district health staff were trained on local ABHR production and ABHR supplies were provided. Three rounds of hand hygiene assessment were conducted using Kobocollect tool and hard copy for hand hygiene observations in 8 HCFs and 28 community locations. All responses to outbreaks were timely and in partnership with MOH and other partners.

Water sources for risk assessment and sample collection were purposely selected based on the areas which floods most. A total of 18 water samples (2 households and 16 water sources) were collected and referred to Uganda National Water Quality Reference Laboratory for water quality testing. Assessment and collecting end user feedback on management guidelines for hand washing stations were conducted using using Kobocollect tool in July and August 2023 in Amuru district.

Quantitative date was collected at 20 high traffic community places and qualitative assessment was conducted in 4 out of 20 high traffic community places. Follow up assessment was submitted using Kobocollect tool. The process of data analysis ongoing.

Results:

A total of 7980 liters of ABHR were produced of which 7800 liters were distributed in Amuru and other districts. There was steady improvement on hand hygiene practices in Amuru district from 40% at baseline, 44% at midpoint and 50% during end-line assessment. Responses to COVID-19 and CCHF were timely following the MOH guidelines.

All 18 water sources samples (2 households and 16 water sources) in Elegu had coliform and 17 out 18 (2 households and 15 water sources) had E. Coli. Assessment and end user feedback data collected on management guidelines for hand washing stations in July and August 2023 quantitatively at 20 locations and qualitatively in 4 out of 20 locations are still being analyzed.

Conclusion:

Implementation of WASH activities in Amuru was a success as observed by high production and consumption of ABHR, steady hand hygiene improvement, Reducing the spread of outbreaks through good hand hygiene practices, surveillance of water quality and selection of Amuru for the pilot of management guidelines for hand washing stations.

Introduction

1.2 Background

The Infectious Diseases Institute (IDI) received funding from the Centres for Diseases Control and Prevention (CDC) under the Strengthening Partnerships for Preparedness and Response project to scale up handwashing and Alcohol Based Hand-Rub (ABHR) use in priority health facilities in six districts in Uganda (Kabarole, Kasese, Amuru, Tororo, Moroto and Kotido).

The project started with Kabarole district where a previous study indicated sub optimal hand hygiene compliance among health workers attributed to lack of hand hygiene materials. An ABHR production unit was set up in collaboration with the district health office through which all 30 public healthcare facilities received ABHR routinely. Impact assessments were conducted routinely to measure progress.

During the Covid-19 pandemic, two border districts, Amuru and Tororo were included in the project because they were the first to register cases who were mainly truck drivers. In the two districts, a population movement assessment (PopCAB). was conducted to prioritise 21 health facilities frequented by truck drivers. The study expanded in 2022 to include Kotido and Moroto districts located in the semi-arid and water stressed Karamoja region in North-eastern Uganda, supporting all the 40 public health facilities.

Using a district led approach, the ABHR was produced within a designated space provided by the districts. Storage of products was in the DHO's store for easy monitoring and integration into the existing system. In addition, the project trained district staff in local production, distribution and monitoring of ABHR as well as Internal (staff with a laboratory background) and External Quality Control (District IPC Focal person and District Health Inspector)

In addition to establishing a production and monitoring system for ABHR, IDI with the funding from CDC additionally provided liquid soap and hand washing stations to the selected health care facilities and community locations in Amuru district to improve hand hygiene.

1.3 Program Overview with data and performance key Results

The project developed and supported interventions leading to improvements in WASH and explored and promoted implementation in the WASH sector, including renovation of ABHR production unit, delivery of supplies, training of ABHR producers, production and distribution of ABHR, provision of handwashing stations, pilot of management guidelines for hand washing stations, water

water quality testing, response to epidemics, WASH (hand hygiene) baseline, mid-line and end-line were conducted in 2020, 2021 and 2022 respectively.
WASH project targeted 8 health facilities and 28 community locations.

Project objectives:
i. Increase access and usage of ABHR
ii. Improve hygiene practices among health worker and the communities among other objectives.

2.0 WASH I 2020/2021

Population movement and connectivity occurs across local, international and regional borders. International travel is made complex by the vast number of porous borders used as entry and exit points across countries. This movement across borders increases the risk of geographic spread of disease.

Understanding population movement across borders for public health addresses International Health Regulations (IHR) requirements as indicated in article 6 in which each state is required to assess events occurring within its territory by using the decision instrument and regularly relaying information to WHO.

Population risk assessments across borders has advantages, which include:
- Promotes cross-border collaboration and coordination
- Informs where and how to strengthen surveillance
- Informs how to target specific interventions

2.1 Goal/Main Objective of POPCAB
To characterize population movement patterns and describe the degree of population connectivity at local, national, or regional levels.

2.2 Specific Objectives of POPCAB
1. Identify geographic areas with significant population movement and connectivity patterns that may increase the impact of a public health event of local, national, or multinational concern.
2. Characterize population movement and connectivity patterns into, through, between, and out of identified areas of interest in Amuru District.
3. Use population movement and connectivity patterns to guide the design and strengthening of public health capacity in Amuru District.
4. Establish connectivity between the priority destinations of truck driver's community members identified by the Amuru community

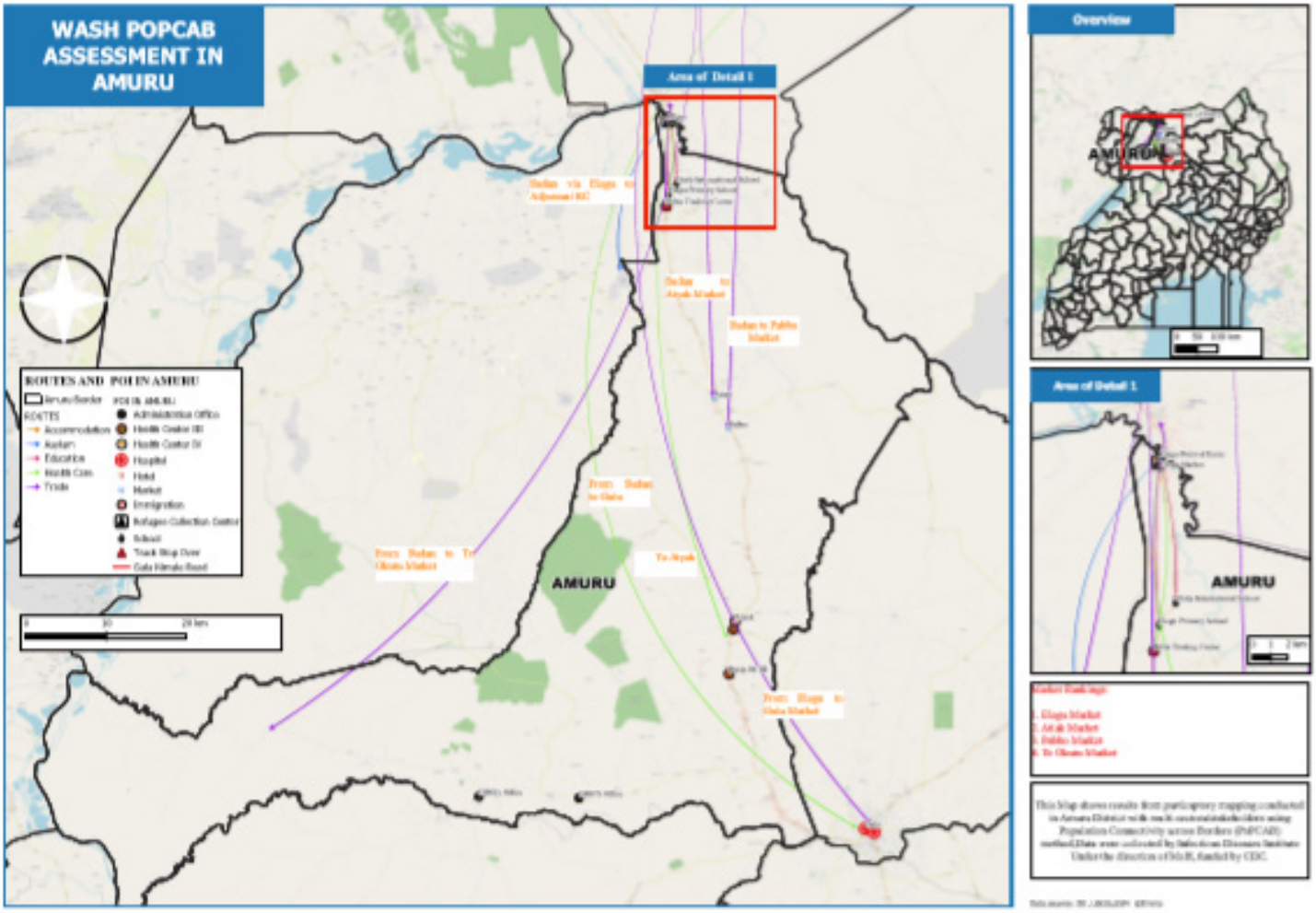
2.3 Methods
Both KII and FGD were conducted to ascertain the PopCAB in Amuru district.

Sample size
The sample size was n=20, 9 KII with 9 participants and 2 FGDs with 20 participants.

2.4 Results and interpretation/ ranking of the findings
The results of the KII and FGDs were ranked from the most mentioned to the least mentioned according to the population movement and connectivity patterns into, through, between, and out of different areas of interest in Amuru District.

The table below shows the selected high risk places according to the PopCAB findings.

S/No.	Priority Locations	S/No.	Priority Locations
	Check Points around Elegu POE		**Markets**
1	OSBP entry gate (POE) -Official	22	Elegu Main Market
	OSBP exist gate at the border	23	Bibia Market
	Offices at Elegu POE	24	Atiak Market
	Custom office	25	Pabo Market
	Immigration office	25	Pabo Market
2	Refugee reception/collection centre near Elegu border		**Health Facilities**
	Check points along truck route	26	Atiak HC IV
3	Akuru Kwe	27	Pabo Government HC III
4	Pabo	28	Pabo Lacor HC III
5	Atiak	29	Bibia HC III
6	Bibia	30	Otwee HC III
7	Wanda	31	Oberabic HC II
	Truck Stop Overs	32	Amuru Lacor HC III
8	Pabo Trading Centre	33	Pawel HC III
9	Atiak Trading Centre		**Prison**
10	Bibia Trading Centre	34	Amuru Prison
	Guest Houses	35	Kaladima Prison
11	Lubii Guest House		**Place for worship**
12	New Damarcus Guest House	36	Elegu Catholic Church
13	Lagos Guest House	36	Elegu Catholic Church
14	Roman City Guest House		**Central Police Station**
15	Asmara Guest House		Central Police Station
			Amuru CPS
16	Illingwa Guest House		
17	Top up Guest House		
	Factory		
18	Atiak Sugar Works		
	Schools		
19	Unity Hugh School		
20	Bibia Primary School		
21	Elegu Primary School		



The map below shows the movement pattern in Amuru district

There was steady improvement on hand hygiene 40% during baseline, 44% at mid-line and 50% assessment in selected healthcare facilities and community places in Amuru district.

3.0 Renovation of ABHR production unit

Following receipt of funds from CDC by IDI for the renovations and electrical works of Amuru ABHR plant, the work started immediately till completion. The renovations and electrical works were carried out and supervised by Amuru district engineering department.
The photographs below shows the completed renovations and electrical works at Amuru ABHR plant.

Renovation work (sealing off ventilation) to allow proper functioning of air conditioning systems at ABHR plant in Amuru district.

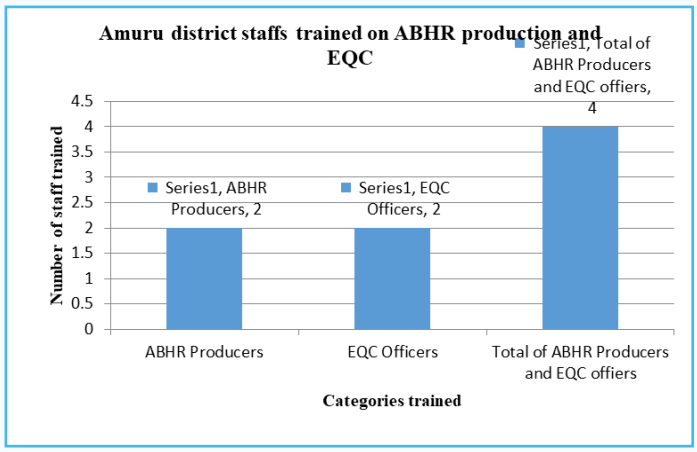
Air conditioning installation at ABHR plant in Amuru district

4.0 Training of ABHR producers/quality Controllers

A total of 4 out of 4 (100%) of the district ABHR and external quality control (EQC) officers attended the training. The number of district mentors who attended the training is as shown in the graph below.

4.1 ABHR Produced and Distributed in 2021

Amount of ABHR produced in 2021 was 7,980 liters and 7,860 liters distributed in Amuru district and other districts. This was made possible because of the trained district staff.



5.0 Hand Washing Stations Distributed in Amuru district

A total of 52 hand washing stations of which 25 small size with the capacity of 50 liters and 27 large size with the capacity of 150 liters were distributed to the selected 8 health facilities and 28 community locations.

6.0 WASH II 2021/2022

6.1 ABHR Produced and Distributed in 2021

Amount of ABHR produced in 2021 was 7,980 liters and 6,480 liters distributed in Amuru district and other districts. This was made possible because of the trained district staff.

6.2 Training on local Production of ABHR

Mubende region (Kiboga, Kyankwanzi, Mityana, Mubende, Kasanda, Luweero, Nakasongola and Nakaseke) ABHR production training.
IDI collaborated with Mildmay Uganda to train ABHR producers and quality assurance officers in Mubende region. The Amuru WASH project coordinator facilitated this training held at in Sorena Hotel, Nakasongola district.

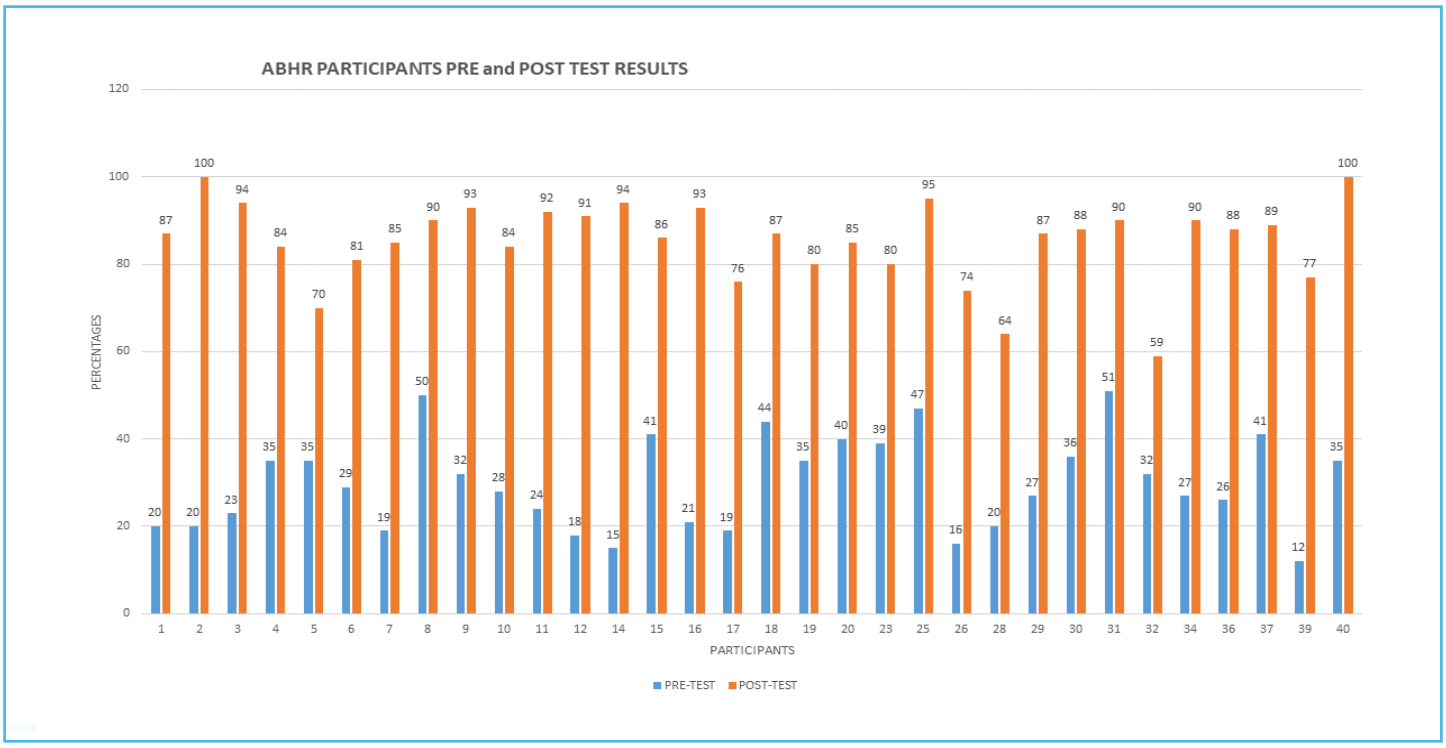
6.3 Purpose the training/workshop

1. To train the Regional trainers on how to manufacture Local Alcohol based hand rub
2. To explain the importance of hand hygiene and Demonstrate correct hand hygiene techniques to trainees.

6.4 Results

A total of 32 participants from 8 districts in Mubende region (Kiboga, Kyankwanzi, Mityana, Mubende, Kasanda, Luweero, Nakasongola and Nakaseke) were trained on the local production of ABHR.

The graph below shows the marks obtained by the participants both in the pre and post tests. In pre-test the lowest obtained 12% and the highest obtained 51%, the average was 29.9%, the difference between the highest and the lowest was 39%. There has been marked improvement in the post-test, the lowest attained 59% and the highest attained 100%, the average of 85.4%, the difference between the highest and the lowest was 41%.



Test	Lowest Marks (%)	Highest Marks (%)	Average (%)	Difference between Pre and Post Tests (%)
Pre test	12	51	12.9	39
Post test	59	100	85.4	41

7.0 WASH III 2022/2023

7.1 ABHR Produced and Distributed in 2021

Amount of ABHR produced in 2022 was 10,740 liters and 3,120 liters distributed in Amuru district and other districts. This was made possible because of the trained district staff. ABHR production was much is 2022 because of Ebola Virus Disease (EVD) outbreak in Mubende Region. Some of the hand sanitizer was produced in Amuru and taken to Mubende region to support IPC.

7.2 WASH End Line Assessment in Amuru District

IDI conducted end-point assessments in all IDI supported healthcare facilities and community locations in Amuru district using KoboCollect and hard copies of hand hygiene observation assessment tools.

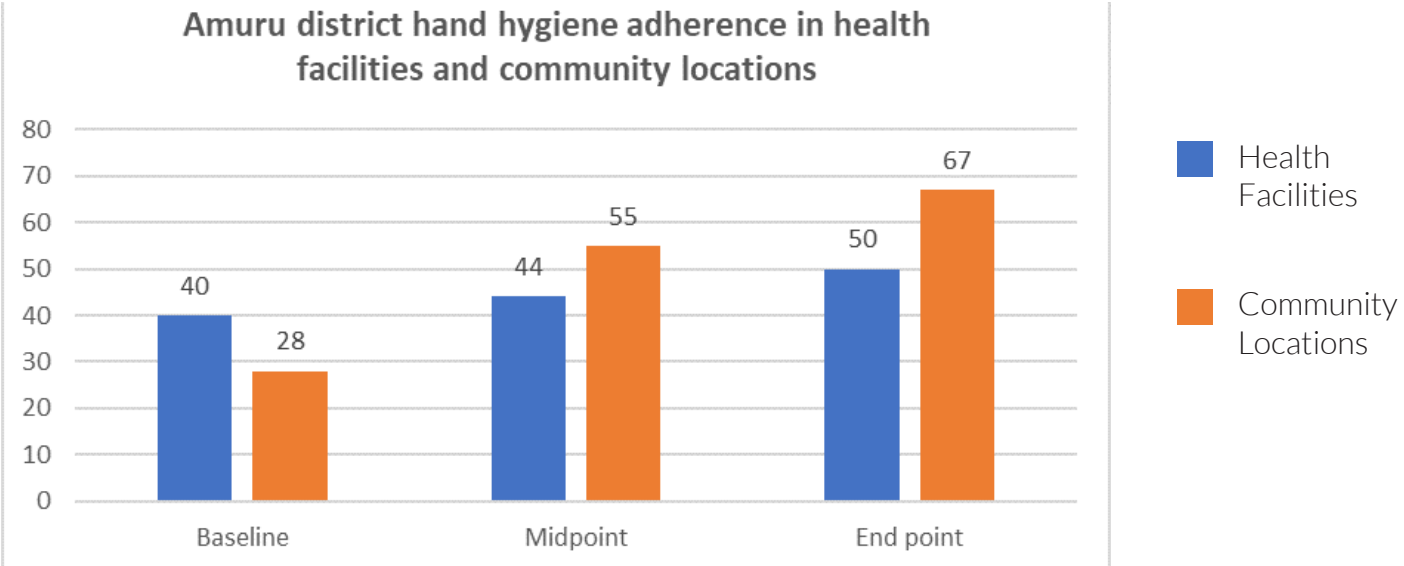
7.3 Healthcare facilities assessments using KoboCollect:

Using the CDC and IDI developed assessment tool for healthcare facilities and community locations assessment tools on KoboCollect and hard copy of hand hygiene observation. a team of 6 assessors conducted assessments in all selected healthcare facilities and community locations in Amuru district.

ASSESSMENT	NO. OF LOCATIONS TARGETED	NO. OF LOCATIONS ASSESSED	PERCENTAGE ASSESSED
IPC WASH HCFs	8	8	100
Observations entrances, exits and latrines HCFs	8	8	100
HCWs Hand Hygiene observations	8	8	100
IPC WASH Community	28	28	100
Intercept interviews community	28	28	100
Observations entrances, exits and latrines HCFs	28	28	100
KII	9	9	100

Amuru district Hand hygiene assessment results

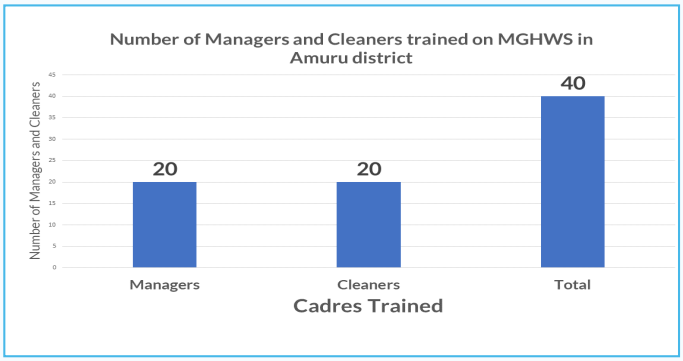
The data indicates improved hand hygiene compliance in supported health faculties and community locations across the implementation period.



8.0 Pilot of Management Guidelines for Hand Washing Stations (baseline and follow up) assessments

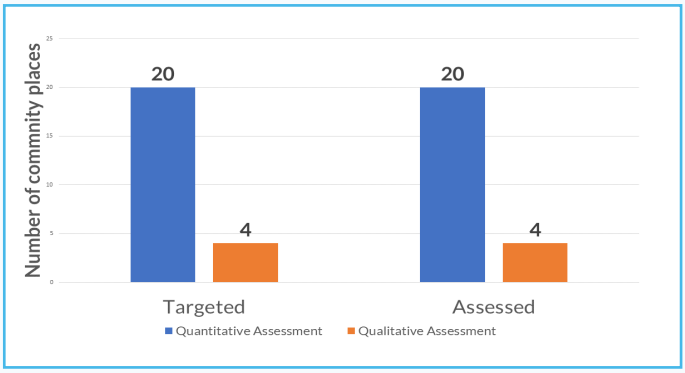
Management Guidelines for Hand Washing Stations (MGHWS) was developed by MOH with support from IDI and CDC. These guidelines are intended to help community location managers provide and maintain handwashing facilities for use by visitors and staff in locations where people gather. These guidelines are meant to cover management considerations for the most common designs of both container-based handwashing stations and piped handwashing facilities.

Baseline assessment was conducted in 20 community places with high human traffic. After the baseline, 20 managers and 20 cleaners, made a total of 40 participants were trained on MGHWS as shown in the table below.



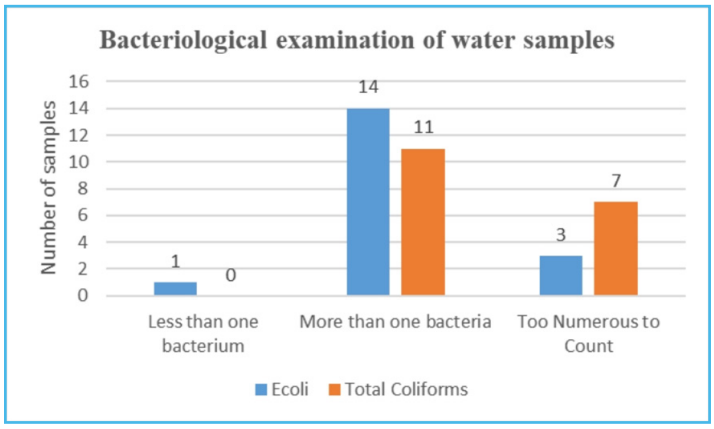
8.1 Follow up assessment of management guidelines for hand washing stations

Follow up quantitative assessment was conducted in 20 community locations and qualitative assessment in 4 community locations as targeted in Amuru district as shown in the graph below.



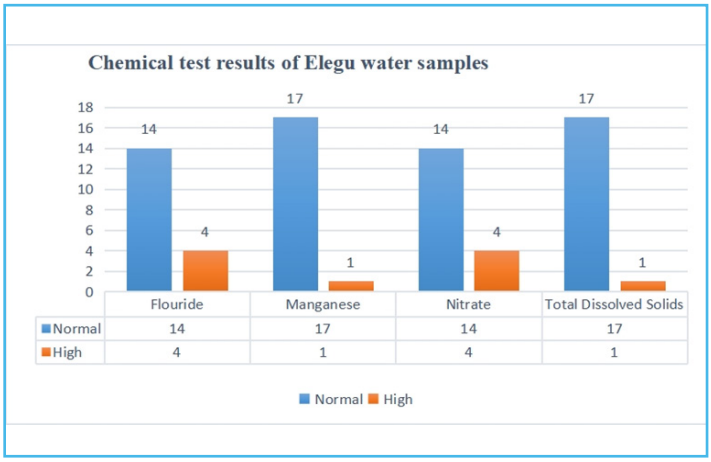
9.0 Water Quality Testing at Elegu Town Council in Amuru District

A total of 18 water samples were collected and referred to National Water Quality Reference Laboratory (NWQRL) for water quality testing. The results are as shown in the graphs below.



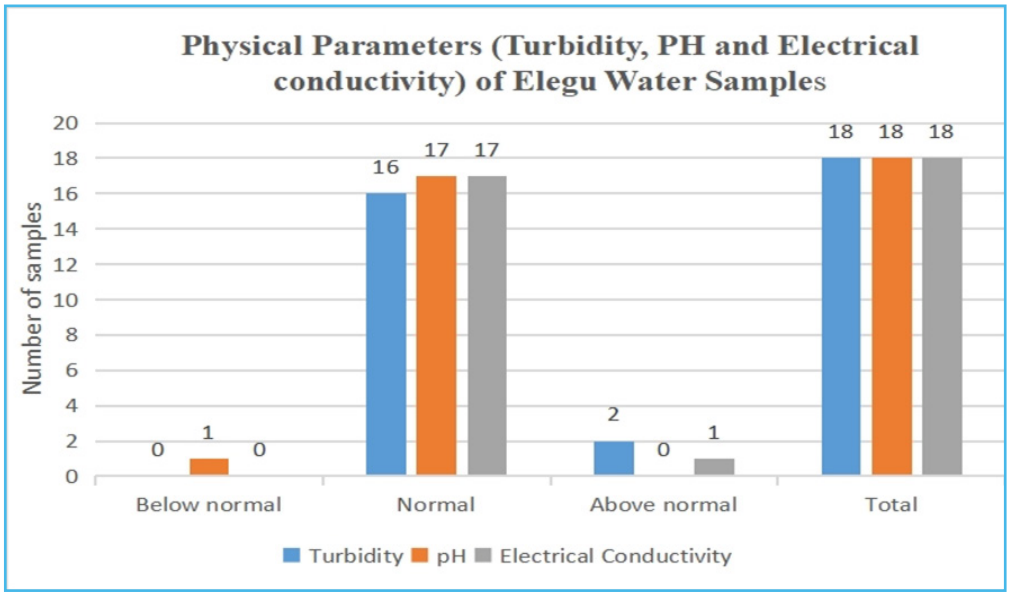
Out of 18 water samples, there was 1 (one) sample with Escherichia coli count less thean one, 14 samples had Escherichia coli count more than one and 3 samples with Escherichia coli count too numerous to count.
Out of 18 water samples, 11 water samples had total coliform count greater than one and 7 water samples had total coliform count too numerous to count.

According to East Africa Standard for Potable water (EAS12:2018 Maximum permissible for Natural Potable Water) should have Escherichia coli and total coliform counts less than 1 (one).



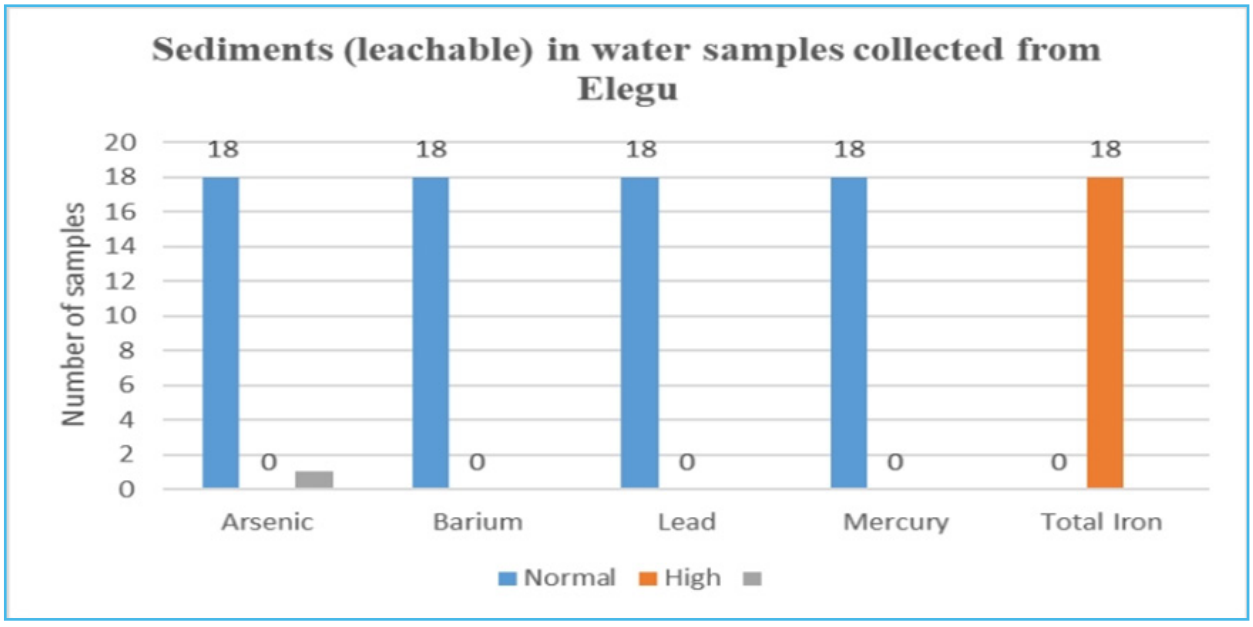
Out of 18 water samples 14 had normal flouride, 4 had high flouride, 17 had normal manganese, 1 had high manganese, 14 had normal nitrate, 4 had high nitrate 17 had normal total dissolved solids and 1 had high amount of dissolved solids.

According to East Africa Standard for Potable water (EAS12:2018 Maximum permissible for Natural Potable Water) for flouride 1.5mg/L, manganese 0.1mg/L nitrate 10mg/L and total dissolved solids 1,500mg/L.



Test results indicated that one water sample had PH less than 5.5, 2 water samples had turbidity greater than 25NTU and one water sample had electrical conductivity greater than 2,500us/cm.

According to East Africa Standard for Potable water (EAS12:2018 Maximum permissible for Natural Potable Water) for PH 5.5 to 9.5 units, turbidity 25NTU and electrical conductivity 2,500us/cm.



All the 18 water samples had normal arsenic, barium, lead and mercury levels at the time of testing. All the 18 water samples had total iron greater than 0.3mg/L. Standard for Potable water (EAS12:2018 Maximum permissible for Natural Potable Water) for iron is 0.3mg/L

10.0 Other Activities

10.1 Crimean Congo Haemorrhagic Fever Outbreak Response

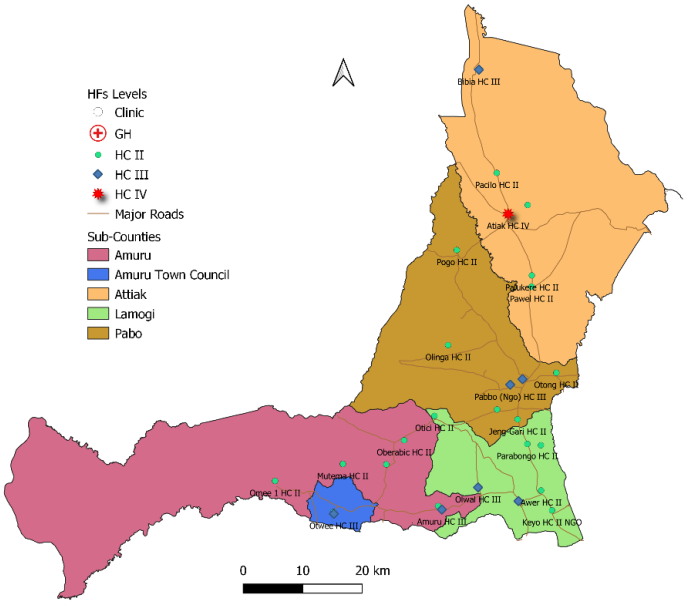
The index case of CCHF is a 21-year-old male from Lulayi Village, Pakibo Parish, Opara Sub-county, Amuru district. He had no history of recent travel out of Amuru district. He went to Tek-oo Village, Pukumu Parish Opara Sub-county where he had gone to visit maternal uncles on Sunday 18th September 2022.

He developed fever on Sunday 18th September 2022 from Tek-oo Village, Pawel Pukumu Parish, Opara Sub-county. He bought some pain killer from a community drug shop which relieved him for a few days. The condition worsened and he began to vomit and sweat profusely by Wednesday 21st September 2022. He became weaker and visited a community drug shop where he was tested positive for Typhoid fever and Malaria.

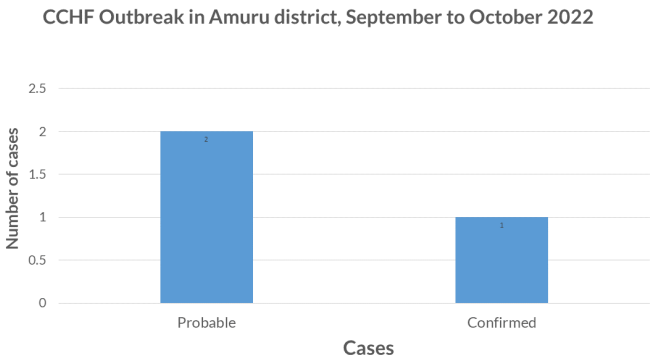
Treatment given at the community drug shop were Gentamycine and Artsunate. He began vomiting blood in the morning of 24th September 2022 at home before community referral to Pabo Lacor HC III. He passed on before reaching Pabo Lacor HC III. Death was confirmed by staff of Pabo Lacor HC III.

The body of the deceased was transport using public means on 24th September 2022 to Lulayi Village, Pakibo Parish, Opara Sub-county at his fathers' home. He was buried by the community on the 25th September 2022.

Nasal swab sample was taken on Sunday 25th September 2022 and referred to UVRI. The Laboratory result was received on Tuesday 28th September 2022 with confirmation of CCHF.



Map of Crimean Congo Haemorrhagic Fever case in Amuru District, September 2022



As of September 30th, 2022 there were 3 cases. These included 1 confirmed CCHF case and 2 probable cases were reported and investigated.

The confirmed case was from Lulayi village in Opara Sub County, Amuru District. The case fatality rate is 100% (n = 1/1).

Currently there are 2 Probable cases, 1 probable case died and 1 probable case is alive. All tested negative for CCHF.

11.0 Logistical support to Amuru

11.1 ABHR Ingredients and Other Supplies received at Amuru ABHR Production Unit

Table 1 below shows the ABHR ingredients and other supplies received at Amuru ABHR production unit from March 2021 to February 2023.

S/No.	Item	Unit of Measure	Quantity
1	96% Absoute Ethanol	20 litre jerrycans	560
2	3% Hydrogen Peroxide	200 ml	2290
3	98% Glycerol	5 litres	79
4	Deionized water	20 litre jerrycan	95
5	An alcoholmeter	Piece	2
6	Wooden, plastic or metal paddles for mixing.	Piece	2
7	Plastic or glass funnel	Piece	1
8	Measuring jars (2 litres capacity)	Piece	1
9	Stainless steel or plastic tanks with a capacity of 80 -100 litres (Translucent for mixing without overflowing)	Piece	1
10	20-litre jerrycans (translucent or graduated to see the liquid level)	Piece	181
11	100 ML Measuring cylinder	Piece	1
12	1000 ML Measuring cylinder	Piece	1
13	2000 ML Measuring cylinder	Piece	1
14	N95 face mask	50 Pieces	1
15	Goggles/Face shield	Piece	250
16	Gumboots	Pairs	2
17	Examination gloves	50 Piece	10
18	Flip Chart	Piece	2
19	Marker pens	12 pieces	2
20	Disposable Apron	Piece	100
21	Pens	Piece	15
22	Box File	Piece	1
23	File separator	Piece	20

12.0 Challenges during Implementation

Suppported health facillities and community location managers requeste dthe project for items that were outside the CDC supported scope.

13.0 Key Lessons Learnt

The key lessons learnt are

i. Cooperative leadership of Amuru district leadership are so cooperative which led to the success of the WASH project.
ii. All supported community locationsplaces and health facilities promoted hand hygiene during the time of implementation
iii. There is need for continued mentorship to remind health workers and the community on WASH related activities to influence behavioral change.

14.0 Sustainability and Continuity Plan

Proposed ABHR Sustainability plan.

- Human Resources: District allocated staff who were trained on ABHR production and production is ongoing.
- Budgeting for ABHR sustainability at the district level
- Soliciting support from implementing partners to procure ABHR ingredients, facilitate producers, AC maintenance and repair.
- Use of PHC and NMS order line to acquire raw materials
- Use of NMS trucks to distribute ABHR during their routine distribution cycles. Where community locations will be picking ABHR from the near by healthcare facilities upon delivery by NMS trucks.
- HCFs and community locations to pick ABHR from the district medicine store on demand.
- District vehicles to transport ABHR during their routine activities to community locations and health facilities.

Proposed Hand Washing Stations Sustainability plan

- Healthcare facilities and community locations are expected to carry out routine maintenance and repair as HWS breaks down using the guidelines provided.

15.0 Existing opportunities and activities for continuity

There is still a lot of WASH activities in Amuru such as

i. The leadership structure which includes the ADHO environment who provides technical assistance to all WASH implementation in the district is an opportunity to ensure project continuity.
ii. The project has designated points of contact in each supported health facility or community location who make sure that ABHR is dispensed, ensure availability of soap and water in the handwashing stations.
iii. The district provided an ABHR production unit where production can continue to take place in collaboration with the stores officer to monitor stock and ensure distribution.

16.0 Conclusion

Implementation of WASH activities in Amuru was a success as observed by high production and consumption of ABHR, and marked hand hygiene improvement., The project contributed to reduction of the spread of outbreaks through good hand hygiene practices, surveillance of water quality and implementation of the management guidelines for hand washing stations.

Annex

Stakeholder Meeting in Amuru District

KII end point assessment at Elegu POE in Amuru district.

CDC, IDI and Uganda Police Force who participated in qualitative and quantitative follow up assessment on MGHWS at Amuru Central Police Station in Amuru district.


Practice Exercise
Formula
$\frac{RV}{D} = X$

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