



HEALTH EMERGENCY PREPAREDNESS AND RESPONSE UMBRELLA PROGRAM

GRANTCLOSURE REPORT FOR RECIPIENT-EXECUTED TRUST FUND (RETF) GRANTS

NOTE: This a grant closure reporting form to collect information on the role HEPR grant has played to advance the PPR agenda in your country, key results, achievements, innovation, and novel approaches used, and lessons learnt. Please fill in the relevant sections below and do not delete or alter any title, section heading, text, table, footnote, endnote, instruction, etc. in this template. Keep your responses brief and concise highlighting only the main points.

A. HEPR GRANT DETAILS

1. Country/ries of Implementation:	Malawi, Mozambique, Tanzania Rwanda, and Zambia
2. Region	Africa
3. Project Number	P176300
4. Project Name	Strengthening Pandemic Preparedness for Eastern and Southern Africa
5. HEPR TF Number	TF0B7871
6. HEPR grant type (choose one)	Preparedness <input checked="" type="checkbox"/> Response <input type="checkbox"/>

B. SUPPORT BY THE HEPR PROGRAM IN ADVANCING THE NATIONAL/REGIONAL Health Emergency AGENDA

1. How has the HEPR program RETF grant supported the health emergency preparedness or response agenda in your country or region in one or more of the following areas. Please provide specific examples.:

- Policy and Strategy Development

Biosafety and Biosecurity strategies: In Rwanda and Malawi, the project supported the development of the multisectoral One Health Biosafety & Biosecurity Strategic plan. These plans are aimed at establishing strong systems for a safe working environment and securing the workers and users of the facilities from harm. The plans spelt out critical activities to be implemented over time to meet and exceed the requirements of the JEE indicators.

AMR surveillance strategies: The project supported all the project countries in the development of AMR surveillance strategies that are imported for implementing and strengthening capacities for generating laboratory data for antimicrobial resistance (AMR). These plans were developed using a multi-sectoral approach bringing together teams from the Ministries responsible for health, agriculture and livestock management and environment. Experts from other countries were involved in these processes as part of peer-to-peer learning.

AMR Stewardship guidelines: In line with the global and regional frameworks for antimicrobial stewardship (AMS), the project supported the countries to adopt and implement (some activities) AMS frameworks into national guidelines. Baseline survey was undertaken on the status of AMS programs in selected facilities in all the countries and an end-line survey undertaken towards the end of the project revealed significant improvements on various aspects of stewardship. The countries identified selected hospitals (about six in each country) to be strengthen/establish stewardship programs.

AMR policy: Due to the complexity of AMR affecting the different sectors, a multi sectoral approach in Zambia was of utmost importance. At the start of the project, there lacked a comprehensive policy governing AMR that compelled the government and affected sectors and stakeholders to control and contain the spread. To strengthen multi-sectoral governance and coordination and effective

stakeholder collaboration Zambia developed an Antimicrobial Resistance Policy from a One Health Approach for approval by the Cabinet as was recommended by the Country Situation Analysis for Antimicrobial Resistance, 2017.

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- **Development of national health emergency and response plans**

National Health Emergency Response Operations Plan (NHEROP): The HEPR Program supported all the five project countries (Malawi, Mozambique, Rwanda, Tanzania and Zambia) to map priority public health risks and to update/prepare the National Health Emergency Response Operations Plan (NHEROP). A NHEROP defines the overall roles, responsibilities, systems and mechanisms for initiating and managing emergency response, using a multisectoral risk management approach. During this process, ECSA-HC used the WHO Strategic Tool for Assessing Risks (STAR) to help countries identify priority threats/hazards, assess the vulnerability and capacity of the health system for effective preparedness to manage the public health emergencies. A contingency plan describing the appropriate actions to prevent, mitigate or reduce the impact of the hazards in the population at risk were developed for each hazard identified to have very high and high risk such as Cholera/Acute watery diarrhea, COVID-19, Anthrax; Plague; Ebola Virus Disease; Measles; Road Traffic Accidents; Radiation Agents; Mining (Emissions); Droughts; and Floods. In addition, countries like Malawi were supported to develop a transitional costed Annual Operational Plan for the National Action Plan for Health Security which serves as a crucial strategic document for enhancing health security capabilities in the country.

Cholera elimination plans: Rwanda was supported to develop the National Cholera Multisectoral Elimination Plan that will guide Rwanda's cholera elimination effort through 2030. Following this experience, ECSA-HC supported Lesotho to commence the development of a similar plan.

Conducting of 2nd round of JEE: Tanzania and Zambia were supported to conduct their Joint External Evaluation (JEE) to determine the current capacity, including gaps and needs; measures progress on work implemented across the IHR (2005) core capacities and finally highlights the strengths, challenges, gaps and needs for current and prospective support, as well as to inform country-level planning and priority setting.

- **Resource mobilization and leveraging financing for health emergencies.**
- **Joint actions:** ECSA-HC through the implementation process leveraged on partnership with other stakeholders especially WHO where joint implementation plans were developed to foster collaboration and jointly implement activities that were of mutual interest in the same countries. This included the process of undertaking risk assessments and development of NHEROP in all the project countries with some situations the project providing TA while WHO covered the costs for particular activities and vice versa where the project covered the costs for undertaking the activities while WHO and other partners such as US CDC, Africa CDC, USAID teams provided technical assistance.
- **Joining the MPA Health Emergency, preparedness, and resilience project:** Following the successful implementation of the project, ECSA-HC was identified as one of the regional organizations to be part of the above project that aimed at expanding capacities and enhancing resilience on health emergencies management in the countries and at regional level.
- **Partnerships on AMR interventions:** In the course of the project two new partnerships were created as an extension of work done through collaboration with the Common Wealth Partnerships for Antimicrobial Stewardship (CwPAMS) Project to strengthen AMS through Fleming Funding under a UK partner, Tropical Health & Education Trust (THET) to support Kenya that was not part of the SPP project but by extension the work done under the project motivated the award of a seed funding to support AMS activities in two hospitals in Kenya (Mbagathi in Nairobi county and Kisii county hospital)

on AMS telementoring. Additionally, a virtual capacity building initiative TEACH-AMS in collaboration with the American Society for Microbiology (ASM) and Project ECHO.

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- **Coordination and implementation of national or regional health emergency preparedness and/or response activities**

At national level, various initiatives were carried out by the project to establish/strengthen health emergency preparedness. The project supported rollout of event-based surveillance (EBS) and Integrated Disease Surveillance and Response (IDSR) in Tanzania, Rwanda and Malawi by training over 500 frontline health workers. This effort resulted in the improvement of completeness and timeliness of IDSR priority disease reporting from 30 to 60 percent (Rwanda), 68 to 90 percent (Tanzania) and 10 to 90 percent (Malawi). Rwanda and Mozambique were supported to adopt regional framework for event-based surveillance (EBS) and trained multi-sectoral & multi-disciplinary teams of experts (20 in Rwanda and 24 in Mozambique) to support the implementation of EBS in these countries. In collaboration with WHO, the project supported participating countries to strengthen Point of Entries International Health Regulation capacities and expand cross border disease surveillance (Malawi/Tanzania; Malawi/ Mozambique). The project supported Tanzania to conduct After Action Review (AAR) for Marburg and COVID-19 while Zambia was supported to conduct Cholera AAR. Mozambique and Malawi received support to conduct Intra Action Review for cholera and COVID-19. Under laboratory capacity, the project supported the project countries in strengthening Biosafety and Biosecurity under One Health Approach as per the international standards and helped the countries build their capacities to implement the requirements of new ISO 15189:2022 for quality management system. Under Antimicrobial Resistance (AMR) initiatives, the project has embraced a stepwise approach to support the project countries build their capacities for conducting antimicrobial resistance surveillance and establishment of antimicrobial stewardship programs at the National and Health facility levels involving (i) baseline assessment; (ii) establishment of action plan and guidelines for AMR surveillance and AMS; (iii) training and mentorship for establishment of AMR surveillance and AMR programs; and (iv) data collection through the established systems.

- **Fostering Partnerships**

- **Strategic collaboration with development partners, stakeholders (for e.g, CBOs), and the private sector in relation to health emergency preparedness.**

Fostering partnerships was a core aspect of the project with respect to strengthen collaborations within, across and beyond the project countries. This was deliberately build throughout the project period and was essential for ECSA-HC aiming to enhance alignment of efforts, provide sustainable platforms for learning and knowledge exchange and maintain interconnectedness noting that countries shared similar challenges and benefitted from mutual interventions. Collaboration with like-minded entities such as the WHO, ACDC, ASLM, ReAct Africa, UK Fleming Fund Supported projects such as the CwPAMS project supporting Antimicrobial Stewardship in Kenya which was not a project country, has enabled pooling of resources, expertise, and networks to tackle complex challenges more effectively. These partnerships ranged from strategic alliances with industry peers to joint ventures with countries such as the Peer to peer learning across multiple areas in pandemic preparedness, country level preparations for Joint External Evaluation, State Parties Self Assessments for IHR capacities, implementation of AMR interventions, laboratory strengthening as well as collaborations with non-profit organizations and government agencies. Through these partnerships, the project has built strong relationships based on trust, shared values, and mutual benefits, enabling the networks formed to tap into new opportunities, access innovative ideas, and enhance overall impact. This ultimately has fostered a culture of cooperation and encourages a diverse range of perspectives,

ultimately driving innovation and sustainable implementation through the well-established communities of practice.

On the surveillance, points of entry (PoE), roll out of IDSR and preparedness activities, ECSA-HC has been collaborating with WHO Afro (mainly the regional hub for Epidemic Preparedness and response) & respective country offices, IOM, UK Health Security Agency (UKHSA) and USCDC supporting countries in assessing risks, developing multi-hazard plans, contingency plans for high risk and very high-risk hazards and testing these plans through simulations. Africa CDC has been involved in the establishment of event-based surveillance (EBS) in the various countries collaborating with Africa CDC headquarters and the respective regional coordinating centers. ECSA-HC being the Regional Coordinating Organization (RCO) for a sister World Bank funded Southern Africa TB and Health Systems Support (SATBHSS) project is increasing synergies with the latter project activities to leverage on the funding available in both projects for greater impacts. Global fund supported regional laboratory strengthening project with Uganda Supra National Reference Laboratory (USRL) is also a key partner leveraging on additional technical assistance to jointly support the countries on laboratory-based activities.

C. RESULTS AND LESSONS LEARNED

2. Have the PDO and Intermediate Results indicators related to the HEPR Program grant been achieved? Please provide the PDO and IR baseline, annual and end achievement results.

The 2023 final report indicates that two out of two project outcome indicators and five out of six intermediate outcome indicators have been fully achieved, while one out of six intermediate outcome indicators has not been achieved. This makes the overall performance of 87.5%* percent (100 percent of the Project Outcome Indicators and 83 percent of the Intermediate Outcome Indicators). The project performed well (achieved/surpassed target set for Year 2 (2023) on the following indicators; POI# 1: Number of countries scoring 60% on PoE routine capacities are established, and POI#2: Number of countries scoring 60% in at least 3 of the 5 selected JEE core capacity indicators. The project performed well on the following intermediate outcome indicators: IOI#1. Number of countries that have developed country-specific guidelines/ protocols and tools to establish and roll out EBS, IOI #2. Number of countries supported to conduct multi-hazard risk and resource assessment, IOI#3. Number of countries supported to develop/update multi-hazard plans, IOI#4. Number of health personnel trained and IOI# 5. Number of countries with antimicrobial stewardship guidelines in place.

The table below summarizes the overall project performance. The detailed Results Framework is hereto attached as Annex 1

Table : Results Framework Performance Summary

Results Framework Indicator as at December 2023	Fully Achieved (100%)	Partially achieved (>70%)	No Achieved (<70%)
PDO Outcome Indicators (PDO)	2/2 (100%)	Non (0%)	None (0%)
Intermediate Outcome Indicators (IOI)	5/6 (83%)	Non (0%)	1/6 (17%)
Performance for both PDO and IOI's indicators	7/8 (87.5%)	Non (0%)	1/8 (12.5%)
Overall Performance (PDO and IOI's fully achieved)	7/8 (87.5%)		

3. If not, indicate the challenges that impacted the results.

The Intermediate Outcome Indicator (IOI#6) - Number of personnel trained through the e-learning platform was not achieved due to delay in migration/upgrading the system and secondly the traction on physical sessions where numbers were surpassed (see indicator IOI#4 in the attached annex) affected the achievement on e-learning.

4. Beyond the achievements described in 2 and 3, describe key achievements of the RETF-funded activities.

Some of the results/achievements in each components

Component 1: Strengthening Surveillance Systems in Project Countries

Sub-component 1.1: Enhancing event-based surveillance and cross-border disease surveillance and emergency preparedness

Supported rollout of event-based surveillance (EBS) and Integrated Disease Surveillance and Response. The project supported the project countries to roll out the IDSR strategy in selected regions. Over the period, the project supported (a) Rwanda, Tanzania and Malawi to roll-out the IDSR strategy by training over 500 frontline health workers (305 front line workers in Kigali region, Rwanda; 279 in Singida region, Tanzania; and in Malawi districts of Ntchisi, Kasungu and Nkhotakota). Health workers capacity has been built to detection and enhance reporting including staff in public private health facilities hence improving potential for disease detection and reporting. This effort resulted in the improvement of completeness and timeliness of IDSR priority disease reporting from **30 to 60 percent (Rwanda), 68 to 90 percent (Tanzania) and 10 to 90 percent (Malawi).**

Event-based surveillance (EBS)¹: Rwanda and Mozambique were supported to adopt regional framework for event-based surveillance (EBS) and trained multi-sectoral & multi-disciplinary teams of experts (20 in Rwanda and 24 in Mozambique) to support the implementation of EBS in these countries. This effort is aimed at supplementing indicator-based surveillance (IDSR) to further enhance early warning and response systems to health emergencies. Malawi, Rwanda and Zambia have already commenced application of EBS, and reports are being received from community and health facilities Plans to cascade the training and roll out of the EBS program to further lower levels of the health system are underway. **Electronic EBS was rolled out in Zambia and Tanzania with over 600 and over 400 signals reported in the system**

Enhancing surveillance of respiratory diseases: Tanzania prioritized the need to expand the network of sentinel sites for surveillance of respiratory diseases. The project supported training of over 70 health workers (41 and 32 in Singida and Mwanza regions respectively) and established additional five respiratory disease surveillance sentinel sites, which are currently being used to monitor COVID-19 transmission. Scaling up of the influenza surveillance sentinel sites will provide enhanced country capacity for surveillance.

Expanding network of field epidemiologists: The project supported training of a cohort of 32 frontline health workers in Tanzania (Lindi, Mtwara, and Zanzibar regions) in field epidemiology (through field epidemiology training programs, FETP).

¹ Event-based surveillance (EBS) is a public health surveillance system that uses information about specific events or situations to identify and monitor public health threats. EBS systems are designed to detect outbreaks of infectious diseases, environmental hazards, and other public health emergencies by collecting, analyzing, and interpreting data from a variety of sources

Enhanced capacity for point of entry disease surveillance and expand cross border disease surveillance.

Expanding capacities at points of entry (PoE): In collaboration with WHO, ECSA-HC supported participating countries to strengthen PoE IHR capacities. In November 2022, Tanzania and Kenya conducted joint assessment of the points of entry along their common border. These included the paired PoEs of Holili/Taveta, Isabania/Isabania, Namanga/Namanga and Horo Horo/Lunga-Lunga respectively. In April 2023, the project further supported assessment of IHR core capacity at points of entry of Kamuzu and Chileka International airports, Mchinji, Mwanza and Dedza ground crossing PoEs in Malawi and Mfuwe International airport and Mwami ground crossing in Zambia. In September 2023 supported Kigali International Airport (KIA), Gatuna OSBP, Rusumo OSBP, Cyanika OSBP, La Corniche OSBP, Ruganda lake port located in Karongi, Kagitumba OSBP, Poids Lour border post, Rusizi I border post, Rusizi II border post, Bugarama border post and Akanyaru Haut border post were also assessed in Rwanda. These countries have been supported to develop action plans for mitigation of identified gaps to improve IHR core capacities and therefore JEE scores.

Strategic Risk Assessment for the PoEs to identify the Potential Risk and Develop Public Health Emergency Response Plans for the PoEs. This was done in Malawi: (Chileka, Kamuzu International Airport, Mchinji and Dedza ground crossing PoEs), Zambia: (Mwami ground crossing PoE), Tanzania: (Holili and Tarakea ground crossing), Rwanda: Kigali International Airport, Poids Lour, Gatuna, Rusumo. The cross cutting hazards with highest risk levels were Pneumonia, Covid-19, Ebola, Marburg Virus Disease, Tuberculosis, Cholera, Poliomyelitis and Rabies. After the assessment, the PoEs were supported to develop PoE Specific Public Health Emergency Response Plan which included the mitigation measures for the high and moderate risk hazards.

Cross-border surveillance and response: A review of cross-border surveillance across the Malawi-Tanzania border was held in the wake of the polio outbreak in Malawi in April 2022. During a cross-border meeting involving 62 participants of a multi-sectoral, multi-disciplinary mix, discussions were held to improve cross-border surveillance between the two neighboring countries. A simulation exercise was held to test cross-border traveler screening and contact tracing protocols.

Sub-component 1.2. Building capacity for laboratory-based surveillance and antimicrobial resistance surveillance

Capacity building of Heads of Public Health and TB Reference Laboratories in Management and Leadership:

The project supported the Mozambique to train heads of the laboratories and focal person from the National Institute of Health (INS) headquarter from 12th to 16th December 2022 in Maputo Province. In total, 14 participants were trained in laboratory management and leadership through a program developed by ECSA-HC. As the laboratories become fully operational, the basics of management and leadership functions has been established in the country.

Strengthening of biosafety and biosecurity: The detection and effective response to any Public Health Emergency requires knowledge of hazards for any disease, condition or event that may threaten the health of the public. ECSA-HC supported the project countries in strengthening Biosafety and Biosecurity under One Health Approach as per the international standards.

Laboratory Quality improvement through implementation of Quality Management Systems: To effectively ensure quality results and laboratory functions in line with national and international standards, ECSA-HC through the SPP project, supported the project countries build their capacities to implement the requirements of new ISO 15189:2022. Tanzania and Malawi received support to train 25 and 20 laboratory professionals, respectively.

Surveillance of Antimicrobial resistance: Antimicrobial resistance (AMR) is a growing global public health concern especially in Africa, where access to antimicrobial agents is often limited and misuse and overuse are common. The project is supporting two sets of intervention on AMR i.e. Laboratory AMR surveillance and antimicrobial stewardship (AMS)². Implementation of AMS in project countries face challenges, such as limited resources, poor laboratory capacity and infrastructure, and expertise. Through the SPP project, ECSA HC has embraced a stepwise approach to support the project countries build their capacities for conducting antimicrobial resistance surveillance and establishment of antimicrobial stewardship programs at the National and Health facility levels involving (i) baseline assessment; (ii) establishment of action plan and guidelines for AMR surveillance and AMS; (iii) training and mentorship for establishment of AMR surveillance and AMR programs; and (iv) data collection through the established systems.

During the project, a baseline capacity assessment to evaluate laboratory AMR Surveillance and AMS capacities was conducted using a modified WHO Antimicrobial Stewardship National and Health Facility Checklist and the CDC developed Laboratory Antimicrobial Resistance Assessment Capacity (LAARC) tool. Assessment of the local situation, supporting the establishment of a multidisciplinary AMS teams, development of national guidelines and protocols, Implementation of interventions and Monitoring and evaluation. Actions were then prioritized based on identified gaps at both the National and Health Facility level. At the end of the project period an endline assessment for AMS was conducted in all the 5 countries and **notable improvement across all the WHO AMS Core elements was recorded as illustrated** in Annex 2 indicating the potential impact of the project interventions on the AMS programs.

Component 2: Support Countries to Prepare for Health Emergencies

Support countries to conduct peer assessments of preparedness systems using a JEE score card using a customized/ mini-JEE tool

Peer State Party Annual Assessment and Reporting (SPAR)³ assessment

In accordance with Article 54 of The International Health Regulations (2005) and WHA resolution 61.2, all IHR States Parties and WHO are required to report to the WHA on a yearly basis on their implementation of the Regulations. ECSA-HC through the project supported the Ministry of Health Tanzania to conduct their annual peer-SPAR between 22nd to 25th November 2022. A total of 48 technical staff representing line of Ministries (President Office, Region Administrative and Local Government (PORALG), Prime Minister office (PMO), Ministry of Health (MoH), Ministry of Live Stock and Fisheries (MoLF) Representatives from Zanzibar, Representatives from Research and Academic Institutions (MUHAS, SUA), Regulatory bodies (TBS and GCLA), Institutions (TVLA), Regional Authorities, WHO secretariat, Partners (ECSA-HC, CDC, PATH, AMREF and JHPIEGO) and technical representatives from Zambia and Malawi participated in the meeting. The Malawi and Zambia experience would inform the infant process of establishing a NPHI in Tanzania. The representatives of Zambia and Malawi found the exchange of experiences and practice during a joint SPAR very useful and proposed that a structured input by visiting teams should be encouraged. Through the same platform, the team came up with priorities of priority activities that were included in one-year

² Antimicrobial stewardship (AMS) refers to a set of coordinated interventions implemented to promote appropriate use of antimicrobial agents, reduce costs of care, improve patient outcomes and reduce the risk of AMR. These are implemented by a multidisciplinary team

³ The SPAR (State Party Self-Assessment Annual Reporting) tool consists of 24 indicators for the 13 IHR capacities needed to detect, assess, notify, report and respond to public health risk and acute events of domestic and international concern. For each of the 13 capacities, one to three indicators are used to measure the status of each capacity

National Action Plan for Health Security. The overall core capacity average for Tanzania in the year 2022 was 58% against 62% for the WHO AFRO and global average was 44%. Tanzania has designated 13 points of entries among them three (3) are sea-ports, five (5) airports and five (5) ground crossing. For Rwanda the annual SPAR was conducted in November 2022. The overall score for the core-capacity average was 65% against 65% for WHO AFRO region and 59% global average. Rwanda has designated 23 PoEs among them 2 are ports, 2 airports and 19 ground crossings. Zambia has also conducted their annual SPAR in January 2023. Their overall core capacity average was 59% against 53% for WHO AFRO region and 66% global average. Zambia has designated 14 PoEs among them 1 is port, 4 airports and 9 ground crossings.

Joint External Evaluation (JEE)

The project supported Tanzania to conduct their second Joint External Evaluation (JEE), this evaluation was a joint exercise between multisectoral team of experts from the United Republic of Tanzania and an external team of experts who participated in a weeklong evaluation from the 14th to the 18th of August 2023 in Dar es Salaam, Tanzania. The evaluation started with the self-assessment which was conducted on 10th to 15th July 2023. The main objective of the evaluation was to assess the ability of existing national structures and resources to meet the minimum requirements described in Annex 1 of the IHR and to contribute towards global health security.

The JEE tool specifically determines the current capacity, including gaps and needs; measures progress on work implemented across the IHR (2005) Core capacities and finally highlights the strengths, challenges, gaps and needs for current and prospective support, as well as to inform country-level planning and priority setting. All the technical areas have specific indicators that were examined across a spectrum of capacity, level 1 indicating no capacity and level 5 indicating sustainable capacity. For Tanzania there has been demonstrated progress across all the nineteen technical areas with sustained capacities in two of the technical areas. In 74% of the indicators, Tanzania has demonstrated developed capacities between the score levels of 3 to 5. Although the JEE tool has evolved with new indicators added and others modified, there was **overall improvement in the JEE score from 48% in 2016 to 60% in 2023**. The project also supported Zambia during their preparation for the Self-assessment of the JEE and during the self-assessment which was conducted between 28th of August to 1st September 2023, with the same aim of ensuring that the country has current capacity for core IHR elements and measured progress on work implemented across the IHR (2005) Core capacity in Zambia. The second Zambia Joint Evaluation was held between 2nd and 6th October 2023. **The final scores are being compiled. Zambia scored 47% in 2016**

Intra Action Review (IAR)/After Action Review (AAR): After Action Review (AAR) provides an opportunity for member states to discuss an event, that focuses on performance standards and enables review what happened, why it happened, and how to sustain strengths and improve on weaknesses. AAR aids the country to identify immediate and longer-term corrective actions for future outbreak responses. The project supported Tanzania to conduct AAR for Marburg and COVID-19 while Zambia was supported to conduct Cholera AAR. Some observations are highlighted below:-

National Cholera Multisectoral Elimination Plan (MCEP) development: Cholera remains a global threat to public health and an indicator of inequity and lack of social development. It is a disease transmitted through fecal-contaminated water and food of public health importance that can cause severe acute watery diarrhea with severe dehydration. In October 2017, Global Task Force on Cholera Control (GTFCC) partners launched a strategy for cholera control, a global roadmap to 2030 where a countries-led strategy aims to reduce cholera deaths by 90% and to eliminate cholera in as many as 20 countries by 2030. Rwanda has joined other countries in this ambitious battle. The project

supported Rwanda in the development of the plan that will guide Rwanda's cholera elimination effort through 2030. The overall objective of the developed a cholera elimination multisectoral plan was to sustainably address the burden of cholera in Rwanda and provide guidance on assessing situational analysis of cholera outbreaks, establishing a Multisectoral approach in prevention and response to cholera outbreaks, enhancing surveillance and response to cholera outbreaks, and developed the implementation plan

Development of Guidelines for the Surveillance, Investigation and Response of the Food and Water Borne Diseases

Foodborne diseases are a growing public health problem throughout the world and cause a considerable burden of disability and mortality. The most common clinical presentation of foodborne disease is gastrointestinal symptoms. Other serious consequences include kidney and liver failure, brain and neurological disorders, reactive arthritis, and cancer. Antimicrobial resistant microbes can be transmitted through the food chain, via direct contact between animals and humans or through the environment. Each year, an estimated 700, 000 people die around the globe because of antimicrobial resistant infections.

The project has supported Rwanda in the development of the guidelines for the surveillance, investigation and response of the food and water borne disease which was done in in Musanze District between 7th to 11th August 2023. The main objectives of the guideline were to strengthen the surveillance and response of food and water borne diseases/ events in Rwanda. The main outcome of the workshop was the food and waterborne surveillance and response guidelines developed. These guidelines included selected priority food and waterborne diseases for surveillance, the surveillance scope, methods/approach and coverage, the roles and responsibilities of stakeholders and information sharing mechanism and process and data use.

Supported Countries in the Development of the Annual Operational Plans for Health Security

National Action Plan for Health Security (NAPHS) serves as a crucial strategic document for enhancing health security capabilities in the countries. To effectively implement the NAPHS, the development of a transitional costed AOP was essential because it will provide a detailed roadmap, associated costs for priority activities and optimize available resources. This contributes to successful implementation of the NAPHS, safeguarding the population against health emergencies and pandemics. The project has supported Malawi in the development a transitional costed Annual Operational Plan (AOP) for Malawi's NAPHS. The workshop was held from 25th to 29th September 2023 in Salima District. The AOP will also set the tone for preparations for the Joint External Evaluation scheduled for early next year

Mapping of priority public health risks and to update/prepare multi-hazard public health emergency preparedness and response plans

Five countries (Mozambique, Zambia, Malawi, Tanzania and Rwanda) were supported to conduct risk assessments and develop multi-hazard plans as follows.

Assessment of Public health Risks and hazards through an all-hazards approach:

In Mozambique, assessment of risks and prioritization of hazards using the WHO Strategic tool for assessing risks (STAR) was conducted in May 2023 with the aim of Identifying priority threats, assess the vulnerability and capacity of the Mozambique health system for effective preparedness to manage public health emergencies, plan and prioritize public health emergency readiness and preparedness activities and proposing appropriate actions to prevent, mitigate or reduce the impact of potential

hazards likely to lead to health emergencies. The assessment was conducted by the participants from the ministries of health, Agriculture, environment of Mozambique, together with the partners including ECSA-HC, WHO and Village reach. Following the assessment 13 hazards were identified to have very high and high risk as follow; Covid-19, Cholera, Tuberculosis, malaria, HIV, Road Traffic Accident, Riverine floods, Tropical cyclones, Food poisoning, Rabies, Poliomyelitis, Viral hemorrhagic fever, Arbovirus, stagnant water, Terrorism in Cabo Delgado, lack of clean water, Drought, Heat waves. Furthermore, HIV, TB and Malaria hazards were dropped for the priority list due to the fact that they have well established and strong vertical programs which can take care of the daily follow up and mitigation activities of the hazards.

Zambia: The assessment identified a total of 18 hazards for input into the matrix. In order to limit the number of hazards, a prioritization was carried out by limiting the selection to the hazards with severe impact with probable likelihood of occurring and very likely with moderate impact in the population at risk. Based on this criterion, only 12 hazards were considered for further consideration as follows; COVID-19 (Very high risk); Cholera/Acute watery diarrhea (AWD; High risk), Anthrax (High risk); Plague (High risk); Ebola Virus Disease (High risk); Measles (High risk); Road Traffic Accidents (RTA; High risk); Radiation Agents (High risk); Mining (Emissions)(High risk); Droughts (High risk); Floods (High risk);Monkeypox (Low risk). Monkeypox had a minor impact with probable likelihood of occurrence. However, as of 23rd July 2022, on the World Health Organization declared Monkeypox outbreak a global health emergency. Due to the high probability of introduction in the country despite the low impact of the disease. Although the declaration does not impose requirements on Zambia, it however serves as an urgent call to action by the member states. The meeting considered Monkey pox as a priority disease for which strengthening of preparedness was required. In line with the declaration, the country views the Monkeypox outbreak as a significant enough threat to Zambia and global health for which a coordinated international response is needed.

In **Malawi** out of the 26 hazards identified, the country identified two (2) hazards with very high-risk including cholera and floods. Those that are at high risk (11) included antimicrobial resistance, poliomyelitis, COVID-19, cyclone, road traffic accidents, Ebola virus disease, measles, rubella, stormy rains, typhoid fever and rabies. Those considered as posing moderate risk were seven (7) and include, earth tremors, highly pathogenic influenza, food poisoning, dry spells, structural collapse (building collapse, dam/bridge failure), monkeypox and radiation agents. Six (6) hazards including anthrax, violent demonstrations, gas leak/fuel spillage, chemical spills fire and trypanosomiasis were considered low risk and no hazard was considered of very low risk. Seasonality of the different hazards was determined where applicable, and compiled into a risk calendar that can be used to ensure high level of preparedness for the different hazards before the season of occurrence.

Tanzania identified the hazards with its main consequences and the following hazards were identified; COVID-19, Cholera / Acute Watery diarrhoea, Storm, Ebola Virus Disease, Aflatoxicosis, Drought, Pandemic Influenza, Earth Quake, Yellow Fever, Chemical agents, Transportation's accidents, Plague, Anthrax, Tsunami, Flood, Landslide, Monkeypox, Rift Valley Fever, Radiation agents, Cyber-attack, Mining hazards, Poliomyelitis and Volcanic activity. Covid 19 was identified as very **high-risk** hazard followed by Cholera / Acute Watery diarrhea, Storm, Ebola Virus Disease, Aflatoxicosis, Draught, Pandemic Influenza, Earthquakes, Yellow Fever, Chemical agents and Transportation's accidents as high risk.

Rwanda identified the hazards as follows ; Biological Hazards: COVID-19, Cholera / Acute Watery diarrhoea, Gastroenteritis/foodborne disease, Ebola Virus Disease, Marburg Virus Disease Anti-microbial Resistance, Aflatoxicosis , Rabies, Measles, Typhoid fever, Influenza Monkeypox, Poliomyelitis, Rift Valley Fever, Brucellosis, Hydro-meteorological Hazards : Storm, Drought, Earthquake, Flood, Landslide, Volcanic activity and Technological Hazards : Chemical spillage, Road

Traffic accidents, Structural fires, Nuclear/Radiological exposure , Mining/quarries accident. Out of those Rift valley fever, Mining/Quarries accidents, Cholera/Acute watery Diarrhea, COVID-19, Influenza and Anti-microbial Resistance were identified as very high risk. Road Traffic Accidents, Gastroenteritis/Food borne Diseases Poliomyelitis, Typhoid Fever, Measles Flood, Storm, Landslide and Ebola virus Disease were identified as high-risk hazards.

Multi-hazard/all hazards preparedness and response plan. The identified hazards posing high risk or very high risk were then used during the development of the multi-hazard response plan also termed as NHEROP (described before) for **Mozambique, Zambia, Malawi, Tanzania and Rwanda**. All the five countries were supported to develop/update their multi-hazard preparedness and response plans. Rwanda developed their NHEROP for the first time in February 2023, this was after successfully conducting their risk assessment using STAR toolkit in the January 2023.

Priority Hazards' Specific Contingency Plans: Contingency planning for high and very high-risk hazards is scenario-based and elaborates the hazard-specific mitigation, preparedness, and response measures. These plans are aimed at ensuring early detection and contain the hazard in order to avoid/reduce the spread and thus reduce the morbidity and mortality of the event in public health emergencies. It also aimed at strengthening capacity to prepare for and prevent outbreaks/disasters; as well as responding promptly to public health emergencies including disasters and guiding actions for the post-emergency (recovery) period.

The project support Malawi to developed 10 contingency plans from the list of hazards and these include Cholera, Ebola Virus Disease, Typhoid fever, Measles/Rubella, Rabies, Monkey pox, Polio, Floods, Cyclones stormy rains and Road Traffic Accidents. Scenarios for occurrence of each hazard were developed including the mitigation strategies and preparedness interventions. Zambia developed eight contingency plans includes Mpox, Viral Hemorrhagic fevers, Measles, radiation hazards, Anthrax, Floods, Rabies, and cholera. The project also supported Mozambique in which they developed six contingency plans of Road Traffic Accidents, Cholera, Rabies, Floods, Poliomyelitis and Measles

Component 3: Strengthen health systems and innovations

E-learning

The eLearning platform has been expanded to include EBS, IPC, and AMS training modules. Tanzania, Rwanda and Malawi were supported by ECSA-HC to develop the above modules. Enhanced accessibility to the learning materials developed which minimizes the cost of carrying out conventional training sessions. About 186 participants are undertaking various online courses through the platform.

Table : Participants enrolled in the e-learning platform

Country	Total Participants	Certified Participants	EBS	Laboratory Management	AMS	IPC
Tanzania	86	47	20	8	7	12
Uganda	32	19	8	3	2	6
Malawi	24	12	5	2	1	4
Kenya	22	13	6	2	2	3
Rwanda	22	11	5	1	2	3
Zambia	0	0	0	0	0	0

Mozambique	0	0	0	0	0	0
Total	186	102	44	16	14	28

Event-based surveillance applications: Zambia was successfully supported to develop, pilot and deploy their digital EBS system. Tanzania was also successfully supported by ECSA-HC in piloting and rolling out their digital EBS.

Zambia was supported to develop and roll out the electronic EBS model that has recorded 600 signals out of which 26 have been verified as events of concern for suspected rabies, scabies, measles and other high-risk events. In Tanzania, with the support of project, 826 Community Health Workers (CHWs), Health Officers, and Health Care Workers (HCWs) were trained, accelerating the roll-out of the digital EBS system in 5 Districts. This initiative has led to significant progress in real-time surveillance, with a total of 439 alerts received from the region. These include four suspected measles events across Tanganyika District Council, Nsimbo District Council, Mpimbwe, and Mlele District Councils, as well as 1 suspected food poisoning event in Tanganyika District Council. ECSA-HC is in the final stages of finalizing country protocols to assist Rwanda in updating its digital EBS.

5. Please describe implementation lessons learned and recommendations for action.

The operational efficiency demonstrated by ECSA-HC in this project underscores several vital lessons:

- The effectiveness of a multi-sectoral approach in creating comprehensive and sustainable health solutions.
- Buy-in for preparedness programs by political leadership at country level is a necessity for success.
- The pandemic of COVID-19 helped to raise awareness of country teams on the need for preparedness to a greater extent than could have been imagined
- Integrating programs can be very efficient as resources can be leveraged to cause synergies
- The implementation model with regional-led and country-led activities has helped to have a rapid take-off on this project with engagement of other partners including WHO, Africa CDC, IOM among others to build synergies and sustainability
- The importance of strategic coordination and collaboration in managing complex, multi-country health initiatives.
- The necessity of efficient and transparent resource management for the success of large-scale health projects.
- ECSA-HC's operational efficiency, with the support of the World Bank, was instrumental in the successful implementation of the project. The organization's ability to strategically coordinate, effectively manage resources, and engage multiple sectors set a high standard for future health initiatives and provides a replicable model for similar projects across the region.

D. DIGITAL INNOVATIONS AND PILOTS

6. Describe the outcome of any specific digital technology, applications, data, or other innovation used or developed.

(i) **The eLearning initiative** has made remarkable strides in enhancing access to healthcare continuous professional development across the region. By integrating pivotal training modules in Event-Based Surveillance (EBS), Infection Prevention and Control (IPC), and Antimicrobial Stewardship (AMS), the platform has expanded its reach, notably benefiting Tanzania, Rwanda, and Malawi. This strategic enhancement has not only improved the accessibility of learning materials but also effectively reduced the costs and logistical challenges associated with traditional training methods. To date, the platform hosts approximately 186 participants from Tanzania, Uganda, Malawi, Kenya, and Rwanda,

with future plans to include Zambia and Mozambique. Of these, 102 participants have successfully completed their certification across various courses, highlighting the initiative's impact on building healthcare capacities. Tanzania leads with 86 participants, boasting a significant number of certifications across all modules, followed by Uganda, Malawi, Kenya, and Rwanda, each demonstrating commendable engagement and achievement rates in their respective training areas.

(ii) **Digitizing event-based surveillance:** Under the project, Tanzania and Zambia were supported to develop and roll out digital Event-Based Surveillance (EBS) systems, enhancing their health monitoring and response capabilities. Zambia's digital EBS system has been instrumental in identifying 600 signals, with 26 confirmed as significant public health concerns, including suspected rabies, scabies, and measles. This advancement underscores Zambia's improved readiness to address health threats promptly. In Tanzania, the digital EBS system's implementation has been markedly successful, with the project enabling the training of 826 individuals, including Community Health Workers (CHWs), Health Officers, and Health Care Workers (HCWs), across five districts. To date, Tanzania has reported over 100 signals through this system, some of which have been critical health events, demonstrating the system's effectiveness in enhancing the country's surveillance and response efforts.

E. VISIBILITY AND KNOWLEDGE PRODUCTS

7. **Have there been any visibility events, publications, press releases (newspaper, social media website etc), Blogs, or human-interest stories been featured related to the HEPR grant? If so, please list and provide details, including links or attach documents, if applicable.**

Visibility for the events and activities implemented was captured through various platforms. The use of ECSA-HC LinkedIn and X pages; individual staff LinkedIn and X pages ; In country newspaper or media outlets were also used. See the links here;

<https://ins.gov.mz/ins-treina-formadores-sectoriais-em-materias-de-biosseguranca-e-bioproteccao/>

<https://www.facebook.com/315802248522240/posts/pfbid02hkngCCmBMyU9bWyoqsVnVSWf31Q5EUu83tTVeu8nM8xFXpaDiG8m3LeHn7iYGukY/>

<https://twitter.com/MBCNewsLive/status/1590053221287936000>

<https://www.instagram.com/p/CkteSRmohdy/?igshid=YmMyMTA2M2Y=>

<http://atlasmlawi.com/strengthening-regional-capacities-in-pandemic-preparedness-key-in-tackling-health-problems/>

https://m.facebook.com/story.php?story_fbid=pfbid02kE59sLcbDn7G9HV1YMFYqi1Y1JGswykwSVqzkgAFsAqy1q2jGKxzF3dR6MA8VJGTI&id=100069098034320

ANTIMICROBIAL RESISTANCE

REGIONAL WORKSHOP ON ANTIMICROBIAL RESISTANCE SURVEILLANCE AND ANTIMICROBIAL STEWARDSHIP

<https://www.linkedin.com/pulse/unveiling-solutions-regional-workshop-nairobi-against-ecsa>

<https://healthbusiness.co.ke/6819/amr-driven-by-erratic-use-and-lack-of-access-to-effective-and-affordable-medicines-maap-2016-2018-study-reveals/>

<https://healthbusiness.co.ke/6861/africa-must-collaborate-in-sharing-best-practices-in-implementing-antimicrobial-stewardship-and-deploying-amr-surveillance-systems-experts/>

https://www.linkedin.com/feed/update/urn:li:activity:7132623430603972608?updateEntityUrn=urn%3Ali%3Afs_feedUpdate%3A%28V2%2Curn%3Ali%3Aactivity%3A7132623430603972608%29

https://www.linkedin.com/feed/update/urn:li:activity:7138844693395681280?utm_source=share&utm_medium=member_android

PUBLICATION ON LESSONS LEARNT IN IMPLEMENTING ANTIMICROBIAL STEWARDSHIP PROGRAMS IN LMICs

<https://www.sciencedirect.com/science/article/pii/S2590088923000483>

ANTIMICROBIAL STEWARDSHIP WORK IN MALAWI

https://www.linkedin.com/posts/evelyn-wesangula-21626572_leadership-is-core-to-implementing-successful-activity-7086988702555471872-SuWF?utm_source=share&utm_medium=member_desktop

https://www.linkedin.com/posts/evelyn-wesangula-21626572_cwpams-ecsa-activity-7086778250516926465-Y2Di?utm_source=share&utm_medium=member_android

ANTIMICROBIAL STEWARDSHIP WORK IN KENYA

https://twitter.com/CwPAMS_AMS_ke/status/1741141907235856644?t=gWFUEbTmqOuenGFI_3w7nQ&s=19

ANTIMICROBIAL RESISTANCE WORK IN TANZANIA

<https://maipactz.blogspot.com/2023/11/waziri-ummy-mwalimu-awataka-madaktari.html>

<https://youtube.com/live/b8fsJb5luw?feature=share>

8. **Is there any interesting activity that could be shared as an experience, or as a solution story or an impact story indicating unintended positive outcome, or 'win' to HEPR Program partners? If so, please provide a brief description.**

The deployment of digital Events-Based Surveillance System:

The deployment and operational success of digital Event-Based Surveillance (EBS) systems in Tanzania and Zambia underlines a significant stride forward in regional health security and surveillance capabilities, offering a powerful narrative of impact and innovation for the Health Emergency and Pandemic Response (HEPR) Program partners. The initiative's outcomes in Zambia, with its identification of 600 health-related signals, and Tanzania, where over 826 health professionals were trained, underscore the critical role of digital technologies in enhancing disease detection, monitoring, and response efforts. This project not only highlights the tangible benefits of digital EBS systems in managing health threats but also exemplifies the potential for such technological solutions to transform public health infrastructure across the region. The success stories from Tanzania and

Zambia serve as inspiring models of how strategic investments in health technology and capacity building can lead to improved health outcomes and stronger health systems, thereby contributing to broader regional health security.

Developed human resource capacity and established a pool of experts within the Region that were utilized to support project implementation in the countries: ECSA-HC developed and established a pool of experts in the Region in all technical areas supported by the project, this served as addition resource to the project staff based at ECSA-HC. These team of experts have been deployed to support countries whenever request arises, so countries have been supporting and learning from each other in the course of project implementation i.e. Experts from Tanzania supported the IHR core capacity assessments in Malawi, Zambia and Rwanda while experts from Malawi supported the Strategic Risk Assessment in Zambia and Kingdom of Lesotho, Tanzania also supported Malawi and Mozambique in conducting Intra Action Review and After Action Review for cross border Cholera outbreak. These activities would have required services of a consultant coming from outside Africa and would have consumed a lot of resources. This implementation modality of developing human resource capacity and utilizing local experts to support each other has enabled ECSA-HC to timely implement a number of activities some concurrently while some in parallel and conclude the project within the allocated time.

Annex 1: Updated Results Framework ECSA-SPP-Project December, 2023.

Project Outcome Indicators	Baseline 2021	Targets 2022	Achievements 2022	End Targets 2023	Achievements 2023	Comments
POI# 1: Number of countries implementing harmonized regional cross-border travel protocols for priority diseases	0	1	5	4	5	This indicator was dropped and replaced by Indicator POI#1 below. This was because it was overtaken by events, it was achieved prior to project effectiveness as countries expedited the harmonization process. Therefore the Indicator was no longer relevant and was replaced as per the discussions during the missing in April 2023 with the new Poi#1 below
POI# 1: Number of countries scoring 60% on PoE routine capacities are established	0	3	3	4	4	Tanzania, Malawi, Zambia, and Rwanda have achieved 60% on PoE routine capacities established. The project supported the capacity as well as risk assessment and developed contingency plans as required by WHO. Tanzania and Zambia undertook the JEE and scored 3 and above on the PoE indicators in JEE3 tool.
POI#2. Number of countries scoring 60% in at least 3 of the 5 selected JEE core capacity indicators i. R.1.1 multi-hazard national public health emergency preparedness and response plan is developed and implemented ii. R.1.2 Priority public health risks and resources are mapped and utilized iii. PoE.1 Routine capacities are established at PoE. iv. P.3.4 Antimicrobial stewardship activities v. D.2.1 Indicator- and event-based surveillance systems	0	1	3	4	4	Achieved and surpassed Year 1 targets, Tanzania Scored 3 points (60%): On R.1.1 , P.3.4 and D.2.1 Zambia Scored 3 points (60%): On R.1.1 , P.3.4 and D.2.1 Rwanda Scored 3 points (60%): On R.1.1 , PoE.1 and D.2.1 and Malawi Scored 3 points (60%): On R.1.1 , P.3.4 and D.2.1 and
Intermediate Outcome Indicators	Baseline 2021	Targets 2022	Achievements 2022	Targets 2023	Achievements 2023	Comments
IOI #1. Number of countries that have developed country-specific guidelines/ protocols and tools to establish and roll out EBS	0	1	5	4	5	Achieved and surpassed targets
IOI #2. Number of countries supported to conduct multi-hazard risk and resource assessment	0	2	5	4	5	Achieved and surpassed targets.
IOI#3. Number of countries supported to develop/update multi-hazard plans	0	2	5	4	5	Achieved and Surpassed targets.
IOI#4. Number of health personnel trained	0	100	1,206	300	1963	Antimicrobial Stewardship, Field Epidemiology, Laboratory Management

						and Leadership TOT on EBS, IDSR ToT Rwanda IDSR Public HCW, Rwanda IDSR Private HCW Rwanda IDSR (Public & Private HCW) TZ, Sentinel surveillance staff (TZ). AMS ToT and Cascade Trainings in Malawi, Rwanda, Tanzania and Zambia, Biosafety & Biosecurity, and New ISO:15189
IOI# 5. Number of countries with antimicrobial stewardship guidelines in place	1	2	4	4	5	Achieved and surpassed Year 1 targets. These are Malawi, Tanzania, Rwanda, and Zambia
IOI#6. Number of personnel trained through the e-learning platform.	0	100	41	400	238	The e-learning platform has a total enrollment of 238 students who have joined the system since March 2022. Tanzania leads with 110 students, followed closely by Malawi with 31 students. Uganda has 41 students; Rwanda has 28 and Kenya 28 students.

Annex 2: Comparison of Antimicrobial Stewardship Capacity Assessment Results -Baseline and Endline Assessment Scores

WHO AMS core element indicators	Average performance by element (33 Hospitals across 5 countries)									
	RWANDA		TANZANIA		MALAWI		ZAMBIA		MOZAMBIQUE	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Presence of DTcC, ICC or AMS team	73%	91%	71%	93%	92%	91%	91%	95%	67%	84%
DTC Functionality	57%	72%	53%	84%	70%	61%	49%	85%	62%	85%
Leadership Commitment	22%	54%	37%	76%	69%	60%	56%	76%	53%	49%
Accountability and responsibility	29%	63%	29%	68%	75%	81%	72%	90%	68%	78%
AMS Actions	43%	69%	58%	83%	58%	72%	50%	88%	54%	67%
Education and training	28%	69%	25%	50%	69%	86%	54%	91%	33%	35%
Monitoring & surveillance	44%	62%	35%	67%	71%	71%	76%	86%	52%	64%
Reporting & feedback	27%	46%	19%	49%	49%	67%	46%	71%	28%	64%
OVERALL Score	38%	65%	39%	73%	65%	72%	56%	85%	49%	68%