



The East Africa Public Health Laboratory Networking Project (EAPHLNP)

Annual Regional Project Status Report

2017/2018 REPORT



Acknowledgements

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We also appreciate the efforts of other project teams as well as partners who have supported the implementation of the project and who we may not have mentioned by name. We achieved this together. God Bless you all.

Forward

The East Africa Public Health Laboratory Network Project (EAPHLNP) is a regional World Bank funded Project, which is being implemented in five countries, namely Kenya, Rwanda, Tanzania, Uganda and Burundi in collaboration with the East, Central and Southern Africa Health Community Secretariat (ECSA-HC), the East African Community, World Health Organization (WHO), the US Centres for Disease Control and Prevention (US CDC), and other partners.

The project aims to establish a network of efficient, high quality, accessible public health laboratories for the diagnosis and surveillance of Tuberculosis (TB) and other communicable diseases. This effort has contributed and continues to contribute to:-

- Enhanced access to diagnostic services for vulnerable groups to contain the spread of diseases in cross border areas.
- Improved capacity to provide specialized diagnostic services and conduct drug resistance monitoring of microbes (AMR Surveillance) at regional level;
- Improved capacity for disease surveillance and emergency preparedness efforts through the availability of timely laboratory data to provide early warning of public health events;
- Established platforms at country and regional level for conducting training and research

This 2017-2018 regional annual report has been prepared by the ECSA-HC Secretariat in collaboration with the project teams from the countries. The report highlights the activities that have been implemented across the countries and the achievements for the year 2017-2018. It also includes some case studies and lessons learnt during the project implementation in the East African countries which may be replicated in other regions. ECSA-HC is strongly committed to continue supporting the implementation of the project and therefore strengthen the diagnostic services in the region.

I congratulate the implementers, the authors and the country coordination teams that prepared this comprehensive report. I also wish to thank the World Bank for their support, which has enabled this project to be the success it has been over the years

Prof. Yoswa Dambisya
Director General ECSA-HC

Preface

Effective diagnostic services are essential to a functional health care system. Laboratories provide confirmatory diagnosis, improved management of disease, and essential public health information for disease surveillance and response to outbreaks. However, laboratory services in many developing countries face numerous challenges that render them less effective, ranging from poor selection of techniques, shortages of functioning essential equipment, limited technical expertise in quality and quantity, lack of quality assurance systems, and shortages of supplies. As a result of this, laboratories have been the weakest link in health systems in the region, hindering governments' ability to confirm and respond in a coordinated manner to disease outbreaks and provide evidence based patient management.

In the absence of adequate laboratory services, health facilities in African often based their diagnosis largely on clinical signs and symptoms, which could be subjective and challenging given that many endemic diseases present with similar signs and symptoms. Moreover, emerging pathogens such as Ebola, multidrug resistant microorganisms are becoming challenging to detect with poor diagnostic capacities.

In recognition of the need for well function laboratory systems, the World Bank funded a laboratory strengthening project in the East African region to address the following common health problems affecting the countries:

- Elevated threat of communicable and Non Communicable diseases in the region;
 - Epidemic prone diseases (cholera, meningitis, rift valley fever and other emerging and re-emerging diseases);
 - Emergence of Multi Drug Resistant-Infections/Pathogens (Tuberculosis, Neisseria, Staphylococcus, Streptococcus, E.coli etc.) raises serious public health concern due to high risk of transmission through porous borders;
 - Growing burden of Non Communicable diseases including cancers.
- Poor access to reliable diagnostic testing facilities resulting in delayed response to outbreaks and inadequate management of patients;
- Urgent need to improve disease surveillance due to ongoing threat of outbreaks and new global pandemics.

The project provided funds to bridge the gap in quality laboratory service delivery by improving infrastructure, staffing and human resource development in five countries in East Africa namely: Burundi, Kenya, Rwanda, Tanzania and Uganda. The project supported 32 facilities in the initial phase and is supporting 41 laboratories during the Additional Financing phase, in the participating countries. The health facilities supported are located in the capital cities and cross-border areas. In addition to becoming Centers of Excellence (CoE), these laboratories are meant to increase access to laboratory services, especially amongst the poor and vulnerable populations in their catchment areas. Most of the project supported laboratories now have state of art equipment and are providing specialized services to communities in the region. These laboratories have reduced the turnaround time for results, thus contributing to reduced morbidity and mortality occasioned by delayed diagnosis and treatment. The project has also facilitated knowledge exchange amongst the technical teams in the project countries as well as individual learning, contributing to improved health service delivery in the region.

Dr. Martin Matu

Project Coordinator EAPHLNP.

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Part 1:

REGIONAL IMPLEMENTATION



Background

The *East Africa Public Health Laboratory Networking Project* tackles the historical neglect of public health laboratories. The US\$78 million (phase 1) project, approved by the World Bank in May 2010, and received additional financing in the tune of US\$50 million in 2015, aimed at *establishing a network of efficient, high quality, accessible public health laboratories for the diagnosis and surveillance of tuberculosis and other communicable diseases* in the East African Community partner states (Kenya, Rwanda, Tanzania, Uganda and Burundi). The project is rolling out service delivery innovations, promoting client driven knowledge sharing, and fostering an evidence-based approach supporting 41 sites across all the countries. All project-supported satellite laboratories are located in cities and cross border areas, focusing on bringing services closer to vulnerable groups.

Project objectives

The project aims to establish a network of efficient, high quality, accessible public health laboratories for the diagnosis and surveillance of Communicable and Non Communicable diseases. This project is providing support to ensure the following objectives are achieved:

- Enhanced access to diagnostic services for vulnerable groups to contain the spread of diseases in cross border areas;
- Improved capacity to provide specialized diagnostic services and conduct drug resistance monitoring at regional level;
- Improved capacity for disease surveillance and emergency preparedness efforts through the availability of timely laboratory data to provide early warning of public health events;
- Established a platform for conducting training and research.

The project uses a *client-focused approach* with each participating country providing regional leadership in a thematic area. *Kenya* leads on Integrated Disease Surveillance and Response and Operational Research; *Uganda* provides regional support on Laboratory Networking and Accreditation; *Tanzania* coordinates regional Training and Capacity Building; and *Rwanda* leads on Information and Communication Technologies (ICT), and co-leading with *Burundi* on Performance Based Financing. The East, Central and Southern Africa Health Community (ECSA-HC), together with the East African Community (EAC), facilitates knowledge exchanges, and sharing good practices with both practitioners and policymakers.

Coordination of regional activities

- a. Laboratory mentorship and SLIPTA audits
- b. Joint training and capacity building (regional training, training courses developing, establishment of e-learning)
- c. Disease surveillance and response - Joint outbreak investigations and response, cross-border committee establishment and joint work plan implementation; supporting laboratory based surveillance.
- d. Joint research – funding regional multi-country research activities; regional cross-cutting analytical evaluations (PPP, HRH, Economic impact models)
- e. Information sharing and exchange- regional convening (IWGs, site teams); website and regional systems development and maintenance

Country level

- a. Construction/renovation of facilities
- b. Laboratory equipment
- c. Training and mentorship support
- d. Implementation of operational research
- e. Systems development and maintenance – LIS, webpages maintenance
- f. Surveillance and response- in-country outbreak management and response; strengthening surveillance activities

New opportunities that have emerged during the implementation

- (i) Phase 2 of the EAPHLNP approved and commenced (new closing date is March 2020).
- (ii) ECSA-HC received funding through the World Bank to Coordinate the Southern Africa TB and Southern Africa Health Systems Support (SATBHSS) project in Lesotho, Malawi, Mozambique and Zambia
- (iii) Opportunities to implement AMR surveillance in the project countries
- (iv) Through the EAPHLN initiative, the World Bank Trust fund for Statistical Capacity Building has approved a project to support Statistical Capacity Building of the cancer registries in East Africa Region that was approved in May 2017 and received the initial financing in September 2017. Additional support to build capacity in cancer diagnosis is ongoing under the EAPHLN project additional financing.

Investments in laboratory services

The project is providing funds to enhance access to quality and efficient laboratory services, by addressing infrastructure, staffing and human resource development challenges.

The project is supporting 41 laboratories in the participating countries situated in the capital cities and cross-border areas to become Centers of Excellence (CoE) and increase access to laboratory services, especially for the poor and vulnerable populations. The laboratories are expected to enhance provision of specialized services to communities in these regions, services that were otherwise available only in the national reference facilities resulting in long turnaround times. The long turnaround time contributes to increased morbidity and mortality due to delayed diagnosis and treatment.

The project has provided an opportunity for improved infrastructure (renovations, construction of new facilities, ICT) and equipment to expand the testing scope and capacity for specialized testing. Human capacity building is also a key need being addressed by the project laboratories in some countries, hired mentors and other experts support improve the skills of the professionals.

The project has also facilitated knowledge exchange amongst the technical teams in the participating countries resulting into individual, institutional and national learning to improve laboratory service delivery.



Figure 1.1: Location of the EAPHLNP supported facilities

Regional Project Management and Leadership

The project includes three mutually reinforcing components, which assist the member states to diagnose diseases (Communicable and Non-Communicable) of public health importance and to share information about those diseases translating to an effective national or regional response. The three components are; *Component 1: Regional Diagnostic and Surveillance Capacity;*

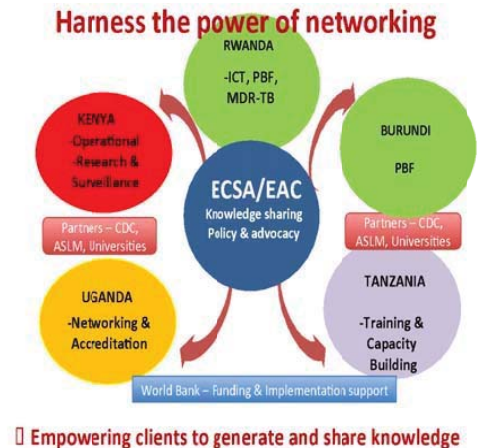
Component 2: Joint Training and Capacity Building and;

Component 3: Joint Operational Research and Knowledge Sharing.

The project is using a “design regionally implement nationally approach” i.e. the Project has established regional platforms that facilitate designing interventions that the National institutions including Ministries of Health and partners execute and implement at the country level. Regional institutions support the countries through technical working groups (TWGs) in executing the activities that cannot be performed efficiently by national agencies, such as coordination.

Regional working groups develop implementation strategies for activities to be implemented at national level and information is shared among the collaborating countries on the progress of implementation and lessons learnt. Each country takes lead in a specific thematic area to guide the design, approval and implementation of activities at national or regional levels. ECSA-HC and EAC provide regional coordination of all these technical working groups and additional support to countries' project implementation.

Regional coordination bodies described in figure 1.2 contribute to ensure the regional activities are effectively implemented and forge regional co-operation in addressing common health Problems collectively.



Regional coordinating bodies roles and responsibilities

Regional Organizations

The East, Central and Southern African Health Community (ECSA-HC)

ECSA-HC is a regional inter-governmental health organization that fosters and promotes regional cooperation in health among member states. Member states include Kenya, Lesotho, Malawi, Mauritius, ESwatini, United Republic of Tanzania, Uganda, Zambia and Zimbabwe. ECSA-HC was established in 1974. ECSA-HC's activities also spread to other countries in Africa to address common health challenges facing the region. ECSA-HC works with countries and partners to raise the standard of health for the people of the ECSA region by promoting efficiency and effectiveness of health services through cooperation, collaboration, research, capacity building, policy development and advocacy (www.ecsahc.org).

Under the EAPHLN project institutional arrangement, ECSA-HC plays a facilitating and coordinating role under the project supporting the four participating countries by:

- Organizing meetings and regional reviews, and facilitating technical discussions;
- Coordinating and supporting activities of the Regional Technical Working Groups (TWGs)
- Documenting good practices and provide a platform for knowledge sharing and dissemination;
- Coordinating the preparation of joint studies on human resources and public/private partnerships in laboratory services;
- Consolidating country status reports and reporting on results; and
- Preparing policy briefs for ministerial meetings and high-level policymakers on conclusions stemming from the activities supported under the project.

The East African Community

The East African Community (EAC) is the regional inter-governmental organization of the Republic of Kenya, Republic of Uganda, the United Republic of Tanzania, Republic of Rwanda, Republic of Burundi and Republic of South Sudan with its headquarters in Arusha, Tanzania.

The EAC aims at widening and deepening co-operation among the Partner States in, among others, political, economic and social fields for their mutual benefit. To this extent the EAC countries established a Customs Union in 2005 and a Common Market in 2010. The next phase of the integration will see the bloc enter into a Monetary Union and ultimately become a Political Federation of the East African States (<http://www.eac.int>).

Part 2:

DIAGNOSTICS AND SURVEILLANCE CAPACITY



Laboratory Systems Improvements

There have been impressive gains in the Stepwise Laboratory Improvement Process Towards Accreditation (SLIPTA), institutionalizing Laboratory Quality Management Systems (LQMS) translating into a culture of continuous quality improvements as evidenced by the satellite teams during mentorship and knowledge exchange visits and set the facilities on a path towards accreditation. Some of the key achievements include: -

- Trained over **200 laboratory quality management experts** in laboratory quality management programs including laboratory audit (SLIPTA Auditors), mentorship (Laboratory Mentors), Strengthening Laboratory Management Towards Accreditation (SLMTA Trainers), Uncertainty of measurements and Root Cause Analysis, Biorisk management among others.
- Provided TOT in SLIPTA, the first of the kind since the initiation of implementation of SLIPTA and hands-on bench training including capacity building for AMR surveillance.
- **Six laboratories** including Central Microbiology laboratories (CML) and National TB Laboratory in Kenya; Ndanda, Kibongoto and Mnazi Mmoja Hospital laboratories in Tanzania have been accredited using ISO 15189 standard. National TB Reference Laboratory in Uganda has maintained accreditation for another period. Several laboratories were recommended for accreditation

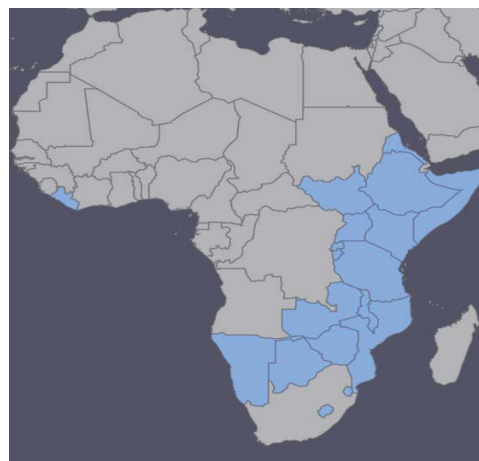


Figure 1.3 Countries receiving support from the Uganda SRL across in Eastern, Southern Africa and West Africa

Uganda Supra-National Reference Laboratory (SRL) continued to provide technical support with 20 countries in East, Central, Southern and Horn of Africa following its recognition as part of the WHO global network of SRLs including Tanzania, Eritrea, Rwanda, Liberia, Swaziland, Zambia, S. Sudan, Kenya, Burundi, Malawi, Seychelles, Mauritius, Uganda, Zimbabwe, Mozambique, Botswana, Ethiopia, Namibia, Lesotho). Regional Global Fund grant was made available through the collaboration of the SRL and ECSCA-HC provided opportunities for further networking and support for countries in Eastern and Southern Africa. The grant has been renewed in 2018 to continue supporting the same countries and include additional countries like Ethiopia and Liberia.

Laboratory accreditation

The project conducts annual regional peer audits of laboratory systems using SLIPTA trained and certified laboratory auditors by ASLM to benchmark the level of performance to meeting the quality standards using the WHO/AFRO SLIPTA checklist. The peer assessment conducted in April 2018, found that 81% of project-supported facilities attained at least 2 stars, which was the original target, compared with 23% at baseline (2011), a 59-percentage point's increase. Most of the networked facilities have surpassed the initial target and a new target of 3 stars has been set since 2016. The 2018 assessment was conducted in collaboration with the ASLM and facilities issued with official SLIPA certification. There was a slight drop in the performance, partially due to crossing over to ISO15189 accreditation of the best performing laboratories. These laboratories were not assessed using SLIPTA based on the accreditation guidelines.

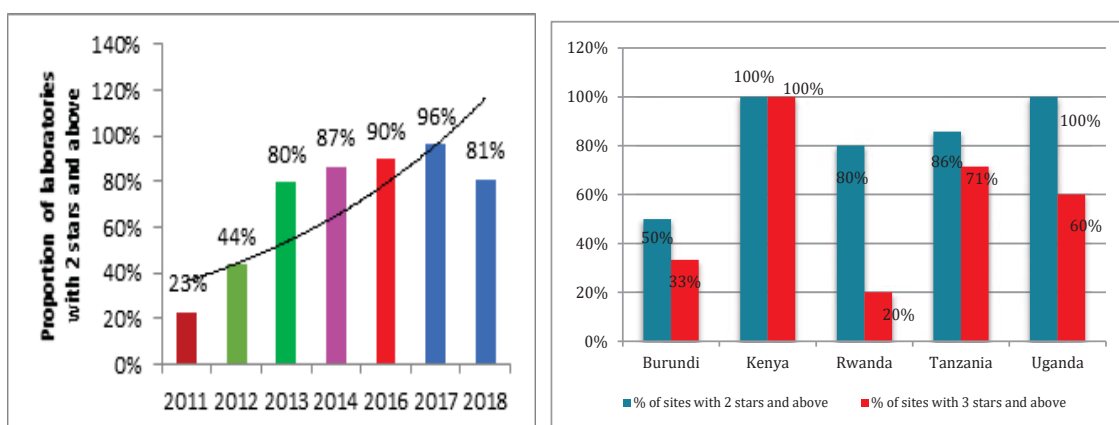
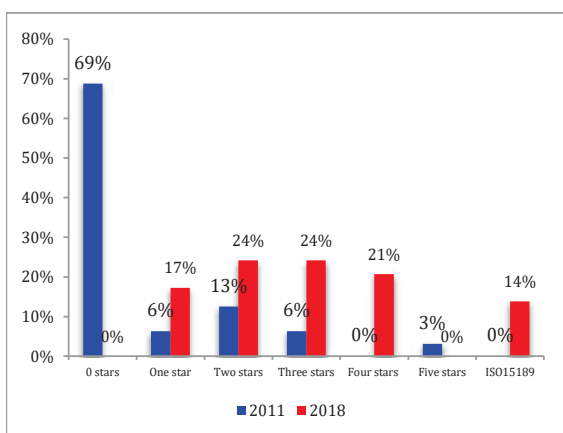


Figure 1.4 Performance of the network laboratories in the regional peer SLIPTA audits 2011 to 2018

The performance varied from country to country but overall improvements were recorded in performance of the laboratories over time. All the laboratories in Burundi, Kenya, Rwanda and Tanzania attained 2 stars and above. All the laboratories in Kenya scored 3 stars and above. Slippages were experienced occasioned by a number of factors indicated below.



The results of the 2018 assessments as in the previous year showed general strengths in the areas of laboratory infrastructure shown to be sufficient for most laboratories, good working relationship with the top management and clinical departments in the respective facilities, customer satisfaction survey and feedback mechanism, alignment of QMS to ISO 15189:2012, appreciation of the importance of strong quality management system (QMS) and commitment to quality by laboratory staff members and mentorship support. Laboratory equipment management that has been a big problem is progressively beginning to find a solution with the implementation of capacity building program for biomedical engineers. Progress on quality

management systems has been steady but occasional slippages have occurred occasioned by the need for improvement in the following areas (i) internal country performance in SLIPTA Assessments where number of tests were not enrolled in any proficiency testing (PT) scheme; and external quality control where significant (ii) management of non-conforming events and root cause analysis which is not systematically implemented across, and (iii) human resources where a number of facilities lack replacement of separated staff. There are opportunities for scaling up the innovations under the project including the project design to other regions, partnerships built to leverage global expertise and ensure coordinated support that are key for sustaining and scaling up the gains.

Laboratory equipment management

ECSA-HC in collaboration with the Kenya Equipment Management Center of Excellence at the National Public Health Laboratory Services in Nairobi conducted phase 1 training for training users and biomedical engineers on preventive maintenance and laboratory equipment repairs in April 2018. The training supported a total of 16 biomedical engineers and covered 10 laboratory experts on a joint session of general laboratory preventive maintenance and inventory management. The Kenya program was established through the

support of the CDC through Association of Public Health Laboratories (APHL) that has built a pool of experts and provided the tool kits to support the maintenance and calibration work.. The topics covered were: -

- Troubleshooting and repair for rotators & roller mixers, shakers and vortex
- Repair and calibration of centrifuges
- Troubleshooting, repair and calibration of fridges & freezers

- Trouble shooting, repair and calibration of weighing balances
- Trouble shooting and repair to water baths
- Troubleshooting and repair to laboratory microscopes
- Hands on of disassembly & assembly of light and fluorescent microscopes



Figure 1.5 Biomedical engineers repairing equipment during a training session at the Kenya Equipment Maintenance and Calibration Centre of Excellence

In order to successfully set up fully functional equipment maintenance and calibration centers, the project works with the countries to support with essential tool kits and human resources capacity. The key needs were identified as:

- Equipment maintenance workshop
- Calibration tools kits
- Workshop tool kits
- Human resources and capacity training

The project provides opportunities for exchange support and technical support (inter-country and intra-country) for example, during the year, the team from the Kenya Equipment Maintenance CoE supported with maintenance and calibration of equipment at three satellite sites in Burundi.

Antimicrobial Resistance actions

Antimicrobial resistance is a global concern that may attribute to 10 million death/year by 2050 and cause a reduction in GDP of up to 3% and cost the world up to \$100 trillion. The World Bank case

study of “Drug Resistance Infections — Threat to our Economic future” demonstrated the need to have laboratory surveillance on Antimicrobial Resistance. There is also growing concerns by policy makers (GHSA) on AMR stewardship given the five EAC member states where basic yet essential and most used antibiotics are losing their effectiveness and the health systems are ill equipped to deal with the emerging Multi-Drug Resistance by circulating microbes identified to even the second-generation cephalosporin (findings of the Enteric Study, Uganda, 2016). In line with the WHO five global objectives of the Global Action Plan on AMR i.e to

improve awareness and understanding of antimicrobial resistance; to strengthen knowledge through **surveillance and research**; to reduce the incidence of infection; **to optimize the use of antimicrobial agents**; and develop the economic case for sustainable investment, the project is supporting two areas, AMR surveillance and research and support for optimizing use through Stewardship programs.

Based on the investments made by the project in the physical upgrade of laboratories, improvement of quality laboratory systems, training and mentoring, the supported laboratories are suitable candidates for early enrollment in the AMR surveillance networks, leveraging these investments. The EAPHLNP has repositioned to support AMR initiatives. The project mapped out sites involved in AMR surveillance and also developed a reporting tool to standardize the mode of communication. The project also sensitized hospitals management on the sustainability of the AMR program. The following is a summary of the activities undertaken on AMR so far with the support of the project and government investment.

In **Tanzania**, EAPHLN-Project supported the establishment of AMR laboratory surveillance. The project mapped out sites (laboratories) to be involved in the surveillance. Improved communication with the sites through the use of ECHO Platform, developed AMR reporting tool and held sensitization meeting with hospitals management on AMR and on the sustainability of the surveillance program. 18 laboratory staff from satellite laboratories and from other 4 regions were trained on basic laboratory testing and antibiotic susceptibility testing (AST) and reporting. The sites were also supported with supplies and reagents for AMR laboratory surveillance. Sites participating in AMR surveillance include:- Project sites (CTRL-TB; Ndanda and Kibong'oto; Maweni, Musoma, Mnazi Mmoja and Sumbawanga) and non-project sites (Morogoro Regional Hospital, Dodoma Regional Hospital, Bombo (Tanga) Regional Hospital and Amana —Dar es Salaam). The sites were selected due to their excellent performance on detection and reporting outbreak samples.

Kenya has made progress in registering sites into GLASS and the sites are now submitting data to the National Data warehouse utilizing the existing laboratory information systems at the sites that were expanded to incorporate microbiology module and trained laboratory staff at various sites. Two sites were selected for piloting AMR surveillance i.e. Thika and Kitale hospitals and plans are underway to enroll more sites. The country is implementing ECHO for AMR (already have ECHO for TB and HIV programs) utilizing the platform to follow up on implementation at the sites and providing the necessary support and advise to the sites while also facilitating knowledge exchange and information sharing among the sites.

Uganda developed plan for 2017-2021 and established AMR taskforce. Surveillance sub-committee provides leadership and coordination. Identified and set up coordination centres for Bacterial/fungus, Malaria, HIV, TB programs. Conducted capacity assessments for the reference laboratories (lab capacity), referral hospitals, general hospitals, specialty hospitals, private labs and animal labs. Uses a specimen referral network.

Implementation of AMR surveillance is at infancy in **Burundi**. The country has established a taskforce to lead in the development of the AMR National Action Plan and support its implementation.

ECSA-HC is working with the regional AMR teams and the Bank to develop a regional **AMR stewardship guidance document** that will assist countries to develop country specific stewardship programs.

Support for cancer diagnosis and surveillance and registration capacity building

Countries have procured equipment such as Human Papilloma virus DNA screening for cervical cancer. The project previously supported training of pathologists and cytotechnologist on Fine needle aspiration and bone marrow aspiration, processing of pathology smears and interpretation of results for diagnosis of cancer. A follow up training to cover Burundi is planned in the 2018/19 fiscal year.

The Regional Program on Cancer Registries that is aimed to strengthen capacity for collecting, analyzing and sharing data on cancers in the five East Africa member states was officially launched in September 2017. The project is expected to contribute to strengthening the capacity of Ministries of Health to produce reliable cancer statistics based on population-based registries which will help clinicians to provide appropriate care and policymakers in mobilizing more resources, raising awareness, and promoting early screening and detection of cancer. The project supports four key activities: conduct country assessments to identify strategic locations for establishing additional cancer registries; establish core capacity at new sites, by procuring basic equipment (i.e. computers, printers, and office furniture); provide training, capacity building and mentorship for cancer registrars, statisticians and other key personnel; disseminate findings from cancer registration pilots, documenting the value added of this approach to strengthen national statistical capacity, providing a platform for data sharing for use by researchers and exploring ways to consolidate and scale up results. Some key activities have been initiated including: -

- On-going discussions to strengthen pathology services in Burundi in order to have some cases confirmed by laboratory.

Key milestones:

- Selection of sites for PBCR (Burundi-Bujumbura, Kenya-Nairobi; Tanzania - Dar es Salaam (part), Uganda - Mayuge; Rwanda- Kigali
- Countries provided with funds to undertake data collection i.e. Kenya, Tanzania, Uganda and Rwanda
- Procurement of furniture and ICT equipment for the registry — Kenya, Tanzania, Uganda and Rwanda
- Trained cancer registrars from the countries in the use of Canreg and cancer registration process with collaboration of WHO IARC and AFRCN.
- Workshop planned for advanced training and workshop was conducted in in October 2018 during AFRCN conference covering Burundi, Uganda, Kenya and Tanzania.

Part 3:

TRAINING AND CAPACITY BUILDING



The EAPHLN Project has provided the necessary support to promote increased number of highly qualified and trained laboratory workforce. EAPHLNP is supporting both long-term (Bachelors, Masters and PhD) training as well as short-term training for Continued Professional Development (CPD).

Long-Term Training

Ninety eight (98) candidates have benefited in training support through the EAPHLNP in various long-term training programs since the project inception in January 2011 to 2018; thematic area specific data is available in table 1.

Table 1: Shows the candidates trained under various programs in each Country.

	Course	Rwanda	Tanzania	Kenya	Burundi	Total
1	PhD	1	6	0	0	7
2	FELTP	7	16	4	3	30
3	MSc in Virology, Microbiology & Parasitology, Pathology and Molecular Biotechnology	6	14	3	6	29
	Mmed-Health Sciences		3	1		4
	MSc.Health Sciences			1		1
4	MSc in Strategic management			1		1
5	MPH	1	2	1		4
	ICT		2			2
6	BSc in Laboratory Sciences		14			14
7	MSc in Monitoring and Evaluation		2			2
8	Higher Diploma (Bacteriology and Med. Microbiology)		1	2		3
	MSc. Health Economics			1		1
TOTAL		15	60	14	9	98

Note: * EAPHLNP in Uganda did not support any candidates for long-term training during the phase 1 of the Project.

Short Term Training - Regionally Coordinated Training

At the regional level, the Tanzania team continues to lead the Training and Capacity Building Technical Working Group in collaboration with the ECSA-HC. The approach is to provide training to a core team of experts in each country who can then be used to provide training to other health personnel at national and satellite sites. The project has so far conducted 41 Regional training sessions with a total of 537 participants trained (142 in 2011/12 and 157 during the 2012/13 30 trained during the 2013/14 and 58 trained during the 2014-2015 fiscal year), 142 trained in 2015/16, 107 trained in 2016/17 and 43 trained 2017/18. The training were in the following disciplines Laboratory management, Disease Surveillance and outbreak investigations, Bio-risk

Management, Basic & Advanced ICT, Procurement training, Laboratory Assessors (auditors) training, Operational research, ICT-TYPO3, Typo3 refresher course, Procurement, Laboratory Biosecurity training, Quality Management Systems, Monitoring and Evaluation and Refresher Training for Laboratory Assessors, Certificates in Laboratory Leadership and Management, Molecular technics, Training on Fine Needle Aspiration, e-IDSr Training, Electronic M&E Training, measurement and Method Validation and Internal Audits, E Learning TOT For administrators (ICT& Lab specialists, Refresher Training for Lab Assessor, Training in Equipment Maintenance (Common equipment within the lab-Rotator, incubator, water bath).



Figure 1.6 Participants for the Regional Training on Equipment Maintenance

In Country Training

The in-country coordination units supported short-term in-country training using the cascade approach and also utilizing in-country expertise from other partners. The training were in the following disciplines; TB Microscopy & liquid culture, Tuberculosis culture and identification, MDR TB, Strengthening Laboratory Management towards Accreditation (SLMTA), specimen collection and shipment, Performance Based Financing, Diagnostic Molecular Biology, Research Methodology and Scientific Writing, Laboratory Mentorship and malaria microscopy, Laboratory Management, Disease Surveillance and outbreak investigations, Biorisk Management, Basic and Advanced ICT, New diagnostic techniques (GeneXpert),

Good Clinical Laboratory practice, Laboratory Assessors (auditors) training, Project Management; and Monitoring and Evaluation. Regional training on medical laboratory equipment maintenance, EQA pre-enrollment training, Training on public sector financial management at ESAMI Arusha, SLMTA Workshop I, SLMTA Workshop II, Training of NPHL managers and data focal persons on data entry and analytics in the DHIS2, Training on EAPHLN M&E online portal, orientation of project indicators, updating the results framework and e learning portal, Training on GeneXpert quality assurance for EAPHLN sites Good Clinical Laboratory practice, Laboratory Assessors (auditors) training, Project Management; and Monitoring and Evaluation. Regional training on medical laboratory equipment maintenance, EQA pre-enrollment training, Training on public sector financial management at ESAMI Arusha,

SLMTA Workshop I, SLMTA Workshop II, Training of NPHL managers and data focal persons on data entry and analytics in the DHIS2, Training on EAPHLN M&E online portal, orientation of project indicators, updating the results framework and e learning portal, Training on GeneXpert quality assurance for EAPHLN sites.

Different countries have trained varied number of participants in the regional and in-country training. A total of over 15,422 personnel have been trained across the five countries from 2010 to 2018. A total of 2132 personnel were trained in the year 2017/18, with Kenya having trained 127 health personnel, Tanzania has trained 1365 health personnel, Uganda has trained 265, Burundi has trained 375 personnel (table 2).

Table 2: Number of health personnel trained under EAPHLNP

Countries	Number of health personnel trained								Cumulative target	Achieved	Percentage achievements
	Year-1 2010/11	Year-2 2011/12	Year-3 2012/13	Year-4 2013/14	Year-5 2014/15	Year-6 2015/16	Year-7 2016/17	Year-8 2017/18			
Kenya	300	854	649	78	189	169	169	127	3879	2535	65%
Uganda	0	72	163	240	555	513	340	265	1012	2148	212%
Tanzania	3	289	861	1032	767	1279	869	1365	7161	6465	90%
Rwanda	0	783	1765	45	65	40	29	0	1620	2727	168%
Burundi*	NA	5	40	329	82	514	192	375	3048	1537	58%
ECSA-HC	NA	1	4	1	2	2	0	0		10	
Total Trained	303	2004	3482	1725	1660	2517	1599	2132	16720	15422	92.2%

Evaluating the Outcomes of the Local and Regional Trainings conducted under the EAPHLNP

The TCBTWG in collaboration with ECSA-HC secretariat organized and facilitated a number of short term Regional Trainings and noted that there is a need to assess the outcomes or impact these training programs. The tools for assessing the training outcomes were prepared and shared with the countries for data collection. It was proposed that the assessment exercise focus on few regional trainings that were well structured such as those related to quality management (QMS, Mentorship, SLMTA, Audit), courses like OR, Lab management, Biorisk Management and course on surveillance laboratory based. It is also important to categorize courses undertaken in the region versus those which were conducted in counties, like ICT training, molecular technics. Tanzania and Burundi have completed the data collection and have done preliminary analysis and draft report available. Uganda and Kenya data collection process is still on going

e-Learning platform

The EAPHLNP participating states developed e-learning platform and five training modules were developed for different courses that could be used to train laboratory staff in the region. Each country was assigned to lead in developing one or more of these e-

Learning modules following agreed regionally standardized model. The modules developed were in the following areas;

- Laboratory Management (Tanzania),
- Biorisk management (Uganda),
- Laboratory Based Disease Surveillance (Kenya),
- Basic ICT (Rwanda) and
- Operational Research (Kenya).

The materials used to develop these e-learning modules have been successfully used for classroom based regional training for laboratory staff and other health professionals. These modules have already been converted to multi-media and subsequently deployed on the e-learning platform available online for target staff from the satellite sites and other health personnel in the region and beyond as means of improving access to training opportunities of laboratory personnel and other health professionals. The e-learning platform has been updated to a more user-friendly self-learning platform for sustainability purposes, with most functions being automated. Students can now enroll and undertake courses of their choice.

The portal is currently available at <http://www.elearning.ecsabc.org>, the e-learning platform has been revamped to a more user friendly format and it's now a self-learning platform, student can enroll and follow up on the course materials themselves. The portal is available in two versions: the online and the offline version where student with limited access to internet can download the application, install it on their desktops or laptops and read the materials available while in offline and re-connect online only when he or she wants to do an exam and print the certificate. About 150 participants have been enrolled in the course; with 50 have certified.

Harmonization of training standards in EAC region for Laboratory Medicine

The Medical Laboratory Boards and Councils of the EAC partner states during their meeting held in Arusha, Tanzania from 27th to 28th February 2012 noted that the EAC partner states were using different titles/nomenclatures for trained and qualified medical laboratory professionals. The variation in the titles/nomenclature used for similar qualifications was hampering mutual reciprocal recognition and practice of medical laboratory professionals across borders. In this regard, the boards and councils recommended and advised the Ministers of Health to approve harmonization of titles for medical laboratory workforce as proposed by the joint health profession boards meeting of 27th February 2013. The 8th ordinary meeting of the EAC Sectorial Council of Ministers on Regional Cooperation in Health therefore approved the following titles and designations for Medical Laboratory Professionals (EAC/CM 08/Decision 05)

- i. Medical Laboratory Technician (Certificate level)
- ii. Medical Laboratory Technologist (Diploma and Higher Diploma level)
- iii. Medical Laboratory Scientific Officer (Bachelor degree level)
- iv. Medical Laboratory Specialist (Master's degree and above)

The EAPHLNP conducted a study on Human Resources for Health (HRH) focusing on medical laboratory professionals in four of the EAC partner states namely; Kenya, Rwanda, Tanzania and Uganda which revealed major differences in the training standards and curricula used by various training institutions within the countries and between the countries. To facilitate mutual reciprocal recognition of laboratory professionals, it was found necessary to harmonize training curricula for various cadres of medical laboratory professionals.

The EAPHLN project Regional Advisory Panel (RAP) meeting held in March 2013 recommended that the ECSA-HC secretariat in collaboration with the EAC Secretariat should facilitate the process of harmonization of training standards for the medical laboratory professionals. ECSA-HC using the funds from the EAPHLN project engaged a consultant to facilitate the process. In-country consultative and regional joint stakeholders meetings were held bringing together participants from the Medical Laboratory Boards and Councils, various medical laboratory training institutions, Commissions for University Education and the Ministry of Health from Kenya, Tanzania (Mainland and Zanzibar), Uganda and Rwanda. Through this consultative process, the following documents were developed and adopted by the stakeholders for presentation and approval by the EAC policy organs;

- Curriculum for certificate in medical laboratory technology
- Curriculum for diploma in medical laboratory technology
- Curriculum for bachelors in medical laboratory technology
- EAC guidelines for inspection and mutual recognition of medical laboratory institutions
- EAC guidelines for clinical laboratory placement

The harmonized standards will facilitate mutual recognition of various medical laboratory training

schools and reciprocal recognition of medical laboratory professionals across the region.

Upgraded the certificate course in Laboratory Management at MUHAS

The implementation of certificate course on the laboratory management at Muhimbili University of Health and Allied Sciences has been quite elaborate since its initiation; two cohorts of students have undertaken the course. The first cohort enrolled in 2016 with 22 participants drawn from Tanzania (18) and Burundi (4). Cohort 2 -2017 had 20 participants, all drawn from Tanzania. Cohort 3-2018, had 21 participants, all drawn from Tanzania.

Most of the participants were Laboratory Managers with either a diplomas and BSc qualifications. Facilitators were drawn from many and different institutions as well as countries. The next steps for the upgraded laboratory management curriculum will be to institutionalize the course in academic institutions of higher learning ranging from colleges to universities) in each country starting with Kenya and Uganda for the 2017/2018.

Highlights of the main outcomes training and capacity building activities

- Trained over **15422 health workers** in short and long-term training over the project life span;
 - This has contributed to improved quality of laboratory services i.e 81% of supported laboratories are at a level of two stars and above from 23% at baseline in 2009
 - Improved knowledge and skills for staff from satellite sites
 - Improved surveillance and response including laboratory confirmation for disease outbreaks
- Developed and implemented several **tailor made training programmes** to build capacities of various health workers (Mentorship, ICT, Biorisk Management, Laboratory management, Molecular diagnostics, Laboratory based disease surveillance Monitoring and Evaluation etc);
- Developed **five module courses for the e-learning platform** to increase access to

Part 4:

REGIONAL INFORMATION AND COMMUNICATION TECHNOLOGY



Regional and Countries progress on implementing the ICT activities

The ICT TWG developed a regional five year work plan aimed at guiding the in-country ICT work plans which covered a wide scope of ICT activities ranging from acquisition and installation of ICT equipment and software, training and development of ICT innovations and knowledge sharing platforms. Developing, disseminating and implementing Standard Operating Procedures for Information and Communication Technology. Countries are at different levels in implementation the adopted work plans. The following are some highlights on the achievements at regional level and in each country;

Regional

Various ICT innovations and knowledge exchange platforms were developed through the leadership of the Republic of Rwanda in collaboration with ECSA-HC, EAC and the EAC partner states.

- The EAPHLN project web portal (www.eaphln.ecsahc.org)
- Video conferencing capacities (at national/central and satellite sites)
- Electronic system for disease surveillance (eEIDSNet)
- Electronic reporting framework (e-RF Portal is accessible and registered users can log in and access the online web based database through: <http://eaphlnmne.ecsahc.org/>)
- E-learning platform five module courses for lab staff currently available at <http://www.eaphln-ecsahc.org/elearning-eaphln/>)

Additionally, the project facilitated regional training to build capacity of the satellite teams in ICT.

Country Progress

The following has been achieved in each of the countries as indicated in table 3 below:

Table 3: Country Achievements

Burundi	Uganda
<ul style="list-style-type: none">• Installed video conference equipment to all laboratories under EAPHLN Project. Also procure internet connectivity in all laboratories (3Mbps / facility/month). All connection are on fiber optic. Procured servers in each laboratory for hosting the laboratory Information System, and Installation and configuration of Lab information systems.• Procurement of ICT equipment's and supplied, the following have been delivered (3 laptops, 10 desktops, 10 printers, 1 photocopy machine and 1 scanner per satellite laboratory, 4 computers per satellite 2) local area network all the sites are connected through fibre optic . 3) Installed Videoconference facilities in all the satellite laboratories, 4) laboratory management information system attended LIS customized training, 5) Customized the Regional ICT SOPs	<ul style="list-style-type: none">• Procured ICT Equipment for the new satellite laboratories in Moroto and Fort Portal (7 Desktop PCs, 1 Scanner, 7 Printers, 13 Webcams, 45 External HDDs, 8 Videoconferencing speakerphones and Triple-year license for cloud videoconferencing app (Starleaf);• LIS: After EAPHLN showcasing the benefits of the BLIS in use, MOH has adopted it and piloting an improved version at 10 Hubs to be rolled out at 100 laboratory hubs countrywide with upgraded user interface, integration with Laboratory equipment and laboratory test menus;• Uganda page on EAPHLN website updated at www.eaphln.go.ug• Successfully migrated Videoconference facilities (with national fibre optic backbone) to new offices in Butabika where more than 15 VCs have been conducted successfully;

<p>now are being translated to French.</p>	<ul style="list-style-type: none"> • Knowledge-Sharing: ICT unit spearheaded first-ever World Bank Group Open Day in Kampala showcasing benefits of EAPHLN to the locals; • Bulletin: Publication of 2 bulletin in 2016/2017 FY.
<p>Kenya; Provided additional hardware to the sites such as barcode printers and scanners for sample labeling and UPS for servers. Video conference units for Wajir and Busia are under installation after the completion of the buildings. Also desktop computers for the new sites (Marsabit and Eldoret). LIMS for Kitale enhanced to support the national AMR program Improvement of existing LANs at every satellite lab, Video conferencing at National level & satellite laboratories. Set up of VoIP Infrastructure at National level: In the process of extending to the satellite laboratories, LANs for new labs (cabling works) is ongoing. Active equipment (switches) has been acquired. Coverage of entire hospital is complete in sites. Acquisition of Laboratory information management system: Provision of reliable internet is in progress (fiber in three locations, Wimax in one location and microwave in one location).</p> <p>Challenges: Turnover of management at the satellite laboratories, need to adapt to the devolution policy of the Kenyan government which require a paradigm shift in the provision of public health services.</p>	<p>Tanzania, Installed laboratory information systems (LIS-SkyLims) at St Benedict Ndanda and Kibongoto in which data from the two satellite laboratories are being transferred to the central Data Repository at the NHLQATC. LabNet Laboratory Information System has been implemented in three satellite laboratories (Musoma, Kigoma, Sumbawanga) through Abbott funding and the rest of the Regional Referral Laboratories (total 23 laboratories). The data center for the LabNet system is at the Muhimbili National Hospital. The eIDSR has been rolled out to 10 regions Procurement of ICT equipment's for the labs including Video Conference Facility for HQ desktop, laptops. VPN infrastructure already installed to three regional satellite labs. Installed of LIS in the two labs (Ndanda and Kibong'oto). Consolidating eIDSR within DHIS2 as a web and mobile module, training of basic ICT skills - 15 lab technicians trained. VPN infrastructure has been installed in Kigoma, Rukwa and Musoma. Tender to equip the two server room at Ndanda and Kibong'oto, and procurement of computers for satellite labs.</p>
<p>Rwanda;</p> <ul style="list-style-type: none"> • Procured and installed ICT equipment • Installation of local Area Networks satellite facilities covering all hospital departments • Installed a video conferencing facilities in all the satellite sites, • Developed the Regional Project Website • Developed the Regional ICT SOPs which have been shared with other countries • Developed e-learning platform with five training modules for the laboratory professional • Recruited three (3) LIS officers • Trained of staff in ICT 	

Highlights of the main achievements

- Established a robust **website** to facilitate knowledge and information exchange and sharing;
- Strengthened the connections with **video conferencing equipment** and roll out of **laboratory information systems** at the satellite sites;
- Established **an e-learning portal** to increase access of the training materials to more health workers in the region and beyond;
- Facilitated the development of **bulletins and newsletters** as additional platforms for sharing information.
- Developing, deploying and supporting eIDSR and eRF systems for collating the disease surveillance and for Monitoring the Project Progress

Part 5:

REGIONAL DISEASE SURVEILLANCE AND RESPONSE



Promoting and strengthening joint disease outbreak investigations, response and preparedness

The East African region still faces many disease outbreaks, some of which have crossed geopolitical boundaries and caused high levels of morbidity, mortality and economic loss among the population. These diseases include Rift Valley Fever, Cholera, and Pandemic Influenza A (H1N1) among others. In accordance with the International Health Regulations (IHR (2005) the mechanism for initiating joint action by Partner States is through the national WHO country offices where the National IHR Focal Point is first informed; the NFP then informs the WHO IHR Contact Point, who then gets the WHO Afro Region informed. The response follows the reverse of the same path. This hierarchical process maybe bureaucratic, cumbersome and results in delays. In order to effectively prevent and control disease outbreaks occurring across borders and also to mitigate their negative effects, it is necessary for the countries to take joint action. Article 44 of IHR provides for countries to cooperate in the control of communicable diseases and seek WHO assistance where they need it; Article 118 of the EAC Treaty provides for Partner States to take joint action towards the prevention and control of communicable and non-communicable diseases,

project supported country surveillance teams in their efforts to control the cholera outbreaks that have been ravaging the region since 2015. In addition, the project supported to coordinate interventions in:

while Article 108 provides for joint action against trans-boundary animal diseases.

EAPHLN Project collaborates with EAC, Partner States and other funding Partners to strengthen the East African Community Integrated Disease Surveillance Network (EAIDSNet). Through this collaboration, various strategies have been implemented with the aim of improving disease surveillance, prevention and control in the region. These include but are not limited to:

1. Conducting Joint cross-border investigations of outbreaks in the East Africa region

The project has supported **joint investigations of disease outbreaks** with regional teams working together to control outbreaks while providing a learning environment on disease outbreaks management. Additionally, ECSA-HC and EAC have maintained a database of and supported disease surveillance experts who are called up as part of Rapid Response Team to effect regional response. Over the period of the report, a number of incidences have underscored the need for cross-border joint actions to control diseases. In 2017-18, the surveillance, data collection and analysis, sample collection and shipping—were instrumental in the control efforts that the countries undertook. Contact tracing in this vast and mountainous area was very challenging, but the potential created in the region was well utilized and helped to contain the outbreak.

a. **Malaria Outbreak at the Tanzania Burundi border:**

An upsurge of malaria cases had been reported in the border areas between Burundi and Tanzania according to surveillance bulletins received at the EAC regional coordination mechanism. A cross-border meeting was convened by ECSA-HC through the EAPHLNP in June 2017, in Cankuzo, Burundi. Following the meeting, the cross-border committee continued to conduct joint surveillance activities to control the malaria outbreak that was discussed at the said meeting. In Burundi, the project supported the Ministry of Health and Fight Against AIDS with funding of \$ 1,000,000 to support the surge workforce that was urgently needed. The project supported laboratories at Kigoma, Tanzania and Muyinga in Burundi, provided the needed support in case confirmation and follow up care of patients. The outbreak was declared over on 8th December 2017.

- b. **An outbreak of Marburg Virus disease** was declared by the Ministry of Health of Uganda on 19th October 2017, in the eastern Ugandan districts of Kween and Kapchorwa near the border with Kenya. This is an area served by the project satellite laboratories of Mbale Regional Referral Hospital (Uganda) and Kitale County Referral Hospital (Kenya). Moroto Regional Referral Hospital (Uganda) though out of the immediate vicinity, was on the alert to receive cases if they reported. It is a mountainous region in which contact tracing was a concern. The cases detected had travelled extensively in the border areas of both countries and therefore had made many contacts, before they fell ill. The project satellite laboratories in the region were instrumental in the control measures imposed: the laboratories had staff and facilities to assist in case investigation, sample collection and shipment to Uganda Virus Research Institute (UVRI) for definitive diagnosis; the trained personnel were available to manage identified suspected cases and the health personnel who had received training in disease

2. **Building capacity in disease preparedness and response mechanisms through *simulation exercises***

The many disease outbreaks that occur in the EAC region underscore the need for a prepared, skilled and motivated health workforce. Training on novel systems of managing outbreaks is therefore essential. Simulation exercises are seen as a way to test the level of preparedness and ability to foster a coordinated multi-sectoral response to disease outbreaks. In order to strengthen preparedness and response to disease outbreaks across districts and countries in the East African Community, the project has supported the conduct of several simulation exercises—both table top (TTX) and Field (FSX) have been conducted. The goal of simulation exercises is to test the countries' contingency plans for epidemic prone diseases preparedness and response and identify gaps in the plans so as to facilitate improvement. In 2012, a field simulation was held for yellow fever outbreak in Muyinga, Burundi; in 2014 a simulation was held for avian influenza in Busia, Uganda; and in 2014 a table top simulation for EVD was held in Mbarara, Uganda.

Cholera outbreaks have been a common occurrence in many parts of East Africa since 2014. During the annual meeting of the Surveillance Technical Working Group in Bujumbura, Burundi in November 2018, a table top simulation of a cholera outbreak in cross-border areas between Tanzania and Burundi was conducted.

To improve the level of preparedness in the cross-border regions of Uganda and Kenya following the MVD outbreak, a simulation exercise was conducted to mimic an outbreak of MVD in the border area in December 2017. The very well attended simulation exercise had teams of experts from the national disease surveillance units and trans-boundary districts (Uganda) and sub-counties (Kenya) in the Kitale-Moroto border zone. The experts were drawn from various sectors to depict a One Health participation. They were from:

immigration, port health, animal, wildlife and environmental health experts from the Uganda districts and Kenya sub-counties. The Kenya sub-counties represented were: Mt. Elgon, Sirisia, Cheptais, Kwanza, Endebes, Loima, Turkana West, Pokot North and West Pokot. Districts from the Republic of Uganda were: Amudat, Abim, Napak, Kaabong, Moroto, Nakapiripirit, Kotido, Kween, Kapchorwa and Bukwo. In addition to these, experts from ECSA-HC Secretariat also participated as facilitators.



Figure 1.7: Participants of cross-border disease review meeting in Kitale, 5-8th Dec 2017

3. Establishment and implementation of a supporting policy framework for cross-border disease surveillance and joint investigations and outbreak control: Revision of the Framework

To address the bureaucratic bottle-necks in facilitating joint response to disease outbreaks, the project in collaboration with EAIDSNet developed the regional Cross-border Surveillance and Response Framework for improved and coordinated cross-border surveillance and response in the region; and the standard Operating Procedures for tasks to undertake when a health event does occur. The framework identifies the priority diseases that are of regional and international importance and provides consensus-based approaches to the surveillance of these

the occurrence of these diseases among Partner States in order to enable mounting timely joint response to disease outbreaks. Implementation of the project is based on the advisory and overseer functions of technical working groups. These are teams of experts in specific areas that cover the scope of the project. One such TWG is the one concerned with disease surveillance. The Surveillance TWG realized that the Framework needed revision to reflect changes and developments that have occurred over the years. For instance, the composition of surveillance committees needed to be widened to take care of other stakeholder groups that had not been initially included. At its annual meeting from 14th to 17th November 2017, the Surveillance TWG embarked on revising the Framework. A suggestion was also made to the effect that the Framework should be designed as an official EAC document

4. Establishment and Functioning of Cross-Border Surveillance Committees among the bordering districts between countries in the EAC

Through the cross-border framework, nine (9) Zonal Surveillance Committees at the international borders between EAC countries have been in existence since 2014 (indicated in the table 5 below).

Table 4: The composition of Cross-Border Surveillance Committees by district/sub-county

Number	Countries sharing border	Districts/Sub-counties	Satellite Laboratories (Centers of Excellence attached to zone)
1	Rwanda	Nyagatare, Gicumbi, Musanze, Burera	Nyagatare District hospital and Byumba district hospital, Mbarara Regional Referral Hospital
	Uganda	Kabale, Ntungamo, Kisoro	
2	Uganda	Isingiro, Rakai, Kalangala, Mbarara	Musoma Hospital Mbarara RR Hospital
	Tanzania	Mwanza, Bukoba, Karagwe, Musoma, Ukerewe, Magu, Sengerema, Geita, Biharamulo, Muleba	
3	Kenya	Machakos, Kwale, Taita, Taveta, Narok South, Loitokitok, Kibwezi, Kajiado, Kuria East, Transmara	Machakos, Musoma, Kibong'oto, Mnazi Mmoja Hospitals
	Tanzania	Longido, Rombo, Same, Lushoto, Mkinga, Pemba, Siha, Tarime, Serengeti	
4	Uganda	Amudat, Napak, Kaabong, Moroto, Nakapiripirit, Kotido	Kitale Moroto RR Hospital
	Kenya	Mt. Elgon, Kwanza, Trans Nzoia West, Turkana North, Turkana Central, Turkana South, West Pokot	
5	Uganda	Bugiri, Busia, Namayingo, Buvuma, Tororo, Mbale, Manafa, Bududa, Bukwo	Busia (K) Mbale Regional Referral Hospital
	Kenya	Bungoma West, Teso North, Samia, Busia, Bunyala, Rarieda, Bondo, Kisumu East, Kisumu West, Homabay, Migori, Suba	
6	Rwanda	Nyagatare, Kayanza, Kirehe	Nyagatare District Hospital and Musoma Hospital
	Tanzania	Ngara, Karagwe, Biharamulo	
7	Rwanda	Huye, Bugesera, Rusizi	Kirundo, Kayanza and Chibotoke district hospitals; Nyamata, CHUB Mibilizi District Hospital
	Burundi	Kayanza, Kirundo, Cibitoke	
8	Rwanda	Kirehe	Ngara District Hospital, Kigoma Hospital
	Tanzania	Ngara, Kigoma	
9	Burundi	Muyinga, Nyanza-Lac	Muyinga, Nyanza-Lac District Hospitals
	Tanzania	Kasulu, Kibondo, Kigoma	

Adapted from *The Framework of Cross-Border Disease Surveillance in East Africa 2011*

Sub-Zones

These committees comprise multi-disciplinary set of officials (disease surveillance coordinators, laboratory experts, clinicians, veterinary officers, immigration officials and local administrators) work as part of the early warning system at border points. The committees prepare common work plans for cross border disease

surveillance activities to be implemented jointly at the zone. This is a necessary step towards facilitating sharing of information and initiating joint outbreak investigations.

The project has supported formation of cross-border surveillance committees (CBSC) and their meetings to review transboundary disease control efforts. A cross-border surveillance committee is composed of a number of public/private officials in districts within a zone lying astride a defined border segment. ECSA-HC together with the EAC request Ministries of Health of Partner States to invite multi-disciplinary teams and organize interventions at an agreed border town. Health Ministries invite 35-50 human, animal health and environmental management experts from 5-15 districts on either side of the border. Sensitization of participants on IDSR-IHR is conducted. The teams select a CBSC. A work plan with budget is formulated. The work plan is supported with Project funds available at the ministries responsible for health in the disease surveillance units. In all, 9 CBSC have been formed and are active.

The Cross-Border Surveillance Committee between the Republic of Uganda and the United Republic of Tanzania (CBSC #2) was formed in October 2014. CBSC (#7) of the districts between the Republic of Burundi and the United Republic of Tanzania met in Kigoma in June 2015 in the wake of the reported Acute Watery Disease Outbreak (AWD) in the border zone.

This meeting was instrumental in leading to the joint assessment of the refugee camps of Burundian refugees in Nyarugusu (Tanzania) and Mahama (Rwanda) and the subsequent medical and public health interventions that were provided to the camps. The CBSC also participated in the joint measures that were adopted in the control and investigation of outbreaks of cholera and other AWDs that occurred in the cross-border districts between URT and Republic of Burundi.

The committees meet every quarter to review progress made on disease surveillance within their surveillance zones. During cross-border disease surveillance review meetings in 2015/16, it was found that the zones were too big to allow regular meetings because some of the districts could not participate conveniently. The regional surveillance technical working group revised the structure of the zones, and formed smaller sub-zones within the zones of Busia, and Serengeti. In 2016/17, the zones of Kilimanjaro areas and Namanga were sub-divided into smaller sub-zones.

In 2017-18, the zones in the Kilimanjaro-Namanga areas were further sub-divided into smaller ones. In addition, during a tripartite meeting involving Kenya, Uganda and South Sudan, was held in Nimule, South Sudan in April 2018. During that meeting the 10th Cross-border surveillance zone was formed and its committee selected among the participants. The meeting recommended that similar committees needed to be established along the border between the Democratic Republic of Congo and the East African Community countries.

Table 4b: Zone 10 as formed at the Nimule Cross-border meeting of 24th-26th April 2018

Zone Number	Countries sharing border	Districts/Sub-counties	Satellite Laboratories (Centers of Excellence attached to zone)
10	Sub-zone 1		
	Kenya	Turkana West Sub-county, Kitale District	Kitale Kapoeta Moroto
	South Sudan	Kapoeta East County Budi County Kapoeta	
	Uganda	Kaabong District Moroto District	
	Sub-zone 2		
	South Sdan		
	Uganda	Ikotos County, Magwi County Nimule	Nimule Gulu
		Kitgum, Lamwo, Amuru, Adjumani, Gulu districts	
	Sub-zone 3		
	South Sudan		
	Uganda	Kajo-Keji, Lainya, Morobo counties	Yei Arua



Figure 1.8: Cross-Border Meeting involving Kenya, South Sudan and Uganda in Nimule 24th-26th April 2018

5. International support for Ebola outbreak response in West Africa: Lessons learnt and way forward for experts—the Collaboration of EAC, GIZ and EAPHLNP

Countries in East Africa, sent surveillance and other health experts to support in response to Ebola virus disease outbreak in West Africa (Guinea, Sierra Leone and Liberia) of 2014-16.

The volunteer health workers were part of the teams drawn across the 47 counties, and were stationed in West Africa for over six months. They were trained on the prevention and management of the Haemorrhagic fevers by the country ministries responsible for health, the World Health Organization and other partners and some had participated in

simulation exercises for VHF. The teams comprised medical doctors, nurses and other public health officials; they offered various medical services such as care provision, and laboratory work, technical assistance in epidemic management and more, depending on their skills and the needs on the ground. Some of the experts have continued to assist the needy health systems in the most affected countries of Sierra Leone, Guinea and Liberia. Others returned to East Africa.

On 6th-8th November 2018, ECSA-HC and EAC through the EAPHLNP and the GIZ supported

Pandemic Preparedness Project convened a meeting that brought together about 100 veterans of the West African Ebola outbreak response. They included speakers from other countries other than East Africa. They shared their experiences and formed a Community of practice to continue dialogue and participation in emergency preparedness and response programs in sub-Saharan Africa. It was suggested that EACSA-HC and EAC continue to explore modalities of including the East African team in the Regional Rapid Response Team in cases of need, and also to participate in training of other cadres in East Africa.



Figure 1.9: Participants to the Regional Conference of Experts who Participated in the Control of EVD Outbreak in West Africa, held in Nairobi, Kenya from 6 th to 8 th November 2017

6. Development of regional e-Health solutions

The Integrated Disease Surveillance and Response strategy requires that surveillance data collected in the community is reported to the primary health care facility. Data collated at the health facility is transmitted to the district, which then transmits the data to the national level. The national level may report to the national IHR contact point who then reports to the WHO contact point, who may report to WHO Afro region and then other countries. The Project, in collaboration with EAC secretariat has developed the Cross-border surveillance committees who are encouraged to also transmit data to the neighbouring districts across the border both formally and informally, where necessary.

This compliments the IDSR data reporting mechanism. The Disease surveillance and ICT Technical Working Groups of the EAPHLNP found it necessary to have an electronic data management system that would help to collate surveillance and laboratory data. The Project, in collaboration with EAIDSNet coordinated the formulation and development of an electronic reporting system for the East African Community. This Web-Based reporting system for surveillance and Laboratory data is expected to strengthen timely sharing of disease surveillance data among partner states for mounting prompt and coordinated joint response to public health emergencies. In so doing other specific

objectives that will be achieved including: (i) encouraging all participating countries to develop and/or deploy electronic reporting systems for IDSR; (ii) facilitate immediate notifications of events of public health importance; and (iii) facilitate weekly reporting of priority diseases to the regional level, monitor and alert those who need to take action on probable disease outbreaks that require a common regional response.

The Regional Mobile and web-based System for Surveillance and Laboratory data.

The data system is capable of collecting disease surveillance data for the selected conditions from country surveillance data systems. Weekly reports on cholera, meningitis, bloody diarrhea, MDR tuberculosis, malaria, and measles have been produced and disseminated to the stakeholders.

The system was piloted and found to work well. A few identified shortfalls are being addressed. Some of the national systems were not yet functional. Burundi has finalized its system; Kenya is upgrading its eIDSR to DHIS2 to march with the regional system. There are however issues with collating lab data; Tanzania has transitioned from e-IDSR to DHS2 in only 10 regions, and is currently rolling out its DHIS2 to more regions. Uganda's system is functional but lab data are delayed to get reflected in the national data system. In Burundi, the project has supported establishment of telephone connectivity of all health facilities through a paid for service provider.



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DISEASES. CONDITIONS AND OTHER
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This helps in the quick transmission of disease surveillance data. Over the years, many changes have been made in the digital systems of the Partner States. Some systems were upgraded to higher level versions; some countries totally overhauled the systems. These developments caused poor functioning of the process of the regional system picking data from national systems.

In 2017-18, ECSA-HC and EAC jointly reviewed the systems in all the Partner States. New APIs were developed and reconnection achieved. The systems are due for pilot to determine how improved they are.

7. The One Health contingency plan for communicable disease and potential public health events of international concern (PHEIC): Revisions and Development of SOPs

In spite of the many outbreaks of diseases that have been occurring in the region, EAC countries did not have a common plan to deal with such eventualities. Where some contingency plans were available, they are vertical arrangements targeting single or a few diseases. In the EAC, there is a lot of cross-border movement of populations for occupation and trade. As the movement toward political integration gains momentum, it follows that inter-state commerce is also increasing. Insecurity in many spots in the region has led to a sizeable refugee population. These factors therefore favour an increase in the risk of trans-boundary transmission of diseases. Although there is a general framework for collaboration among partner states in case of emergencies, there is generally need for a regional contingency plan that is comprehensive and takes into account resources and the legal and administrative framework in place for immediate implementation of adequate disease prevention, control and eradication measures taken jointly. The epidemics of cholera at the Tanzania-Burundi border needed a joint approach. Dealing with these kind of situations requires a joint regional approach. The project supported the development of a comprehensive regional contingency plan

that also takes into consideration the One Health Approach to disease control, the East African Community Regional Contingency Plan for Epidemics due to Communicable Conditions and Other Events of Public Health Concern 2015/16-2019/20.

During the approval processes in the EAC system, the Sectoral Council recommended that the animal perspective be made more prominent in the plan. With support of the GIZ-supported Pandemic Preparedness Project at the EAC, ECSA-HC through EAPHLNP the plan was

revised to include more of the animal aspects, to reflect a One Health Approach, and also SOPs. The final draft is now available and ready for dissemination and launching, under the title: The East African Community Regional Contingency Plan for Epidemics due to Communicable Diseases, Conditions and Other Events of Public Health Concern 2018-2023.

8.Strengthening port health services to boost disease surveillance and prevention of cross-border disease transmission

All the countries in the region have ratified IHR (2005). These regulations require all Member States of WHO to work towards capacity to contain health hazards with potential to spread across international borders at the points of origin without disrupting trade and international travel. Port Health services are a basic requirement in the implementation of IHR (2005). However, in the region Port Health Services are poorly developed: (i) some countries do not have the service established in their government systems; (ii) some do not have physical infrastructure for health services at ground crossing points; (iii) some requires additional essential screening equipment and (iii) some do not have adequately trained health professional staff to improve disease detection and action at points of entry. In 2015/16 the project reviewed the functioning of the Kigoma Port Health services, during a cross-border disease surveillance review at Kigoma. During the inspection tour, the surveillance TWG noted that though the port had shortage of personnel, port health services were provided. In 2016/17 at the various cross-border review meetings, the surveillance TWG noted that while airports and sea ports have fair levels of port health services, the development of this essential service still lags behind at many land crossing points.

In 2017-18, the project, through its collaboration with EAIDSNet, got involved in discussions to improve port health services in Uganda. The Surveillance TWG in Uganda and team at the Ministry of Health initiated multi-pronged, multi-sectoral process of discussions and dialogue with various stakeholders to strengthen port health services in the country

9.Knowledge sharing of Epidemiological Best Practices Regionally and Internationally

Sharing knowledge and experience among the personnel involved in disease surveillance in the region has been found very useful. The Epidemiological symposia that are held every two years under auspices of the East African Community Health and Scientific Conference with the support of the project have been found useful avenues for personal development and dissemination of findings. The project has also hosted symposia in other international fora that include the UNION and ASLM conferences. The Project also support efforts aimed at dissemination of surveillance data in the region through supporting publication of a quarterly EAIDSNet Bulletin and quarterly newsletters of the surveillance units of the Ministries of Health. In November 2015, the project hosted an Epidemiological Symposium at the ECSA-HC 69th Health Ministers' Conference, in Mauritius. A number of abstracts from the countries implementing the project were presented to the conference. In 2016/17, the OR teams of the Partner States disseminated their findings during the Annual ASLM Conference held in Cape Town in Dec 2016; during the DJCC and Best Practices Forum of ECSA-HC in Feb 2017. Presentations of the collaboration of EAPHLNP and EAIDSNet were presented at the CORDS meeting in Lyon in April 2015.

Scientists representing EAPHLNP shared findings in abstracts presented at PMAC2018 in January/February 2018, in Bangkok, Thailand. In addition, work from the project was presented during the 5th International One Health Congress that was held in Saskatoon, Canada in June 2018.



Figure 2.0 CORDS Conference

10. Developing Event-Based Surveillance: Collaboration with CORDS and Africa CDC

The 47 countries of sub-Saharan Africa adopted the Integrated Disease Surveillance and response (IDSR) strategy for disease surveillance. This has a component of community-based surveillance, but the major part is about indicator-based surveillance where data collated from health facilities is transmitted to higher level in a systematic way. Case definitions for conditions and diseases are used to improve the sensitivity and specificity of the system. Event-based surveillance is about collating both structured and unstructured informal data from various sources that may predict disease occurrence. This is expected to be more sensitive in detecting disease outbreaks early so that interventions implemented early would be more effective and prevent unnecessary deaths and economic losses.

Connecting Organizations for Regional Disease Surveillance Organizations (CORDS) is an international NGO that brings together 6 regional disease surveillance networks including EAIDSNet. CORDS plans to develop a digital system that is dependent on mobile phone technology to assist in collecting noises/signals of disease occurrence from animal, human and environmental sources in especially cross-border areas. The project has been involved in the discussions and planning for this development in the region. The project was represented at the TWG discussions of the guidelines for EBS in Africa in Addis Ababa in May 2018.

11. Engaging laboratories in support for disease surveillance and outbreak management

Involvement of laboratories is essential for good clinical care, establishing development and progress of epidemics and in confirming pathogens both during epidemics and monitoring disease treatment and management. The project supported the development of a training course and training of laboratory professionals in laboratory-based surveillance to build their capacities and increase their involvement in disease surveillance and outbreak management. An e-learning platform for laboratory professionals has been established and is operational.

In the move to standardize laboratory training in the region, the project has supported the development of harmonized tools for training of laboratory professionals in the EAC region. This will include the harmonized training curriculum for medical laboratory professionals, development of regional guidelines and joint inspection tools for internship training institutions, facilities and medical laboratory training institutions. This will allow reciprocal recognition of the medical laboratory professionals from the EAC Partner states.

The 41-supported laboratories in the project network have recorded improved performance. In the Peer review assessment conducted in March 2018, 86% of the laboratories scored 2 stars and above, while 67% scored 3 stars and above—a very significant improvement. This translates into improved delivery of services to the populations. Improved personnel capacity through training, and more equipment translates into improved diagnostics and therefore disease surveillance. The proportion of epidemics whose etiologic pathogens were confirmed by laboratory examination has increased over project time.

Table 5: Proportion of outbreaks whose etiology was confirmed by lab exam, by country and by year 2010-2017

	2010/11 %	2011/12 %	2012/13 %	2013/14 %	2014/15 %	2015/16 %	2016/17 %	2017/18
Burundi	Project not started yet		-	-		100	100	100
Kenya	-	-	100	89	100	100	100	100
Rwanda	-	-	-	-	-	100	100	100
Uganda	33	-50	-67	-75	85	100	100	100
Tanzania	20	30	45	50	55	100	100	100

Anti-Microbial Resistance (AMR)

Surveillance

There is reliable evidence was to show that the danger posed by AMR was so high, and if unchecked, by 2050 it (AMR) would be responsible for 10 million deaths, and reduce GDP by 2-3.5% and cost the world over \$ 100 trillion per year (J. O'Neil, 2014). The Project is supporting the Partner States through its support of its satellite laboratories to improve AMR surveillance. The capacity of the laboratories has been assessed, and at a meeting in 2016, country teams agreed to develop country action plans to strengthen their capacity to conduct systematic AMR surveillance through and in line with the Global Anti-microbial Surveillance System (GLASS).

In Burundi, the country started antibiotic resistance awareness campaign targeting some relevant stakeholders. AMR is covered in some pre-service training and in some in-service training or other CPD for human health workers. The Country already has regulations on prescription and sale of some antimicrobials, including requirements for prescriptions for human use

In Kenya, AMR sensitization meetings for laboratory techs and clinicians have been held; on-site training on AMR has been conducted in Machakos and Malindi facilities. Training at other project sites is planned. A point prevalence survey on antibiotic use has been completed in 3 major hospitals (An additional 3 covered by students). Development of Anti-microbial Stewardship Guidelines is on going. Stewardship Programs have been established in hospitals. Development of Guidelines on rational use of antibiotics in Animals have been completed. Review of antibiotics import data is on going/ mapping of medicines the veterinary supply chain complete.

In Uganda, six of the 8 EAPHLNP sites are participating in AMR surveillance activities under the GHSA initiatives.

In Tanzania, the National Action Plan on antimicrobial resistance 2017-2022 has been developed under One Health approach. It's coordinated by MOHCDGEC-Pharmaceutical Service unit as the focal point. On Optimizing use of antimicrobial agent in human and animal health, there are ten (10) priority actions, among them the antimicrobial stewardship. The National action plan is implemented through four Technical Working Group including TWG on antimicrobial use and stewardship which addresses actions needed to combat AMR in the country. Roll out of implementation of NAP is expected begin in by end of the year 2018 in 5 Zonal Referral hospitals which will be coordinated by NHLQATC as Reference Laboratory.

6. Surveillance for Cancer Disease

The burden of cancer in East Africa is high. In Kenya, cancer is the third commonest cause of death, and responsible for over 7% of deaths annually; in Uganda, the risk of incidence of cancer before age 75 is 17.6%, and the risk of death due to cancer before age 75 is 14.1 %. Burundi does not provide specialized cancer services and therefore the burden is unknown. In Tanzania, the Ocean Road Cancer Institute receives cancer patients from the rest of the country. Therefore, efforts to strengthen cancer surveillance, management and control are in dire need. The project is supporting satellite labs to have capacity to screen, detect and report cancer incidence. At a meeting of the cancer TWG in August 2016, experts from Partner States agreed on a road map to develop the capacity, coordinated through the project. In addition, through funding from the Statistical Trust Fund of the World Bank, ECSA-HC through the project, is supporting countries to initiate or strengthen where they exist) cancer registry systems. In Kenya, 4H2 equipment have been procured, and the cancer curriculum that includes early detection and knowledge sharing has been developed.

Part 6:

USING EVIDENCE TO INFORM POLICY AND PROGRAMS IMPROVEMENT (OPERATIONS RESEARCH)



Progress in the implementation of operational research studies in the participating country

The East Africa Public Health Laboratory Networking (EAPHLN) Project supported capacity building and implementation of operational research studies in five East African Countries, namely Burundi, Kenya, Rwanda, Uganda and Tanzania. The operational research studies were in three thematic areas relating to the global threats of the emerging infectious diseases, this involved: Evaluation of the Impact of New Tuberculosis Diagnostics on Patient Health Outcomes; surveillance of common circulating enteric pathogens and their antimicrobial susceptibility patterns; and evaluation of the efficacy of fixed artemisinin-based combinations therapy (ACT) [(artemether-lumefantrine) CoArtem® and (Dihydroartemisinin-piperaquine) Duo-cotexin®] in patients.

The studies have been completed in Kenya, Uganda, Rwanda and Tanzania, the results are available for sharing. ECSA-HC in collaboration KEMRI Operational Research secretariat under the EAPHLNP, organized a regional operational research technical working group and results dissemination symposium in Machakos County, Kenya. The main objective of the workshop was to share experiences and package the key findings from the implementation of the three studies and highlight areas of policy and programmatic implications. Three policy briefs were developed, reviewed by the key stakeholders (TB Control Program, Malaria Control Program and Disease Surveillance and Response Unit) for further inputs and adopted by the countries.



Figure 2.1 Participants for the Regional Operational Research Technical Working Group Workshop and Results Dissemination Symposium

TB Policy Brief

Optimal use of available technologies for improved TB detection in the East Africa Community region
Problem Statement

Sputum smear microscopy has been the cornerstone of TB diagnosis in resource constrained countries. This has contributed to reduced case detection due to low sensitivity of microscopy, resulting in increased TB transmission, delayed treatment, TB/HIV coinfection due to immunosuppression, and inability to detect MDR/TB.

Policy Measures

TB programme mandates include early diagnosis, prompt treatment and monitoring of patients progress. The East Africa Public Health Laboratory Networking (EAPHLN) Project supported participating countries to undertake TB study so as to validate new diagnostics for improved patient health outcomes. This was in line with ECSA/HMC60/R4 (2015) resolution for ECSA Member States to scale up new diagnostic technologies for TB detection, recognizing the importance of accurate and timely diagnosis to the effective management of TB. Countries need to garner resources required to scale up quality laboratory services towards achieving universal health coverage (UHC) goals.

Summary of Evidence

GeneXpert MTB/RIF is better than Microscopy at detecting TB especially in HIV positive individuals (Tanzania, Uganda, Rwanda and Kenya). GeneXpert is more likely than FM microscopy to detect TB in people who are not diseased (Kenya, Rwanda and Tanzania). FM microscopy is better than GeneXpert in identifying people who are not infected with TB (Kenya, Rwanda and Tanzania). In Kenya, GeneXpert MTB/RIF produces similar results from the same sample than microscopy irrespective of the facility level. In Kenya, LED Fluorescent microscopy is better than GeneXpert MTB/RIF in detecting TB among previously treated patients. In Kenya, there is no difference in results between the spot and early morning sputum specimen when using either microscopy and GeneXpert in TB diagnosis. In Tanzania, frontloading using two consecutive spots sputum specimens with GeneXpert produces similar results as using spot and morning specimens. In Tanzania, use of stool from children in GeneXpert produces similar results as using sputum.

Policy Options

- 1) Adopt a holistic approach to diagnosis of TB in line with 10th ECSA-HC Best Practices Forum and 26th Directors Joint Consultative Committee (2017) recommendation by integrating laboratory-based testing to ensure accurate TB diagnosis; including;
 - o Continuing to use fluorescence microscopy is a valid and useful tool in the diagnosis of TB especially in lower level facilities where molecular techniques are not feasible;
 - o Establishing advanced technologies at higher-level facilities as strategic points for referral of specimens from patients who meet established criteria based on countries' guidelines;
- 2) Always evaluate performance of new TB diagnostics, techniques and encourage regional sharing and exchange of information to inform diagnostic algorithms for optimal performance;
- 3) Increase investments in diagnostic services and their proper utilization within functional health systems;
- 4) Adopt and roll out rapid and effective diagnostic technologies and techniques e.g. in Kenya, use of either spot or morning sputum alone, and in Tanzania, use of consecutive spot-spot sputum specimen;
- 5) Strengthen capacity building programs by implementing periodic training in microscopy and molecular techniques to enhance reliability of laboratory results and performance of diagnostics;
- 6) Adopt training curriculum in operational research methodologies to strengthen facilities to conduct evidence-based studies for best practices and to inform policy

Enteric Policy Brief

Common circulating and emerging enteric bacterial pathogens causing diarrhea and their antimicrobial resistance patterns in the East African Region.

Problem Statement

Although previously considered a non-disease causing bacteria, there is an emergence of *E.coli* patho-types that are causing disease (pathogenic) (e.g. novel hybrid of *E.coli* patho-types), which needs for new diagnostic approaches. Purchase of antibiotics for treatment of diarrhea without prescription is common. Clinicians prescribe antibiotics without laboratory based evidence. Incomplete use of recommended antibiotic doses is common.

Diarrhea can be prevented by giving proper information on hand-washing practices, proper waste disposal, boiling drinking water and properly cooked food. Myths and beliefs about diarrhea are due to lack of information on causes of diarrhea.

Policy measures

The East Africa Public Health Laboratory Networking (EAPHLN) Project supported strengthening of surveillance measures on common circulating and emerging enteric bacterial pathogens causing diarrhea, as well as their antimicrobial susceptibility patterns. This is in line with World Health Organization (WHO) Resolution of the Health Assembly, WHA68.7, which urged Member States to implement the global action plan on antimicrobial resistance and to adapt national priorities within specific context. A resolution at a high level meeting at the UN Headquarters in New York on “Antimicrobial Resistance” (September 2016) urged member states to address it comprehensively, multi-sectorally, as well as increase and improve awareness of antimicrobial resistance.

Summary of evidence

The main cause of bacterial diarrhea was pathogenic *E.coli* at 18% in Uganda and Kenya, followed by shigella at 8% in Kenya, and salmonella at 3% in Kenya. Common prescribed antibiotics such as ampicillin and sulphur-trimethoprim showed resistance ranging (88-100%) in Uganda and Kenya. Emerging resistance to last options antibiotics such as fluoroquinolones (Ciprofloxacin at 25%-35%) in Uganda and Kenya, and to third generation cephalosporin (Cefotaxime at 15%) in Kenya was noted.

Policy Options

- 1.Enhance laboratory capacity to routinely culture, identify pathogens and perform Antimicrobial Susceptibility Testing (AST).
- 2.Strengthen surveillance and monitoring of antimicrobial agents under the Universal Health Coverage (UHC) guided by the global and national antimicrobial resistance (AMR) action plan.
- 3.Implement regulatory policies to encourage rational antibiotic use in all member states.
- 4.Anchor guidelines for prevention of diarrheal diseases within the UHC.

5.Strengthen clinical and laboratory interphase by using holistic approach of evidence-based results to improve quality of healthcare.

6.Increase investments in infrastructure, training, skilled manpower, and validated technologies for research and development in antimicrobial drugs.

Malaria Policy Brief

Emergence of resistance to ACTs threatens access to safe and efficacious malaria treatment in East African community region.

Problem Statement

Alternative options for effective treatment are scarce/non-existent due to lack of or limited investments in Research & Development by East African community governments. Currently, Artemether-lumefantrine (AL) and Dihydroartemisinin piperaquine (DHAP) are two of the common drugs being used for the treatment of uncomplicated malaria in the EAC region as the first and second line treatment option respectively. In East African region Antimalarial drug resistance is imminent given the drug pressure arising from the widespread use of ACTs and resistance trends globally. Antimalarial drug resistance will likely inflate the cost of malaria case management in East African region.

Policy measures

Malaria programs have a mandate to assess the efficacy of the antimalarial being used based on the standard WHO therapeutic efficacy monitoring guidelines. The EAPHLN supported countries to undertake routine drug monitoring studies so as to provide up to date status of the efficacy of the two ACTs. This in support of the ECSA/HMC60/R4 (2015) resolution “for early detection of resistance and provide information for prompt policy formulation for necessary action.”

Summary of evidence

Clinical data indicate that both AL and DHAP are still efficacious, Kenya (64% AL, 75% DHAP, Uganda (51.3% AL, DHAP 71.2%) and Tanzania (50% AL), 76.5% DHAP) although below the WHO threshold of adequate clinical and parasitological response of 95%.

In Kenya cases of early treatment have been reported and there has been emerging trend of early recurrences during the study period. More ever, molecular information from the Ugandan study is showing some evidence of the emergence of resistance markers in circulation of 2.2% (AL) and 1.1 % (DHAP) though this is still below the 5% threshold required for treatment policy change.

Policy Options

1. Prioritize and strengthen routine antimalarial drug efficacy monitoring within the AMR regional strategy
2. Improve and enhance capacity of the member states to routinely track the efficacy of available antimalarial drugs as per WHO guidelines
3. Create / strengthen a regional malaria case management center/taskforce
4. Enforce stringent antimalarial drug use policy to guard on the available options.
5. Invest in collaborative R&D for candidate molecules for new antimalarial drugs

8. Promoting learning, knowledge sharing and exchange

In order to promote knowledge management (KM*) using various platforms in the region and international arena, EAPHLN project is supporting laboratory systems strengthening and cross border disease surveillance issues such as outbreak response activities, capacity building of laboratory and other health personnel, operations research, laboratory accreditation among other areas, these platforms include;

A. Scientific Conferences

The 48th Union World Conference on Lung Health is in Guadalajara, Mexico, 11-14 October 2017.

Theme: Strengthening Health Systems to support management and control of TB burden in East, Central and Southern Africa:

The EAPHLN project convened a joint symposium with the Southern Africa TB and Health Systems Support (SAT-BHSS) Project and the Global Fund Laboratory Strengthening Project that brought together multi-sectoral and multi-disciplinary experts including public health experts policy makers, mining and labor to discuss collaborative efforts to combat the TB burden in Sub-Saharan Africa. The workshop sought to discuss the following (i) the current efforts of building laboratory capacity to contribute to control of TB and other infectious diseases in East, Central and Southern Africa (ii) innovative approaches to cross-border management of TB and other infectious Diseases (iii) the value of harmonized guidelines and strategies for TB and occupational health (iii) current research efforts to inform management and control of the TB burden and (iv) findings of the training needs assessment for the control and management of TB burden in the region. A total of 41 participants attended the 3 hours workshop, which was officially opened by Dr Benedita from Mozambique.



Figure 2.2 Presenters at the joint symposium during the 48th Union conference in Mexico The following presentations

Were made during the session:-

1. Laboratory system strengthening initiatives through the GLI Stepwise Process towards TB Laboratory Accreditation
2. Updates on progress on the Laboratory system support activities and the implementation of Harmonized TB Management Guidelines and Cross-border referrals systems for TB patients SADC Region.
3. Achievements of the EAPHLNP in the areas of laboratory systems, disease surveillance and operational research with findings from specific case studies. Updates on the establishment of Centers of Excellence (CoE) in the following areas; (i) Community based TB Management by use of digital mobile X-rays (Lesotho); (ii) Community TB care & integrated disease surveillance (Malawi); (iii) MDR-TB & childhood TB management (Mozambique) and (iv) Occupational health and safety (Zambia).

4. Support for National TB reference laboratories by the SRL in 18 countries under the Global fund project.

The following were the key messages from the session:-

1. Laboratories play a critical role in controlling TB burden in East, Central and Southern Africa
2. Need for Multisectoral collaboration in controlling TB burden in East, Central and Southern Africa

B. News Bulletin

■ ECSA-HC bulletin

ECSA-HC published monthly newsletters to share information regarding events and issues of interest in the region. Each month bulletin has shared information on outcomes and interesting events from the EAPHLN project. This has been a good platform, and the teams have been putting more efforts to ensure that more articles on project events appear in the ECSA monthly news letter.

■ Kenyan Chapter (EAPHLN) Quarterly Bulletin

The Kenyan chapter of the EAPHLN quarterly bulletin produced seven issues with key running themes including laboratory accreditation, ICT and launch of new diagnostic technologies respectively. The team also came up with a laboratory specific release called Lab Insight for laboratory personnel. The bulletin is a powerful advocacy tool for the articulation of the laboratory initiative and also general laboratory fraternity information. The Bulletin did cover Kenya specific and EAC region-wide issues and events.

■ EAIDSNet Bulletin

The EAIDSNet Bulletin provides a platform for the East African region to share epidemiological data as well as other public health information. The bulletin is a publication of the East African Community through the East African Integrated Disease Surveillance Network (EAIDSNet), a regional collaboration of EAC Partner States' ministries responsible for human and animal health, wildlife and national private and public health research and academic institutions.

Articles for the bulletins have come mainly from public health practitioners and healthcare providers in the region. The bulletin, however, is aimed at a wider audience that includes other health-related sectors, policymakers, researchers, and students of public health. There has been a tremendous improvement of participation of the EAC partner states in the submission of articles to be included in the bulletin in the past year; however, challenges remain in review, timeliness and publishing of articles.

Although the EAIDSNet Editors and Stakeholder had agreed that submission of articles is continual throughout the quarter (e.g. January to March) and the deadline for publishing online is the 15th day of the Month following the end of the quarter (therefore 15th April for the January-March quarter), there is still a weakness in timeliness of submission of articles.

A total of 10 issues of the bulletin have been released so far under the support of the EAPHLN. It is notable that staff from satellite sites has originated a number of articles while either FELTP residents or Alumni have written most of the articles. The participation of laboratory professionals in writing and submission of articles still requires improvement. The EAIDSNet Bulletin now has data not only of outbreaks but also weekly disease surveillance data for priority diseases. In addition, rather than disseminating adobe (pdf) version of the bulletin which had challenges in terms of the size of the pictures contained in the bulletin, now we circulate a web based version of the bulletin and there is a dedicated website for this at the EAC.

Every year, a total of 4 issues of EAIDSNet Bulletin were published online. The online version is posted on the EAC website (www.eac.int). All the bulletins contained country specific data, which included disease outbreak information and other public health events occurring in the countries.

Quarterly publication of EAIDSNet bulletin with country-specific data indicates timely dissemination of regionally relevant disease surveillance information, which in turn reflects the improved efficiency of country surveillance systems as well as improved regional networking for improved quality of surveillance.

B. Project Web portal

The project developed a web portal with the technical support of the Rwanda ICT team who are taking leadership in the ICT component of the project which provides a Platform for Knowledge management, sharing, broadcasting, narrow casting and forum for discussions among the member states and with international audience.

The web portal was developed for hosting project reports, news, updates and events. This website is available at www.eaphln-ecsabc.org. The portal will also be used for posting e-learning training courses.



Figure 2.3 Project Web site

C. The Project M&E Portal

The EAPHLNP Monitoring and Evaluation focuses on accountability for results (i.e., moves beyond the usual tracking of inputs and outputs, and places a strong emphasis on intermediate and final outcomes). In addition to the accountability function of evaluation, the results framework also emphasizes the learning function of evaluation, therefore the M & E portal is facilitating collation, analysis and interpretation of data from the countries and therefore serving as a gateway to information, knowledge management & exchange among the participating countries in East African Region.

The countries and the regional bodies (ECSA- HC& EAC), collect, synthesize and analyze data from the satellite sites, national and regional levels to contribute to the larger body of knowledge on best practices and lessons learned related to the design and implementation of innovations in improving diagnostics and surveillance capacities to control communicable disease in the region. The portal is available at <http://eaphlnmne.ecsabc.org>. Currently all the countries are fully utilizing the portal for reporting project results.

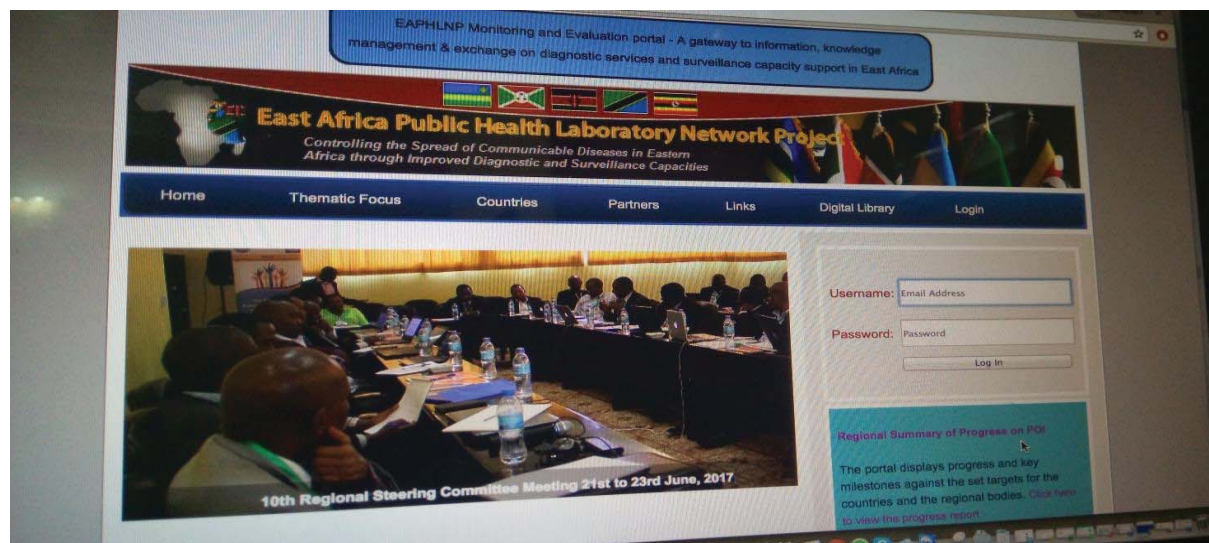


Figure 2.4 The M&E Portal

D. Video conference

Various groups have been utilizing the video conferencing facilities to communicate with the counterparts in the region and internationally. The various technical working groups use this platform to address regional issues without necessarily having to meet physically. The project is supporting the procurement of this innovative approach to enhance communication and information transfer across the region. Each of the TWG's of EAPHLN project schedule quarterly video conference to review progress and address urgent matters prior to a face to face meeting where majority of the major issues are resolved.

E. Regional meetings

Face to face meeting becomes necessary to discuss major issues that cannot be handled through video-conference and email communications. These includes activities like preparing joint work plans, the platform is also used for information sharing regarding achievements, resolving some challenges through lessons from other countries and also used for reviewing and approving works from consultants. Various regional information and knowledge sharing fora were convened for various technical working groups in the year (Annex 1)

9. Performance based financing

Performance-based financing is the transfer of money or material goods conditional on taking a measurable action or achieving a predetermined performance target. Performance-based financing (PBF) ensures that funding decisions are based on a transparent assessment of results against time-bound targets. As a financing method, performance-based funding promotes accountability and provides incentives for recipients to use funds efficiently to achieve results.

PBF has been documented to improve the quantity of health services in Rwanda and Ghana and also provided staff motivation through a system of incentives payments based on performance. EAPHLNP introduced PBF in the fiscal year 2012/13 linking improving quality of laboratory services using Step-wise laboratory improvement towards accreditation (SLIPTA) indicators to accelerate the process towards laboratory accreditation at the sites under the project.

"We take PBF as a catalytic element towards improvement. PBF is a tool which can help to motivate the laboratory technicians to improve their work" commented the Coordinator of SPIU in one of the regional

The introduction of PBF for Laboratory accreditation in Rwanda has seen laboratories at EAPHLNP sites improve progressively in the SLIPTA scores with subsequent PBF assessments. Roll out of PBF to other countries in the region will be instrumental to support rapid achievement of both accreditation and projects results by linking flexible financial incentives/sanctions to the laboratory team.

In 2013, Uganda developed, adopted and disseminated an Operational Manual to popularize PBF incentives for Laboratory accreditation. Implementation of PBF incentives for Lab accreditation under the project has not had promising results on progress towards accreditation as observed in Rwanda and Burundi, because of the small volumes, sporadic and unpredictable disbursement of the incentives. The RAP and Steering Committee that sat at Arusha in November 2016 and June 2017 respectively did recommend upward revision of the volumes (at least USD 3,000 per tranche) in a predictable and regular manner, if these incentives are to have the desired effect on progress towards Laboratory accreditation for the EAPHLNP sites in the country.

10. Project implementation support

Proper implementation of a project is a critical success factor for all development projects. Good design, management, dedicated team, good governance and committed leadership, partnership and regular communications and meetings with stakeholders all contribute to successful implementation and achievements of the project targets.

In an effort to further improve the quality of the outcomes and achieve better results, World Bank has increased its involvement in project supervision and further focused its implementation support.

Through the implementation support missions, World Bank task team Leader for the EAPHLNP accompanied by the Management and technical staff from the collaborating regional organizations, ECSA-HC and the EAC provide support to project coordinating and implementing teams essential to national ownership and sustainability, notably support services in the financial management, areas of recruitment, emphasis on policies and procedures of fiduciary and procurement of goods and services as well as identifying challenges and working together with the implementation teams to find solutions. World Bank and regional team provided biannual implementation support during the every year during which, the following were addressed in supporting the implementing teams; (i) review the status of activities funded, discuss main challenges, and agree on priority areas for the next period (ii) discuss the activities and modalities and outputs of the regional technical working groups taking leadership in each country (iii) assess progress on M&E and knowledge management, with a particular focus on the Results Framework indicators stipulated in the project appraisal document (iv) review compliance on fiduciary aspects (i.e. financial management review, procurement reviews), identify any major issues, and proposed remedial actions (v) discuss with the ministry, the strengthening of the project coordination teams for effective implementation. The teams explored other means of supporting the implementation including application of performance based financing in accelerating the laboratories improvement towards accreditation, review of facilities infrastructure plans for construction/renovation, surveillance capacity building and discussing and providing clarity to reporting on various project indicators.

Key issues from discussions and recommendations from the various implementation teams

Despite the various achievements made by the participating countries in the areas of infrastructural plans development and approvals, equipment procurement, training and capacity building and laboratory quality improvements. A number of mitigation measures were proposed and employed to help address some of the challenges and accelerate implementation.

a. Project implementation support: ECSA-HC *participated in implementation support mission in Burundi, Kenya, Uganda, and Tanzania to discuss the project implementation and challenges. ECSA-HC continued supporting the technical teams in the implementation as needed.*

b. Training of health personnel: as it was noted that cumulatively over 15,422 (92%) health personnel have been trained across the five countries. The countries were asked to use the funds to increase the numbers of trained laboratory personnel in the region by facilitating capacity building of personnel beyond the satellite facilities personnel. The project is also using innovative methods to deliver the training by using e-learning platforms, and through engaging partners in various countries with track record of providing quality training of health personnel based on needs, applying the cascading model in some training at country level, deploying the e-learning modules so far developed among other approaches. The Regional Training and capacity building TWG has also been continuously identifying the training opportunities in the region and communicated to the Partner States

c. TWG's communication and information sharing: Recognizing the challenges of communication with various team members, countries were advised to nominate members to each regional Technical Working Group (TWG) to facilitate communication and discussions among the team members and improve implementation of the activities at both country and regional levels. *All the TWG convened in the course of 2017-2018 to share progress and also develop work plans*

Summary of the main achievements of the project

The project has had many achievements since its inception, notably;

- Financed **construction/renovation** of public health laboratories, with support of CDC in the design in some countries or with complementary investments in other countries. These new state of art infrastructure are complete and in use in some countries (5 sites in Rwanda); 100% completed in 6 sites in Kenya (100%) in one site (NTRL) in Uganda, completed in one site (Ndanda) in Tanzania and 100% completed in 6 sites in Burundi;
- Procured **laboratory equipment** including roll out of GeneXpert for TB diagnosis and Rif resistance detection at the local level, incinerators, reagents and consumables; and supported quality improvement plans developed by the laboratories which aim to empower facilities to address gaps identified during the quality systems;
- **Rolled out new molecular technology** for more rapid and accurate results with an important impact in terms of the accuracy of TB laboratory results, which implies that anti-TB drugs can be prescribed with greater accuracy, saving time and money. The roll out of the novel GeneXpert technology has brought diagnostic services to vulnerable groups and improved the turnaround time to several hours rather than waiting months for liquid culture results;
- Strengthened **training and capacity building** to expand the pool of qualified personnel with training of over 15,422 health personnel by June 2018. Supported in-country trainings for laboratory personnel in various disciplines (quality assessments, lab management, biosafety, mentorship, field epidemiology), expanded access to bachelor, masters and PhD degree programs, and funded participants in the gold standard Field Epidemiology and Laboratory Training Program (FELTP);
- Established an **e-learning platform** to increase access to laboratory and health training especially in health personnel in hard to reach areas. About 150 participants have been enrolled in the course; 50 have been certified.
- Introduced a unique and cost effective **peer review mechanism** of laboratories' quality systems by which the 5 EAC member states assess annually each other's performance using the SLIPTA checklist, ensuring objectivity and promoting cross country learning;
- Attained **substantial quality improvements** with impressive gains in the Stepwise Laboratory Quality Improvement Process Towards Accreditation (SLIPTA) composite scores, instilling a culture of continuous quality improvements and setting them on a path towards international standards. In Uganda the project efforts have impacted beyond the EAPHLNP sites to the process of institutionalizing Laboratory Quality Management System in the country, where 92 Laboratories from the national clinical laboratories network have been enrolled on LQMS since May 2011 and three (NTRL, CPHL and Mildmay have achieved ISO: 15189 accreditation.
- Piloted use of **Performance Based Financing** as a complementary strategy to link incremental improvements in the SLIPTA composite scores to financial incentives for the participating hospitals in Rwanda where the project-supported laboratories are based;
- Strengthened **cross-border collaboration** in communicable disease surveillance and joint outbreak investigations by establishing a framework for cross-border outbreak investigations, creating cross-border committees, conducting joint investigations and simulation exercises at various border zones, as well as providing training in integrated disease surveillance and response (IDSR). These activities have enabled countries like Uganda to respond swiftly (within 7 days) to several Ebola and Marburg outbreaks, containing epidemics, and minimizing the number of confirmed cases;
- Rolled out high-tech **video conferencing** (including connections to the sites) and other ICT innovations to support e-learning, facilitate knowledge sharing, and strengthen communications nationally and regionally;
- Conducted an important **study on Human Resources for Health** related to laboratory professionals to improve understanding of the status of laboratory professionals, and generate policy recommendations for these neglected cadres;
- And a study which assesses alternative **models of public-private partnerships** for laboratory services and lays out policy options for governments to consider in order to reduce costs and enhance accountability, such as laboratory equipment leasing which is increasingly viewed as an effective way to work in close partnership with the private sector that has the knowhow and expertise to maintain equipment.

Part 7:

PROGRESS TOWARDS ACHIEVING TARGETS FOR THE PROJECT INDICATORS



Countries participating in the EAPHLN project are committed to a common framework for monitoring performance of the project. The result framework focuses on accountability for results and moves beyond the usual tracking of inputs and outputs and put more emphasis on intermediate and final outcomes. Six project outcome indicators (POI) and Twelve intermediate outcome indicators (IOI) have been identified in which the countries are accountable and report against.

Results Framework Summary 2011-2018

The EAPHLN-Project has been able to achieve the following results on key project indicators from its initiation to year 8 as seen in Table 6 below.

Table 6: Results Framework Summary 2011-2018

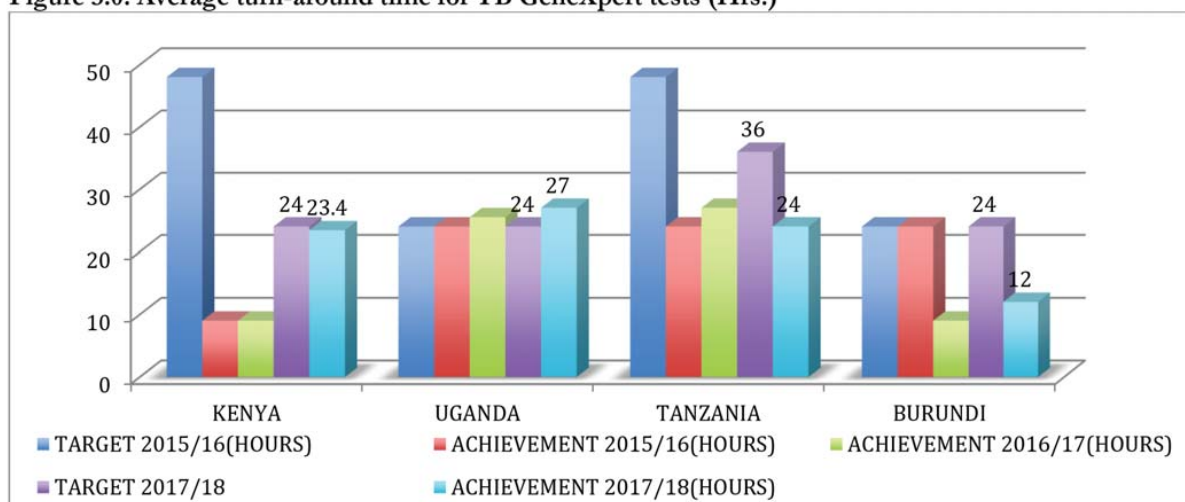
Indicators	Year 2 (2011-2012)	Year 3 (2012-2013)	Year 4 (2013-2014)	Year 5 (2014-2015)	Year 6 (2015-2016)	Year 7 (2016-2017)	Year 8 (2017-2018)	Comments
Project Outcome Indicators (6 POIs)	Overall Regional Achievement is 5/6 (83%)	Overall Regional Achievement is 5/6 (83%)	Overall Regional Achievement is 4/6 (66%)	Overall Regional Achievement is 5/6 (83%)	Overall Regional Achievement is 6/6 (100%)	Overall Regional Achievement is 5/6 (83%)	Overall Regional Achievement is 5/6 (83%)	Less performance POI# 4
Intermediate Outcome Indicators 11 (IOIs)	Overall Regional Achievement is 6/11 (54%)	Overall Regional Achievement is 6/11 (54%)	Overall Regional Achievement is 6/11 (54%)	Overall Regional Achievement is 7/11 (63.6%)	Overall Regional Achievement is 8/12 (66%)	Overall Regional Achievement is 11/12 (92%)	Overall Regional Achievement is 10/12 (83%)	Countries performed less on IOI# 3 and 5
Overall Performance	Achieved 11/17 (64%)	Achieved 11/17 (64%)	Achieved 10/17 (58.8%)	Achieved 12/17 (70.5%)	Achieved 14/18 (77.8%)	Achieved 16/18 (88.9%)	Achieved 15/18 (83%)	

Project Outcome indicators

POI# 1: Average turn-around time for TB GeneXpert tests (in Hrs.)

This indicator is used to track efficiency of TB diagnostic services (GeneXpert tests) to facilitate timely patient management. Each country had set its own target with regard to turn around time, the partial report for 2017-2018 (July to June) indicated that there has been a remarkable reduced turnaround time (TAT) for TB test due to introduction of new molecular tests such as GeneXpert in all laboratories that are supported by the EAPHLN-Project. The reports show that the efficiency in conducting TB tests has increased in all supported laboratories with patients receiving results timely in all countries. This has facilitated timely patients management as shown in the figure 3.0 below,

Figure 3.0: Average turn-around time for TB GeneXpert tests (Hrs.)

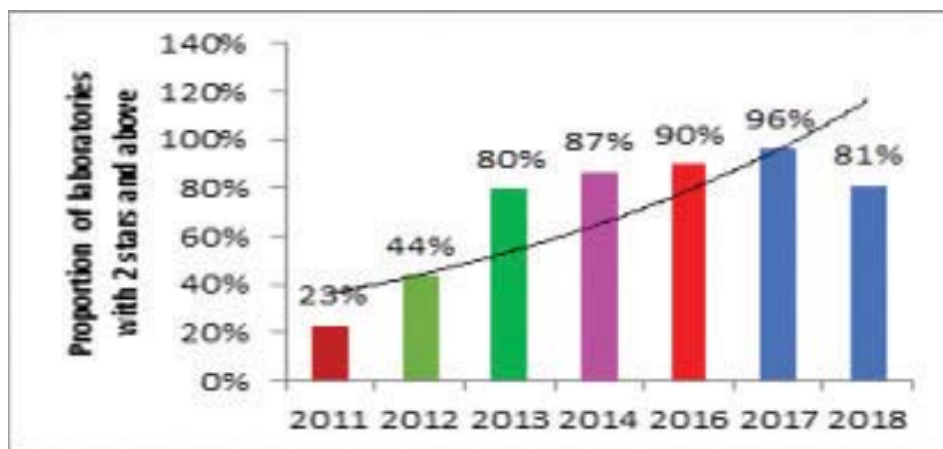


POI#2: Satellite laboratories awarded three star statuses under regional WHO AFRO Step wise Laboratory Improvement Process Towards Accreditation (SLIPTA) program

This indicator is used to track improvements in laboratory processes and performance. Independent team of laboratory assessors determined whether the laboratory met the established standards by the Regional WHO AFRO Step wise Laboratory Improvement Process Towards Accreditation (SLIPTA) program.

The in-country assessment of 2009 showed out of all supported laboratories, none of them had reached a two star status. In an assessment done in April 2018 in Kenya, Tanzania, Uganda, Rwanda and Burundi) showed that 81% scored 2 stars, while with four laboratories in the network (SRL-Uganda, Ndanda and Mnazi Mmoja in Tanzania and National Microbiology laboratory in Kenya) have been Internationally Accredited and 2 recommended for Accreditation using ISO15189 (Kibong'oto and NTRL Kenya), several others in the process of applying for accreditation.

Figure 3.1: Performance of laboratories in SLIPTA



POI# 3: Number of beneficiaries (out of which x% female)

This is a core indicator for IDA, and is used to track the number of people getting laboratory services at the facilities supported by the Project. The 2017-2018 Report shows a total of 1,512,758 Beneficiaries attended for laboratory services at the sites supported by the project in all participating countries compared to a target of 930,610.

In overall from 2010-2018 the project has been able to reach 8,095,637 beneficiaries compared with a target of 4,061,050 (as shown in a figure 3.2 & 3.3 Below) out of which 60% are females beneficiaries.

Figure 3.2: Number of beneficiaries

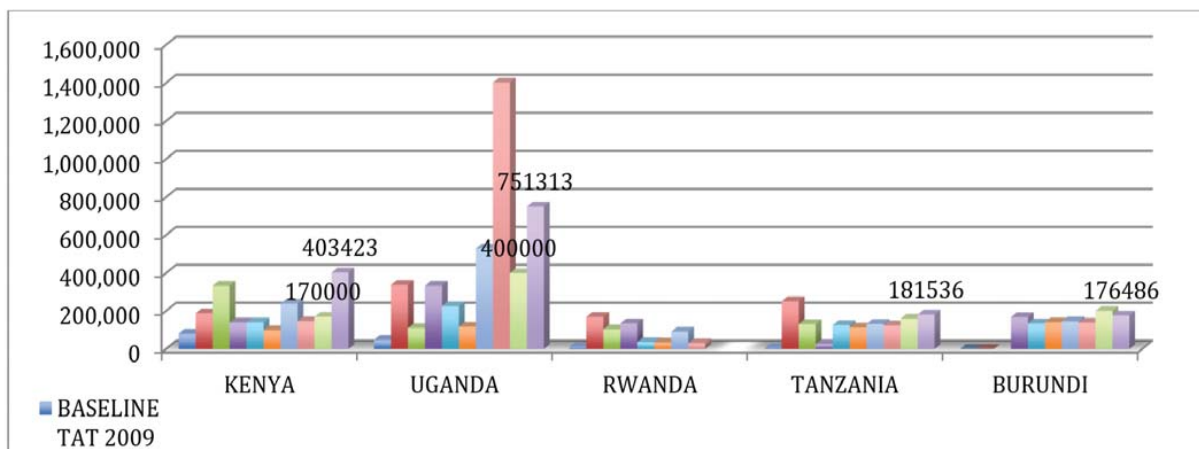
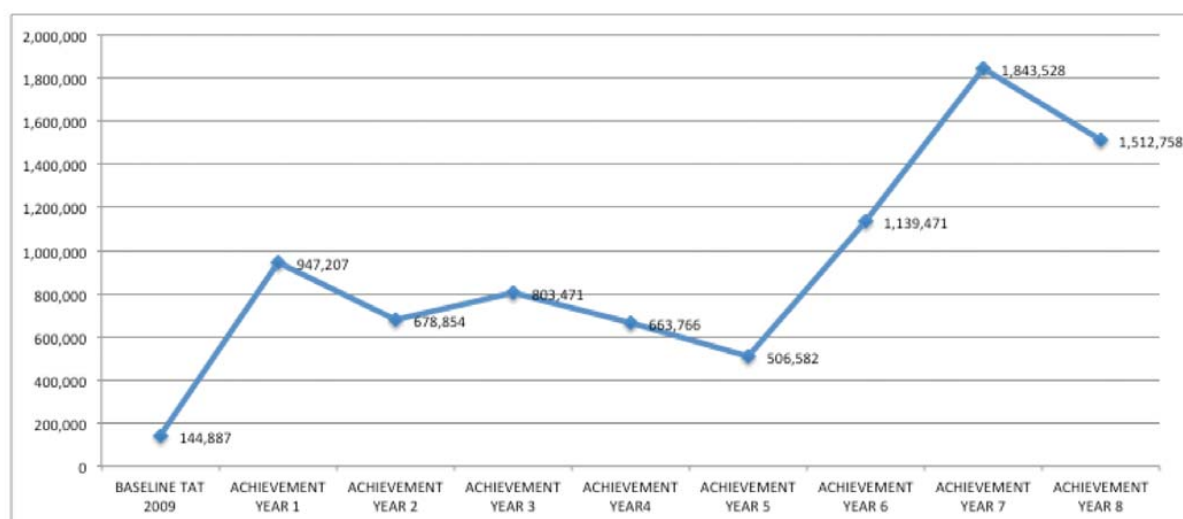


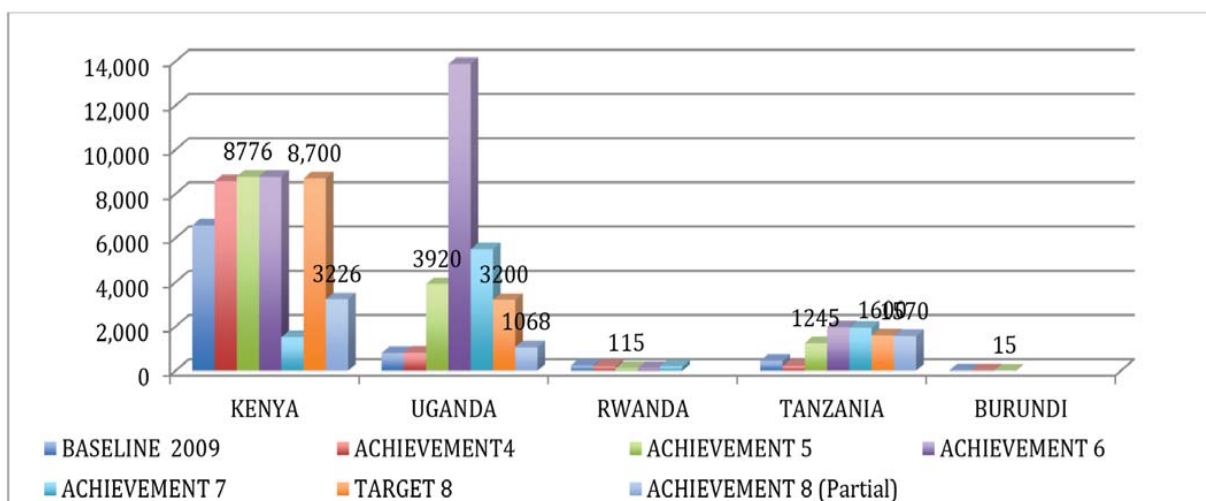
Figure 3.3: Trends in Beneficiaries from 2009 to June, 2018



POI#4: People receiving TB drug susceptibility tests among DOTS treated TB cases not responding to treatment (number, percent)

This indicator assesses two issues, surveillance for Drug-Resistant TB at national level and uptake of Drug Susceptibility Testing (DST) services at project sites. Compared to the baseline assessment done in 2009, the Reports for the 2017-2018 shows that there are 5864 patients accessed DST tests as shown in a figure 3.4 below;

Figure 3.4: People receiving TB drug susceptibility test

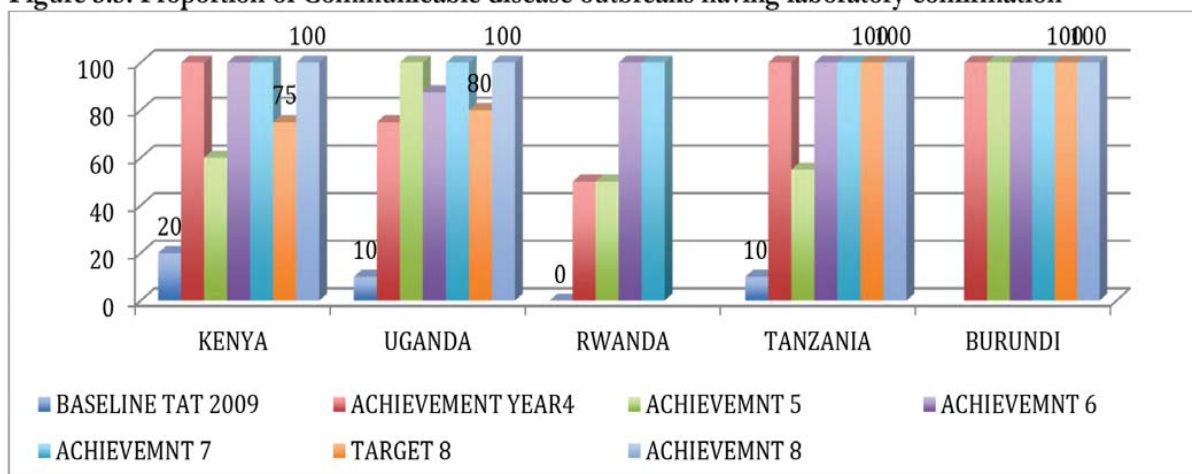


POI#5: Proportion of reported communicable disease outbreaks having laboratory confirmation of etiological agent (percent)

This indicator measures the role of laboratory-based surveillance of outbreaks of communicable diseases of public health importance, such as cholera, malaria, hepatitis, salmonella, typhoid, hemorrhagic fevers etc.

The Regional target was to have etiological agents confirmed in 40% of out breaks. Compared to the baseline in 2009, the reports for 2017-2018 shows the outbreaks whose etiological agents have been confirmed in the laboratories for Kenya were (100%), Uganda (100%) and Tanzania (100%) and Burundi (100%) as shown in figure 3.5 below;

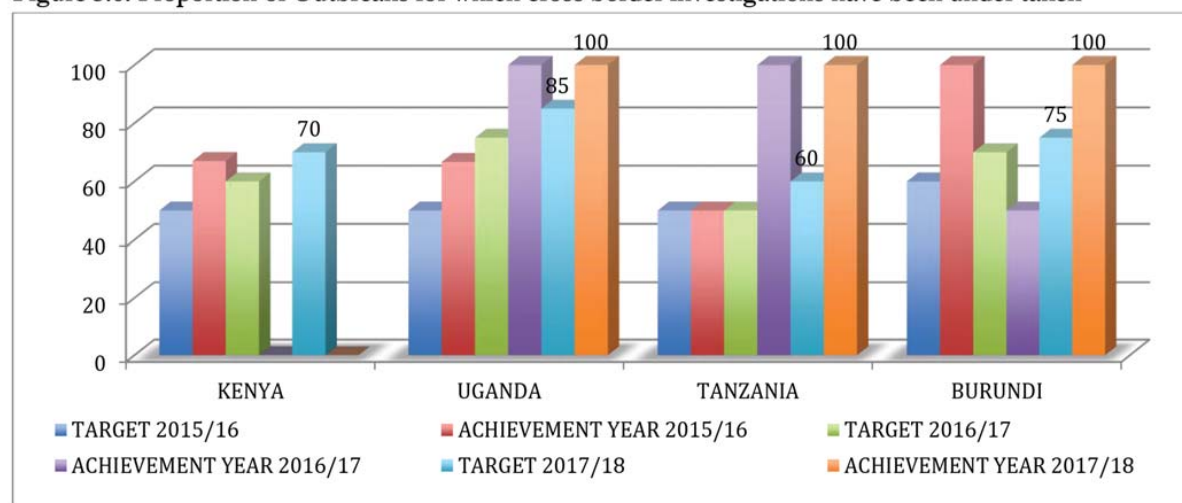
Figure 3.5: Proportion of Communicable disease outbreaks having laboratory confirmation



POI#6: Proportion of outbreaks in cross border areas that joint investigations were done (both in country joint investigations and inter-country joint investigations)

This indicator reflects the cross-border responses to control communicable disease outbreaks in the border districts where satellite laboratories are located. Compared to the baseline of 2009, the 2017/18 Results showed that there have been an increased Proportion of outbreaks in cross border areas where joint investigations were done

Figure 3.6: Proportion of Outbreaks for which cross border investigations have been under taken

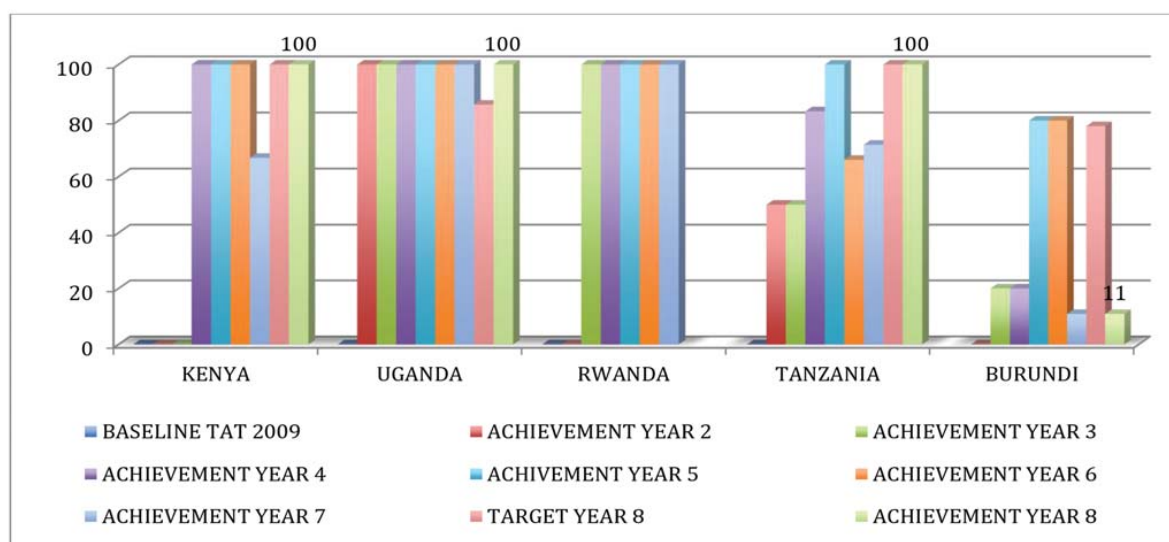


Project Intermediate indicators IOI# 1: Satellite laboratories compliant with regionally harmonized SOPs (percent)

This indicator is used to track the quality of laboratory services, through the support of ECSA-HC, countries been working on harmonization of standard operating procedures for the five priority diseases and adopt and use the WHO SOPs.

The Regional laboratory peer assessment in 2012, 2013, 2015, 2016, 2017 and follow-up assessment that was done in April 2018 showed all laboratories in Uganda and Tanzania and Kenya had 100% compliance with the WHO SOPs while Burundi only one site 11% as shown in figure 3.7 below

Figure 3.7: Satellite laboratories compliant with SOPs



IOI# 2: Number of days the National reference laboratory reporting stock-out of tracer reagent for TB liquid culture in past quarter (days)

This indicator assesses the quality of laboratory management and the management of the supply-chain for reagents at the level of national referral laboratories. The 2017-2018 Reports, shows that there was no stock out of these of reagents in all supported laboratories Tanzania and Uganda. In Kenya there was stock out had stock out of reagents, while in Burundi, the machines had broken down therefore not tests were done.

IOI#3: Satellite laboratories reporting stock-outs of tracer reagent for stools culture (percent)

This indicator assesses the quality of laboratory management and the management of the supply-chain for reagents at the level of satellite laboratories. The 2017-2018 Reports shows that there were stock out of reagents for stool culture in in Kenya 2 sites 25%, Uganda (5 sites, 71%), Tanzania 0, therefore stool culture tests were not done in those sites. Burundi 64% as some satellite laboratories have not yet started doing stool cultures in satellite laboratories.

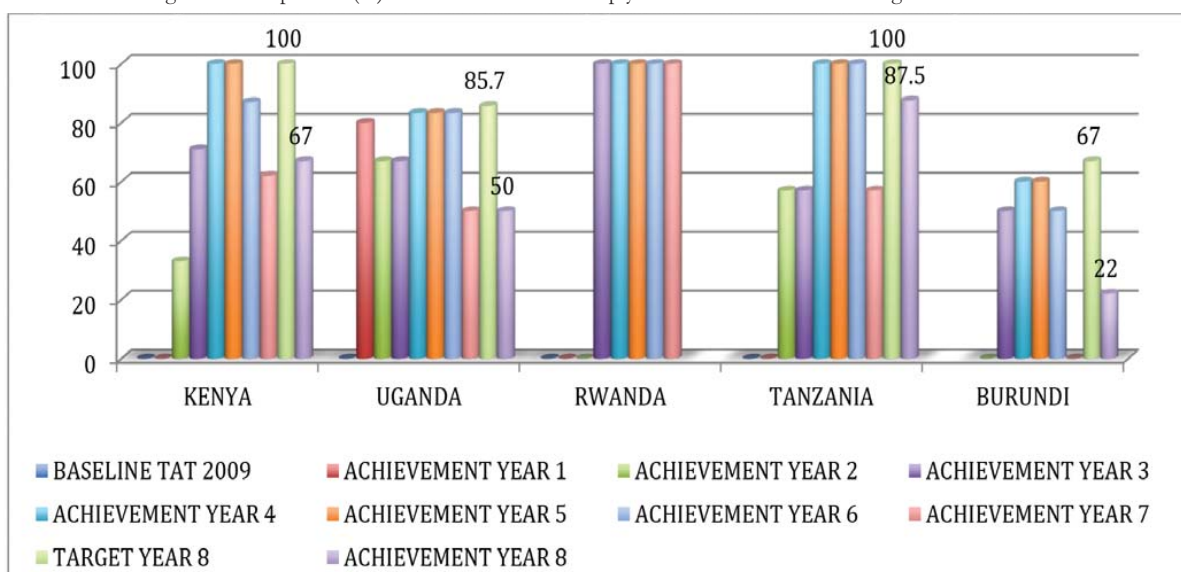
IOI# 4: Health facilities constructed, renovated, and/or equipped (number)

This is core indicator for project and so far construction works have already been completed sites in Rwanda and Kenya (Except for the new sites Marsabit and MTRH-El-doret), while Tanzania has already completed construction for Ndanda Laboratory and Construction for the National Public Health Laboratory is at advanced stage (will be handed over in December, 2018). The ESIA and design for Kibong'oto and three Isolation facilities is on the way. In Uganda the civil works for NTRL in Butabika is completed and the laboratory is fully functional. In Burundi the construction works for the six sites completed

IOI#5: Share of national and satellite laboratories that comply with Biomedical Waste Management requirements (number, percent)

This indicator captures compliance with environmental safeguards, and is also an important indicator of laboratory quality. The 2017-2018 Report shows laboratories from both National and satellite sites supported by the project complied with the biomedical waste management requirements the overall regional compliance was (Uganda 50%, Kenya-67%, Burundi-22% and Tanzania-87.5%) as shown in the figure 3.8 below

Figure 3.8: Proportion (%) of laboratories that comply with biomedical waste management



IOI#6: Quarterly publication of a regional surveillance bulletin by East Africa integrated disease surveillance network with country-specific data

The 2016-2017 and 2017-2018 Reports shows that the countries have submitted surveillance information to be published on the Regional surveillance bulletin on quarterly basis. Countries have been producing their National disease surveillance bulletin on quarterly basis. Satellite sites are encouraged to submit articles to the regional bulletin.

IOI#7: Health personnel receiving training (number)

Building capacity in various aspect of health service deliver is important to provide support for the effective service delivery. The project supported training of laboratory and other health personnel. Results for 2016-2017 shows a total of 1599 staff (126%) have been trained as shown in figure 3.9). The overall Regional target for trainings from 2010 to 2018 is 16,020; The 2010-2018 aggregated reports showed that the overall achievement is 15,422 (92%) of which ECSA-HC supported 10 staff.

Figure 3.9: Number of Health personnel trained by countries

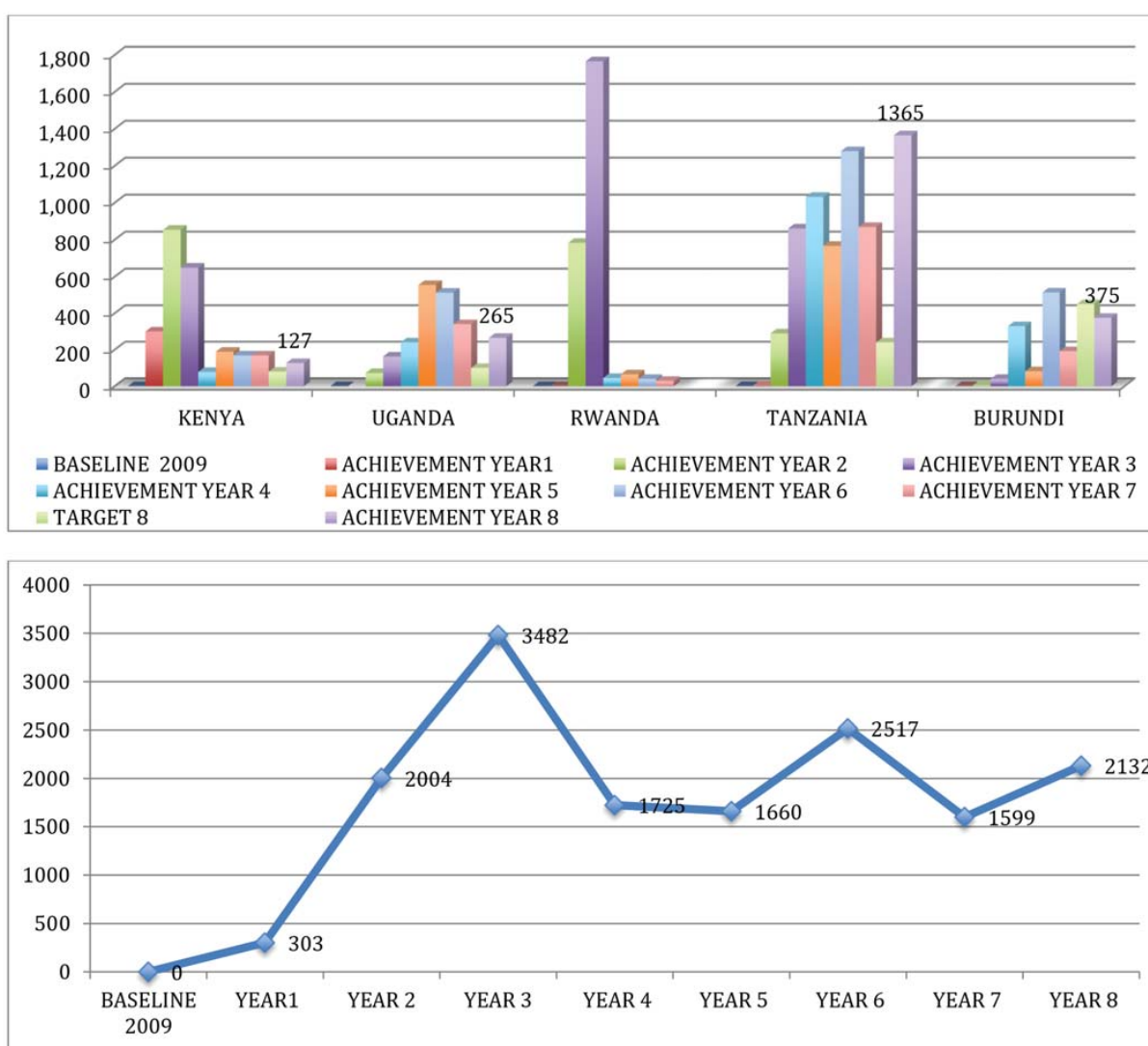
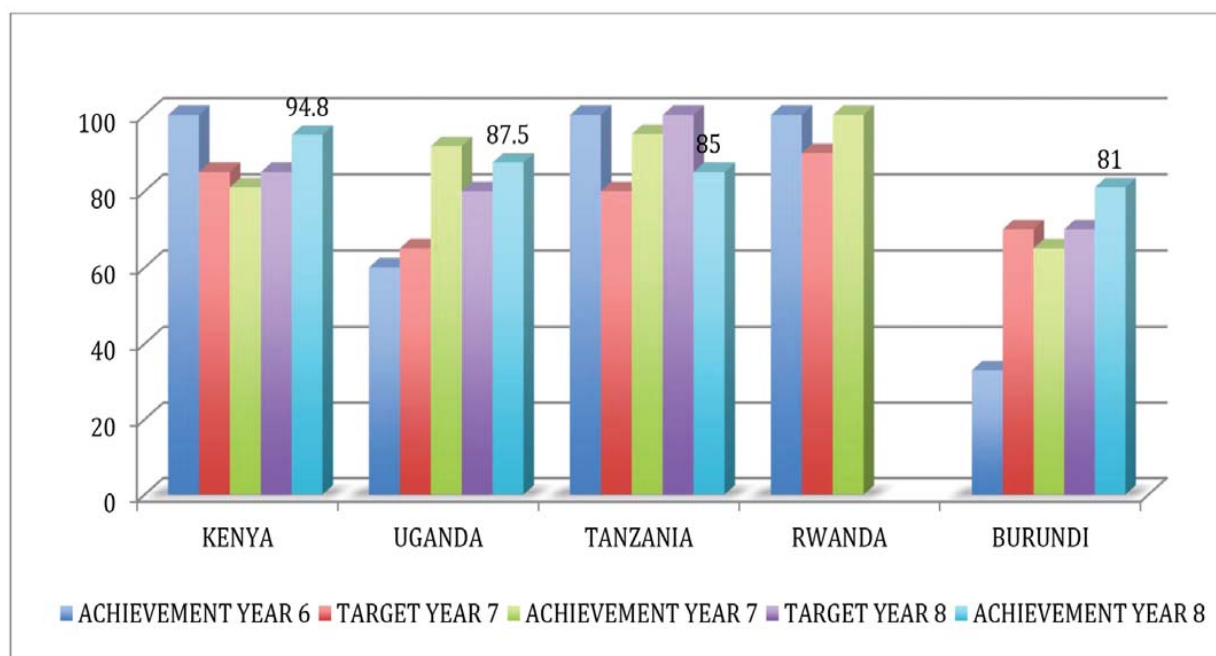


Figure 4.0: Trends in Training from 2010-2018 (A total of 15,422 staff have been trained)

IOI# 8: Proportion of lab staff trained and found to be proficient (percentage)

This indicator complements IOI#7 and measures the quality of the training provided to laboratory staff. This is necessary for the laboratory personnel's to assess their ability to accurately conduct the test (proficiency). The 2017-2018 Partial reports shows there's an increased proportion of laboratory staff who are trained and found to be proficient in Kenya and Rwanda, Tanzania Uganda and Burundi.

Figure 4.1 : Proportion of lab staff trained and found to be proficient by countries



IOI# 9: Operational Research studies approved by the peer review panel completed (Percent)

This indicator reflects the contributions of the project to enhance regional knowledge about communicable diseases. The three main studies under the project have been completed Kenya, Tanzania and Rwanda while Uganda and results disseminated both locally through National forums and Internationally in Conferences. ECSA-HC Health Ministers Conference held in Mauritius from 1st to 4th December 2015 and during the 46th Union Conference on Lung Health held in Cape Town from 2th to 6th December 2015, EACHSC in Bujumbura 29th to 31st March 2017.

IOI# 10: Number of GeneXpert tests performed

This is a new indicator under the additional financing of the Project; it assesses the utilization of GeneXpert Machines procured under the support of the EAPHLNP. In overall from 2012 to 2018 at total of 225,091 tests have been conducted. The 2017-2018 Report shows that a total of 67,688 (149%) GeneXpert tests have been conducted compared to a target of 45,379 as shown in figure 4.2 and 4.3 below.

Figure 4.2. Number of GeneXpert tests performed

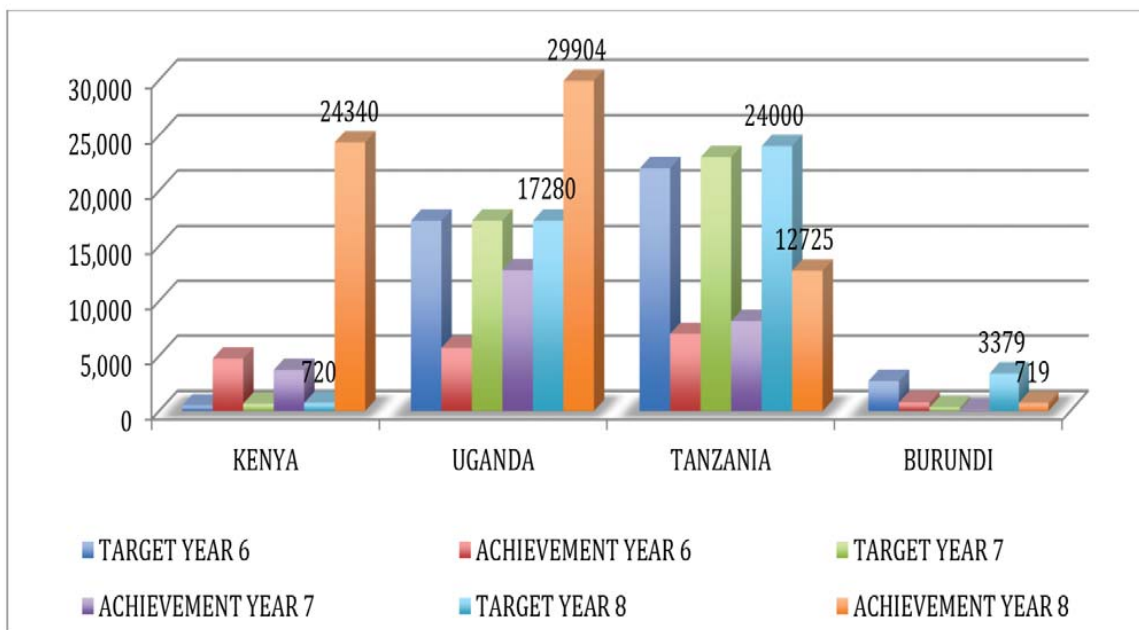
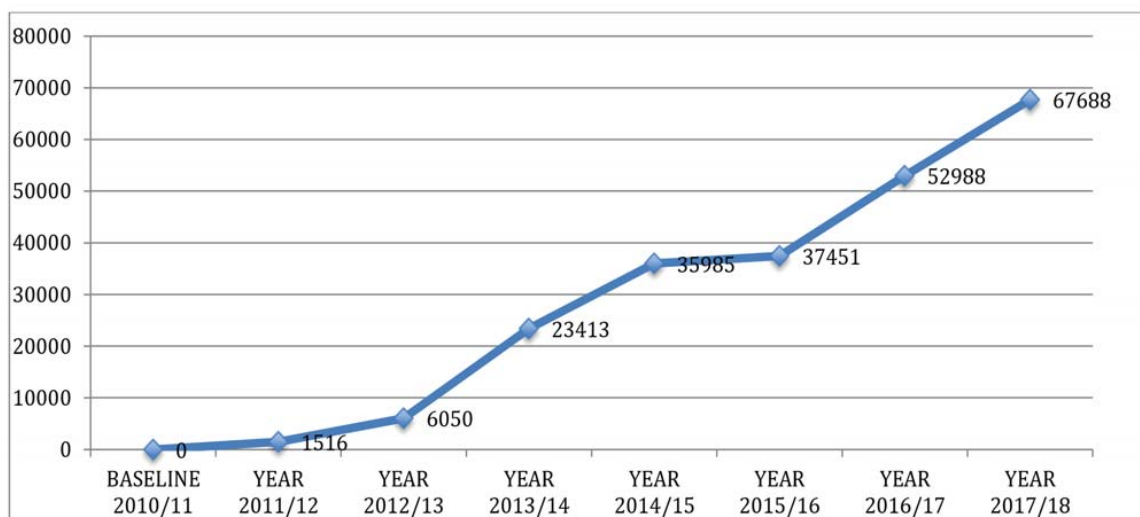


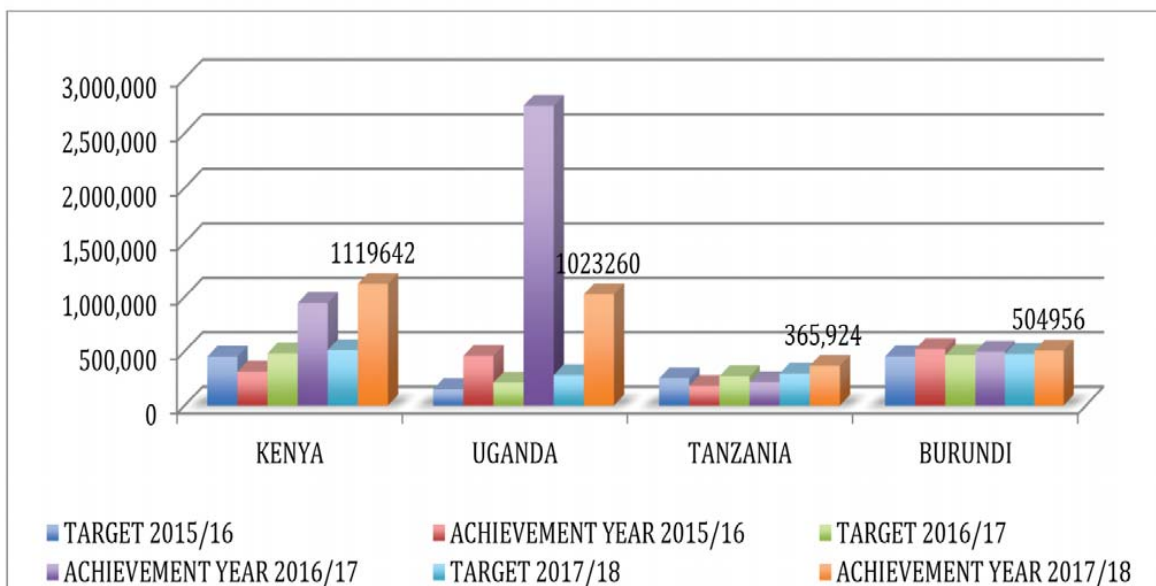
Figure 4.3: Trends in GeneXpert test conducted



IOI# 11: Number of Laboratory tests performed

This is a new indicator under the additional financing of the Project; it assesses the laboratory productivity in terms of volumes of test that are being done in the supported EAPHLNP sites. 2017-2018 Reports shows that a total of 3,013,782(193%) tests were done across the Region compared to a Regional target 1,559,056 and as shown in figure 4.4 below.

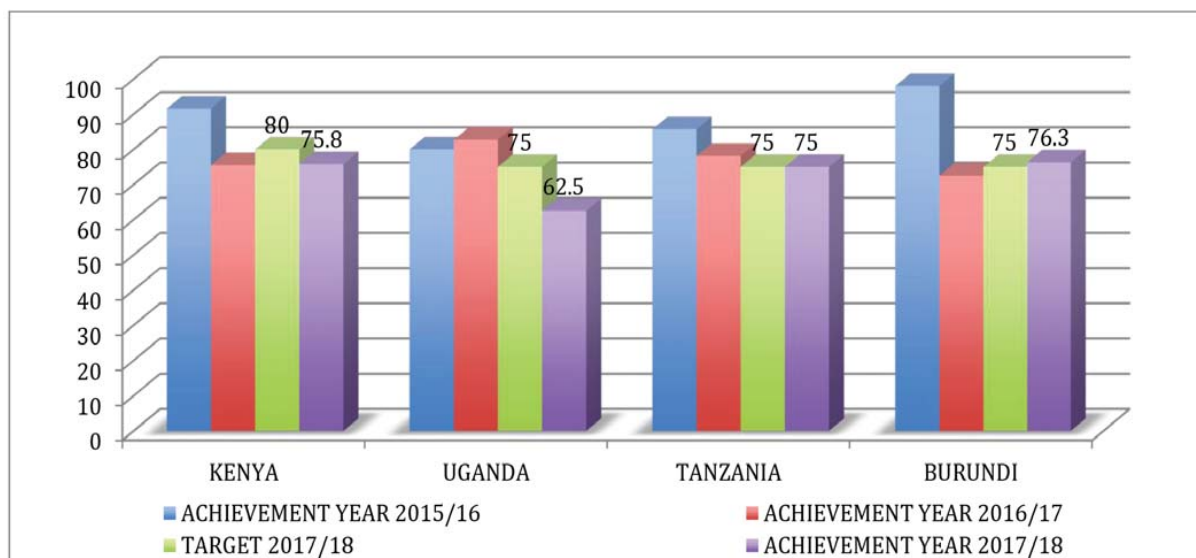
Figure 4.4: Number of Laboratory tests performed



IOI# 12: Laboratory client satisfaction rate (%)

This is a new indicator under the additional financing of the Project; it assesses the client feedback (satisfaction) on laboratory services that are offered in the supported facilities. The report shows overall average client's satisfaction for the year 2017-18 is at 72% across the Region as shown in the figure 4.5 below.

Figure 4.5: Laboratory client satisfaction



Part 8:

COUNTRIES PROJECT IMPLEMENTATION PROGRESS



Country project coordination

In each country the project is embedded within the Ministry of Health (MOH) and each MOH has set up a project implementation mechanism comprised of Project Manager and/or coordinator where applicable who provide oversight to the implementation of the project activities and other staff hired to coordinate day to day running of the project. The countries are using different implementation arrangement; some countries have set up project implementation units while others are implementing through the Long Term Institutional arrangement (LTIA).

Tanzania, the project is housed within the Directorate of Clinical Services within the Ministry of Health, Community Development, Gender, Elderly and Children with the Director of Quality Assurance being the Project Manager. Since Tanzania is leading in the Regional Training and Capacity Building component, the project has recruited a Training Coordinator to support daily operations as well as managing regional training and in-country training activities. The project is implemented through project coordination unit with each TWG responsible for the implementation of their respective activities.

Uganda, the project is embedded within the Ministry of Health and implemented through the Long Term Institutional Arrangement (LTIA). This project implementation arrangement gives the assurances that the governance structures in the public sector provide the necessary administrative and fiduciary risk guarantees. The project has employed technical staff including Operations Officer, M&E specialist, Procurement Specialist ICT specialist and Laboratory Mentors to run day to day activities.

Kenya, the project is entrenched within the Department of Disease Prevention and Control at Ministry of Public Health and Sanitation. The Head of National Public Health Laboratories is responsible for overseeing the implementation of the project. The project has established a project coordination unit with a Project Coordinator who oversees day to day running of the unit. Together with a team of specialists support the national laboratories and satellite facilities to implement the activities in the project. The project in Kenya is implemented through project coordination unit.

Burundi EAPHLNP is housed within the Ministry of Public Health and Fight Against HIV/AIDS, with the Director General being the Project Manager. The project is implemented through project coordination unit with each TWG responsible for the implementation of their respective activities.

Each country has a total of six in-country technical working groups i.e. Laboratory Networking and Accreditation, Disease Surveillance, Operational Research, Training and Capacity Building, ICT and recently established Performance Based Financing (PBF) who support the project teams in developing the work plans and support in the implementation of specific regional work plans that have been incorporated into country plans. In the Additional Financing phase, two in-country TWGs (AMR and Oncology & NCD) have been established but belong to the LABANW at the regional level.

Funds Disbursement

Each of the five (5) EAC Partner States were awarded funding directly as indicated below and is disbursed based on utilization as projected in the project appraisal document. All the countries (except Rwanda) received additional financing 2016-2020 to boost disease surveillance and response capacities in the region.

- a) Republic of Kenya — USD \$ 23,500,000.00 plus \$ 10,000,000.00 of additional financing
- b) Republic of Uganda — USD \$ 10,100,000.00 plus \$ 15,000,000.00 of additional financing
- c) United Republic of Tanzania — USD \$ 15,050,000.00 plus \$ 15,000,000.00 of additional financing
- d) Republic of Burundi – USD\$ 15,000,000.00 plus \$ 10,000,000.00 of additional financing
- e) Republic of Rwanda – USD\$ 15,010,000

Main activities implemented at Country Level

- Outbreak investigations and Cross border review meetings
- Training and capacity building activities
- Stakeholder review sessions
- Integrated outreach services to the communities on the laboratory services available
- Procurement of major equipment and supplies
- Staff salaries at National and satellite facilities
- Empowering the labs with small funding for their lab improvement funds
- Waste management support
- Networking with neighboring countries through cross border meetings which improve sharing of data and experience Promoting joint outbreak preparedness
- Construction and renovation of sites
- Procurement of laboratory equipment

Key Outputs/Results

- Introduction of new diagnostic technologies – Molecular (GeneXpert, Qiagen), automated diagnostic systems
- Over 15,422 laboratory personnel and other cadres trained
- Strengthened disease surveillance and emergency preparedness at cross border area
- Constructions being undertaken (new and renovations in the five countries)
- Laboratory equipment procured to increase access to specialized testing/services at the sites
- Improved QMS - TB diagnosis, malaria & Enterics isolation
- Development of quality manual, Clinician Hand book & biosafety manual
- Sensitization of hospital management teams on the EAPHNP project

Main activities implemented at Regional Level ECSA/EAC

Component 1: Laboratory Diagnostics and Surveillance

1. Conducted peer laboratory quality assessments preparation for accreditation and bio waste management assessment for compliance to standards and coordinated the application for WHO-AFRO to SLIPTA
Official certification for satellite laboratories
2. Worked with countries to utilize the Uganda SRL to serve the region
3. Convened the Annual regional laboratory networking and PBF TWG meeting
4. Support the EAC in production and publication of EAIDSNET Bulletin
5. Conducted Joint cross-border disease outbreak investigations and response and cross border meetings
6. Annual EAPHLN Project Surveillance TWG meeting
7. Field and table top simulation exercises
8. Annual review of IHR/IDSR performance in the region
9. Stakeholders meeting to review and adopt surveillance contingency plan
10. Conducted annual meeting of TWG for Non-Communicable diseases
11. Reviewed the framework for cross border surveillance

Component 2: Training and capacity building

1. Supported the adoption and implementation of the upgraded Laboratory training curriculum at other Institutions in EAC
2. Supported the e-learning platform for laboratory training (maintenance, updating/Revamping)
3. Convened a Regional training on equipment maintenance
4. Reviewed training materials for Laboratory Management Course which has been accredited by MUHAS
and inaugural course was held in March to April 2016 and the second and third cohort in March 2017 and 2018

Component 3: OR, ICT and program management

1. Coordinated monitoring of OR studies in collaboration with regional OR secretariat and countries
2. Documentation and dissemination of the results from the OR studies and project results and outcomes
3. Convened a Regional Data Sharing workshop on which three policy briefs from the OR studies were jointly developed
4. Organized and participated in TWG video conferences to share experiences, lessons and discussions on implementation
5. Produced video documentaries from the project work/activities

Laboratory infrastructural development

In resource constrained settings, health facilities and laboratories in particular have significant infrastructural challenges. It is common to find health facilities with minimal physical infrastructure, with the physical building having inadequate space to accommodate the comprehensive range of laboratory services for the level of care. Where laboratories exist (space and equipment), state of repair is degraded and functionality is sub-optimal, the lack of professional Lab workforce, utilities (clean running water, power source), supplies and other logistics notwithstanding. Such scenarios requires significant investment in laboratory infrastructure development. The infrastructure existing in most facilities does not allow the development of adequate biosafety procedures in the laboratory and the health facility in general. Countries are at various levels on implementing the infrastructural development;

Tanzania; Construction of National Public Health laboratory: Construction of NPHL stated November 2016, currently construction is at 84% completion, pending works includes; Security system alert, Access control & fire detection alarm system. Heating ventilation and air conditioning system (HVAC) installation is at 94%. Construction and commissioning is expected to be December 2018. The construction for the Ndanda laboratory ground floor is completed and currently being used,

Construction of Kibong'oto TB reference laboratory construction is about to start August 2018, Contractor has been identified and has started to organize materials on site, EIA has been done and we have received NEMC certification. Construction of isolation centers: Temeke isolation center construction has been completed and handed to the ministry of health for official use in May 2018. Other isolation centers (Mwanza Kilimanjaro & Muhimbili) - EIA is in its final stages, Contractor has been identified and is already at the sites for initial construction activities.



Figure 4.6 Ndanda Satellite Laboratory



Figure 4.7 Construction of National Public Health Laboratory

Uganda, Civil works completed and building launched November 2016, HVAC commissioned June 2017, facility functional. The facility is now fully functional, his Excellency the President of the Republic of Uganda having launched the Building in November 2016, along with the National Public Health Laboratory Services (UNPHLS), which also is in the same compound. Both have Bio Safety Level 3 laboratories space established. Remodeling of the laboratory of St. Mary's Hospital, Lacor is due to start soon contract was signed on 30th June, 2018. Arua and Moroto-MDR-TB Isolation have been delayed by the ESIA Report. Mulago and Entebbe Isolation facilities currently working on revising available designs by PANMODERN with support from HID/MoH

**H.E launching NTRL, Butabika on 17th
November 2016**



Figure 4.8 Official Launching of the NTRL in Butabika

Kenya ; The construction of the new laboratory complex in all facilities and renovation at the NPHLs. Five new Public Health labs were constructed by the project in Malindi, Busia, Wajir, Machakos and Kitale. The National Public Health Laboratory in Nairobi was also renovated. All are fully furnished, equipped and operational. Installation of incinerators in three sites, Busia, Kitale and Wajir is ongoing and expected to be completed soon.



Figure 4.9 Constructed Busia Regional Public Health Laboratory



Figure 5.0 Kitale Satellite Laboratory

Construction of New Laboratories in Marsabit and Moi Teaching and Referral Hospital and Isolation Unit; Contracts for construction of two new Regional Public Health Laboratories in Eldoret and Marsabit have been awarded and are awaiting approval of the Environmental and Social Impact Assessment reports by the World Bank for commencement. The constructions will also include an Isolation unit at Eldoret and installation of incinerators at the two sites.



Figure 5.1 Current Marsabit lab soon to be relocated to a newly built lab at the Hospital by the Project

Procurement of Lab Equipment and Reagents

The project procured several Major, Specialized and General Laboratory Equipment and reagents and kits. Major equipment procured included Gas Chromatograph Mass Spectrometer (GCMS) for food analysis and Microbiological Water Testing Equipment for the National Public Health Laboratory. Specialized Laboratory Equipment procured included molecular equipment such as Automated Liquid Handling System, Automated gel electrophoresis equipment, PCR workstations, (PCR/UV) chambers. Four HC2 Molecular Analyzer for Cervical Cancer Screening were procured for National Oncology and Biochemistry Reference Laboratory, Malindi, Wajir and Kitale, commissioned and training on HPV screening conducted in each of the sites.

General laboratory equipment procured included; biosafety cabinets, centrifuges, fridges, freezers, Incubators, Analytical Weighing balances, Autoclaves, Thermo mixer blocks, Water Baths and Fume hoods among others. Molecular reagents included Primers and kits for detection of various viruses and bacteriological etiological agents. Blood/Sputum culture reagents and TB molecular reagents such as GeneXpert cartridges were also procured. The procurement of these laboratory equipment, reagents and kits enhanced the diagnostic capacities of the supported sites and ensured uninterrupted service delivery.



Figure 5.2 Makamba Satellite Laboratory
before the Project

Burundi: The Construction of six laboratories that were under the initial phase of the project are well advanced with the construction works completed and commissioned at all the six sites, with four sites (Makamba, Rumonge, Muyinga and Kayanza) currently operating in the newly constructed facilities. The remaining works for the INSP is the installation of the fan extractor at the TB laboratory, and a system for maintenance of negative pressure within the TB laboratory; the mission was informed that this was not part of the contract signed by the contractor; In CHUK, the facility is well designed, constructed and the final finishing is well on track awaiting installation Air condition. The civil works for new infrastructures planned under the additional financing (the seven isolation facilities, seven incinerators and three new satellite laboratories at Ruyigi, Cibitoke and Gitega) are delayed by the prolonged process for recruitment of the consultant for conducting Environment and Social Impact Assessment (ESIA);

Rwanda has completed the construction of three of the project-supported facilities (Nyagatare Gisenyi, Gihundwe, Kibungo and Byumba).The installation of equipment was done and the laboratories are fully functional. Construction of Nyanza laboratory is also at advanced stage.The construction of Nyagatare laboratory was done with Global Fund resources.



Figure 5.2 Makamba Satellite Laboratory
after the Project

Laboratory equipment and supplies

Laboratory test quality relies on the availability of Laboratory equipment, reagents and consumables that meet minimum quality standards. In an effort to enhance quality and promise efficient resource use, equipment should be operational, regularly and properly maintained/serviced to guarantee quality outputs. While laboratory infrastructure has remained a major challenge in resource-constrained settings, many laboratories face major problems with equipment and some facilities lacking essential equipment for basic/simple testing or lack of reagents to support the testing. While addressing the issues of infrastructure, the EAPHLN project is providing essential as well as specialized critical laboratory equipment to support diagnostic services at the satellite sites.



Figure 5.3 Laboratory Equipments

Some of the specialized equipment includes; GeneXpert technology for Nucleic Acid Amplification testing that can identify *Mycobacterium tuberculosis* (MTB) and resistance to rifampicin (RIF). This technology was approved by the World Health Organization (WHO) for use in TB endemic countries and is a major milestone for Global Stop TB partnership. Kenya has acquired six units of GeneXpert machines that have been deployed to the satellite sites for use in rapid diagnosis of TB and detect resistance to Rifampicin, the first line drug for treatment of TB and provide an indication for potential multi-drug resistant TB (MDR-TB). Uganda procured 11 Units, Tanzania 7 Units; Rwanda 5 Units Burundi 6 Units This test has the potential to revolutionize the diagnosis of TB, which has been a major problem in the region.

GeneXpert Outcomes

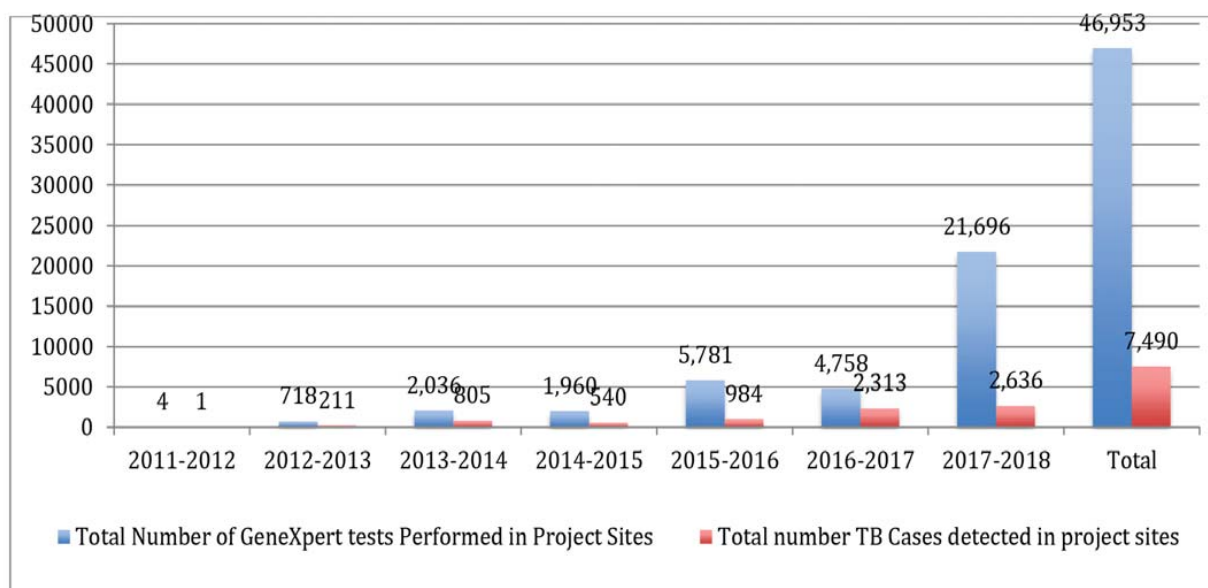
In Kenya: The number of GeneXpert tests performed annually in the project sites has steadily increased from 4 tests in 2011 to 21,696 in 2018. Over the years, a total of 46,953 tests have been conducted and 7,490 TB cases detected of which 311 were rifampicin resistant.



Figure 5.4 Laboratory Equipments

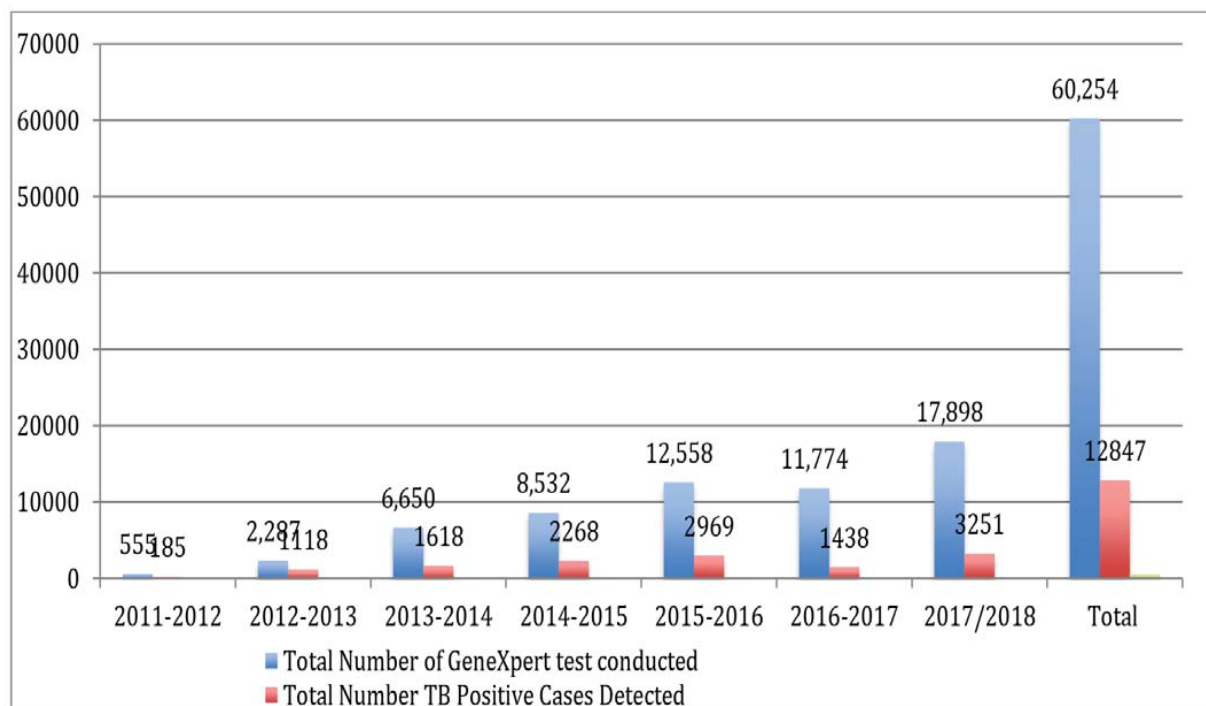
Results of GeneXpert installed in Project Supported Sites Figure 5.5:

Results of GeneXpert tests in project supported sites



In Tanzania: 18% of the total tests done was positive for tuberculosis, out of those, 2% were Rifampicin Resistant and were sent to Kibong'oto for treatment.

Figure 5.6: Results of GeneXpert installed in Project Supported Sites



In Uganda:

Figure 5.7: Results of GeneXpert installed in Project Supported Sites

Year (July-June)	Total Number of GeneXpert tests Performed in Project Sites	Total number TB Cases detected in project sites	Total Number of Rif. Resistance cases detected in Project sites
2011-2012	1,802		15
2012-2013	1,181		41
2013-2014	5,013		214
	11,211		213
2015-2016	14,182		123
2016-2017	24,815	24,016	323
2017-2018	22,926		
Total	81,130	24,016	929

Countries have procured other major equipment to improve the testing within these sites and the surrounding areas.

Uganda EAPHLNP worked with Lab staff from project sites to develop lists and specifications of critical Laboratory equipment to be purchased for laboratories to be constructed as well as the existing facilities. To support computing and communication particularly in support of outbreak investigations and disease surveillance, apart from equipments and supplies the country has also procured three desk top computers, 4 laptop computers and one Nissan pickup (double cabin) respectively for the Central Project Coordinating office in Kampala.

Kenya project has received a number of equipment to assist the facilities to increase access to diagnostic services, reduce turn-around time, specimen loss and provide reliable and consistent services for patient management. Some of the major equipment procured and in use at the facilities are (i) Automatic microbiology systems (VitekR) (ii) ICT equipment (computers, projector, digital camera and power backups). The project also has procured five vehicles to be located centrally at the National level but available to serve the regional sites and one for Wajir district laboratory located in a hard to reach district. These will improve operations especially as civil works commences.

Tanzania has embarked on procurement of laboratory equipment and supplies. The project team has procured computers, video conferencing equipment (VCE) installed at MOH, and Laboratory GeneXpert Machine, Freezer Upright, Autoclave basic units, Incubator bench top, Dish washer, machine, Hot air oven, Fridge, Voltage stabilizer, PH Meter Digital, Manual balance for clinical, Analytical balance, Laboratory Information Management systems (LIMS) for bolstering ICT capacity at the project-supported sites. Project also supported the ocean road cancer institute in the renovation of the laboratory and procurement of tumour marker machine for the institute. The GeneXpert Machines were installed in all the project laboratories in 2012.

Rwanda has procured some major equipment such as automated chemistry, hematology and CD4 Machines as well as ICT equipment's (Computers, Laptops and VCE installed in all the satellite sites) to support linkage and information sharing within and across the satellite sites.

Laboratory Systems improvement and accreditation

In support for laboratory improvement towards attainment of accreditation, countries have employed various approaches to address this agenda. Through the EAPHLN project countries have recruited laboratory technologists and scientists to address the staffing gaps at the satellite facilities. Among these are laboratory mentors who are placed to support each facility to establish strong quality management system. The mentors conduct onsite training, internal audits to identify the quality systems gaps and work with the staff to develop and implement improvement plans.

Tanzania Mnazi Mmoja laboratory in Zanzibar has attained ISO accreditation through SADCAS (South African National Accreditation System). Roughly 71.4 % of the satellite sites have reached at least a three-star status during the 2017 peer assessment, and are being continuously monitored on quality management system implementation. Three of the laboratories—CTRL, Ndanda and Kibong'oto—have received intensive mentoring over the past year and have applied for international accreditation-awating SADCAS assessors, on the same note, Ocean road cancer institute Laboratory has been added to the project and baseline assessment has been done in 2017 peer assessment. Most of the project-supported laboratories in Tanzania are making steady progress This program also serves as a road map towards achieving ISO-15189 accreditation. The programme is executed by conducting multi-workshop (three) training with three months apart within which the merntors support the facilities to address particular gaps focusing on the areas covered during the training in each workshop.

The facilities in Tanzania have been supported to conduct the following activities (i) baseline and postassessment visits; (ii) training workshops; (iii) supportive supervisions at the sites; and (iv) Sensitization meetings for the hospital management team to educate them on laboratory accreditation and seek their support to the process.

Towards semi-autonomy for Lab sub-sector in Uganda: Given that both facilities now ISO: 151819 accredited and courtesy of proximity, NTRL/SRL is working with Central Public Health Laboratory (CPHL) (sharing compound in Butabika) to constitute the Uganda National Health Laboratories Services (UNHLS) are pursuing a semi-autonomous status, through the UNHLS Bill.

Financial Sustainability and business planning for UNHLS: Given that NTRL/SRL has been recommended for ISO: 17043 accreditation (EQA provision), and CPHL is consolidating existing capacity and capabilities for maintaining Laboratory equipment (towards ISO: 17025) at national and sub-national levels in Uganda. In the spirit of fiscal sustainability and for purposes of income generation in the event semiautonomous UNHLS, ECSA-HC and WBG have encouraged NTRL/CPHL to prepare a package of services as SRL that can be provided to countries at a fee in order to generate funds to sustain their activities and roles in the country and the region.

SLMTA Multi-workshop Delivery Model



Strengthening diagnostic capacity at the satellite laboratories – Infrastructure. Despite commissioning and launching by the highest level of political leadership of the NTRL at Butabika in November 2016, planned civil works elsewhere under the project has had very little progress. Laboratory at satellite sites in Mbale, Arua, Mbarara and Lacor (remodeling) hospitals. Following benchmarking visits to Rwanda and Kenya, the Architect and Quantity Surveyor from the Health Infrastructure Division (HID) finalized architectural drawings and Bills of Quantities (BoQs) for the planned civil works at the four sites, contractors for Labs at two (Mbarara and Mbarara) sites have signed contracts and the other two sites (50%) are pending (Lacor-Gulu [Signing of contract], Arua [bidding]).

Strengthening diagnostic capacity at the satellite laboratories - Equipment; The Project has planned to procure an assortment of equipment including; critical laboratory equipment, ICT equipment (hardware and software) and video conference facilities for the two new sites (Moroto and Fort Portal) will be procured and installed as for the under the initial phase. This will include, a laboratory information system (updated version of ALIS) including the middleware to allow integration of automated equipment with ALIS being deployed. The assortment of critical equipment procured under the project and installed in laboratories include: PCR machines (NTRL), refrigerators, hot-air ovens, incubators, biosafety cabinets, and centrifuges among others. These equipments should enhance the subnational Laboratory capacity for microbiology and Cancer screening as well as diagnosis, but most especially surveillance of Anti-microbial resistance (AMR) and contributing to the global Health Security Agenda (GHSa). The project will continue to support procurement, distribution of laboratory reagents and supplies aligned to GHSa, as well as sample shipment/transport in-country using the integrated approach (Hub System) that support these vital capabilities.

Kenya employed twenty seven laboratory technologists and scientists; with five staff deployed to each facility, one being a mentor. In addition, the project also hired two laboratory scientists (microbiologist and virologist) to provide over-site support to the satellite sites and the National Public Health Laboratory.

These scientists provide quarterly supportive supervision to the satellite sites to help accelerate quality improvement and also provide additional capacity building to the site staff. Rwanda had recruited various cadres of staff to work at satellite sites and at National Reference Laboratories. Twenty two staff had been recruited and are currently absorbed by the government, four in each satellite site (2 laboratory technologists, 1 data manager and 1 ICT manager) and 3 senior medical microbiologists at National Reference Laboratory to support the national laboratory as well as mentor the satellite facilities.

Satellite districts improvement activities

The EAPHLNP has implemented an innovative approach to health care financing to empower the districts management to plan and manage funds to address their local priority health issues. The current practice in many government systems is management of funds centrally providing directly the required supplies and equipment. In this project, district teams develop work plans based on their local needs particularly gaps identified in quality systems in preparation for laboratory accreditation. Examples of some of the activities conducted at the district/region where the satellite facilities are located include conducting cross border surveillance of diseases with neighboring districts within the country and the neighboring country, integrated mobile outreach community and sensitization services, joint monthly outbreak investigation and response, data review and information sharing, supportive supervision to support TB active case finding, surveillance & External quality assessment (EQA), training of laboratory and other health staff, laboratory capacity building and support for laboratory improvements in support for accreditation process. In some countries the district teams are also empowered to procure small equipment and supplies in some countries. The box below describes some of the activities that the districts have been able to conduct. The activities do not differ much across the countries and districts.

Uganda, Rwanda, Kenya, Burundi and Tanzania have already disbursed funds to each satellite district to the tune of US\$20,000 to US\$40,000 to support these district and facility improvement activities. To ensure efficiency in coordinating these activities and ensure prudent utilization of funds, the project coordinating teams holds regular meetings and follows up activities to provide supportive supervision to the districts. Kenya and Tanzania has conducted training in financial management to ensure Bank procedures for finance and procurement management procedures are followed.

Key district activities supported by the improvement funds

Cross-border surveillance: The teams initiate joint outbreak investigations with the neighboring districts and to some extent initiated collaborations with private facilities at the cross border area to provide surveillance data that the district surveillance teams use to predict potential outbreaks and initiate response. The funds also support cross border meetings with neighboring districts

Laboratories establishment: To extend services to the community in the district, the district teams establishes laboratories in health centers where non-existed through collaboration with other partners and develop the infrastructure and using project funding, obtain equipment, reagents and supplies through the PCU. *"We have done this to create demand for laboratory services in the district and promote evidence based treatment and management of patients" commented the Kitale District Medical Officer of Health (DMOH) regarding the establishment of some new health centre laboratories.*

Support supervision and external quality assessment (EQA): The district teams provides support supervision to lower level facilities and support them in improving services The laboratory staff conducts quality assessment to the health centres within the district in malaria and TB microscopy. This initiative is meant to improve the capacity of the health staff in these centres to make proper diagnosis and treatment of the patients. *In Uganda the Laboratories at the project sites have established a network of Laboratories (ranging from 8 districts for Arua to 15 for Lacor) in the catchments that are provided TA for improving quality of laboratories services. Mbale does second reading of the TB Sputum Smear Microscopy EQA slides. The six LQMS Expert under the EAPHLNP have been used as a nucleus to form the National Lab QA secretariat and Prof Moses Joloba chairs the National Accreditation Committee that targets to have 25 Labs achieving ISO: 151819 status by 2020 in the country as more Labs are enrolled on either SLMTA or LQMS.*

Training of district and lower level facility staff: the district teams have initiated training activities and include not only the satellite facility teams but also other health personnel working in the health centers in the district some of the training provided include infection control, sample collection and transportation, SLMTA, computer skills among others.

Support specimen referral: To facilitate efficient and rapid transfer of specimen for the health centers to district and also to referral centers for specialized testing (regional and national level), the satellite funds have been used to support in improving specimen referral systems.

Part 9:

COUNTRIES PRIORITIES



Country Priorities for 2018/2019 Fiscal Year

Uganda Priorities

1. Follow-ups and fast track implementation of civil works, which started in Mbarara, Mbale and Lacor.
2. Fast track site handover for Arua,
3. Isolation units- All drawings and BOQs to be completed and bidding done.
4. Point of entry stakeholders meeting 20-24th Nov 2018 in Kasese. PoE health points to be designated
5. Ensure critical lab equipment installed and operational.
6. Continue to support VHF, RVF, CCHF epidemic preparedness and response activities
7. Training and capacity building Mentorship on LQMS, SANAS application for Mbale completed
8. Operational research –Complete IRB approval of offshoot studies
9. Training of health workers in EDP management cascaded to lower levels
10. Training in FNB/FNA and support to Uganda Cancer Institute.
11. Support the 7 satellite sites to prepare for ISO: 15189 accreditation process and enroll the three histopathology Laboratories

Tanzania Priorities

1. Finalize the Construction of PHL (BSL3) laboratory which started in November, 2016
2. Construction of three Isolation units in Muhimbili, Mwanza and Kilimanjaro & improvement of the existing Isolation unit at Temeke
3. Consolidating achievements from the SLIPTA and SLMTA programs by continuing supporting facilities in accreditation through Mentorship, PBF- continue providing operational funds to satellite facilities to the laboratories to maintain quality standards and readdress slippage during peer assessment
4. Establishing additional cross-border disease surveillance committees and ensure sustainability of existing ones
5. Support early warning system for early case detection by rolling out community based surveillance as well as the eIDSR
6. Providing basic medical supplies to strengthen surveillance.
7. Implement One Health Strategy activities
8. Supporting the on-going non-communicable disease initiatives
9. Conduct relevant operational research on highly infectious pathogens as well as field of Antimicrobial resistance

Kenya Priorities

1. Implementation of the PBF model, linking it to Laboratory Accreditation and evaluate its impact within the next FY
2. AMR- Utilize the current lab systems to implement AMR
3. Support cancer diagnosis (training and diagnostics at the site)
4. Provide diagnostic policy direction based on OR findings
5. TB Reference lab to be accredited before the end of 2016
6. Finalization of the 2016/2017 work plan
7. Support students enrollment to E- Learning Platform
8. Document and publish – key project achievements
9. Strengthen collaboration with in EAPHLN countries
10. Increase number of laboratories to be supported – EAPHLN and other partners (GOK, PEPFAR, GHSA and Global fund)

Burundi Priorities

1. Accelerate civil works process for the three news laboratories
2. Organize lab technicians field placement at INSP and CHUK after installation of microbiology equipment
3. Organize monthly site supervision to ensure microbiology tests are performed according to standards
4. Additional financing for the six students in Nairobi has been accepted by WB for 5 supplementary months
5. To request the MOH to strengthen the emergency unit
6. Continue to search for a bureau to redesign the TB-lab at INSP
7. Improvement capacity of disease surveillance including equipping the national veterinary laboratory, isolation sites and transitional care centers,
8. Inventory and purchase for laboratory reagents,
9. Looking for a Regional body for supporting equipment calibration
10. Trainers of Trainees Training on some specific themes: Audit, mentorship etc.

Regional plan 2018-2019

The regional work plan aimed at supporting the countries in addressing issues in various technical areas. The work plan was informed by country priorities and requests. Key results areas that the plan aimed to address are as follows:

Key Result 1: Improved quality of diagnostic (laboratory) services in the Region

1. Participate and coordinate peer laboratory quality assessments preparation for accreditation and bio waste management assessment for compliance to standards
2. Coordinate the application for to WHO-AFRO to SLIPTA certification and application of ISO15189 (staff time - based on readiness of the countries)
3. Annual regional laboratory networking TWG and PBF TWG meeting
4. Capacity building in lab equipment management (Phase 2)
5. Support reviews and strengthening capacity and establish mechanisms for review and compliance to environmental waste management
6. Provide TOT training on networks systems audit and conduct a regional audit of the network
7. Coordinate enrollment in Global Laboratory Antimicrobial Surveillance System (GLASS) in collaboration with the National AMR taskforce groups
8. Convene an AMR surveillance regional group for developing AMR Stewardship guidance.

Key Result 2: Improved disease surveillance and response capacity for priority diseases in the region

1. Support the EAC in production and publication of EAIDSNET Bulletin
2. Printing and dissemination of the East Africa Regional Contingency Plan for Communicable Diseases and Public Health Events
3. Conduct Joint cross-border disease outbreak investigations and response and cross border meetings
4. Annual EAPHLN Project Surveillance TWG meeting and include Post JEE Action planning
5. Annual EAPHLN Project Surveillance TWG meeting
6. Conduct annual meeting of TWG for Non-Communicable diseases (combined with cancer registry)

Key Result 3: Improved skills and knowledge of health workers in offering quality diagnostic and other health services

1. Support the adoption and implementation of the upgraded Laboratory training curriculum at other institutions in EA
2. Training and capacity building activities (regional training) - Global health Diplomacy for Project Managers and Health Administrators, FNA training (cohort 2); Microbiology (AMR training - data analysis and reporting); AMR stewardship training; Waste management training)
3. Assess the effectiveness of training programs supported under the EAPHLNP
4. Support advocacy and enrollment into the e-learning programs
5. ECSA training plan
6. Annual regional TCBTWG meeting

Key Result 4 & 5: Improved knowledge sharing strategies and evidence based policies and actions in the region & Increased visibility of laboratory strengthening efforts through the EAPHLNP

1. Evaluating the performance of laboratories supported under the EAPHLNP
2. M&E implementation support and Data Quality Assessment (DQA)
3. Documenting countries' lessons and packaging knowledge through video and technical briefs and publications
4. Dissemination of project results and outcomes (participate in UNION, ASLM, EACHSC etc)

Regional plan 2018-2019

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2. M&E implementation support and Data Quality Assessment (DQA)
3. Documenting countries' lessons and packaging knowledge through video and technical briefs and publications
4. Dissemination of project results and outcomes (participate in UNION, ASLM, EACHSC etc)
5. Annual meeting of OR TWG (Regional Dissemination Meeting)
6. Printing Project Documents for Dissemination (Annual Report, Information Sheets, EAIDSNet Bulletins and other advocacy materials)
7. Participate in TWG video conferences to share experiences, lessons and discussions on implementation
8. Hosting and maintenance of eEAIDSNet, M&E portal, e-Learning portal and Project website
9. Annual meeting of ICT TWG

Key result 6: Improved coordination of project regional activities

1. Regional coordination activities (project teams, operations, implementation support missions etc.)
2. Hold RAP and Steering Committee Meeting
3. Project Implementation Support Mission

Part 10:

SUCCESS STORIES



Public Health Emergency Operation Center in the Control of Cholera Outbreak in Tanzania

Cholera was first reported in Tanzania in 1974 with consequent yearly sporadic cases. Major outbreaks show cases ranged from 1,671 in 1977 to 18,526 cases with 2173 deaths in 1992, picking at a high of 40,249 cases and 2,231 deaths in 1997. The current outbreak started in August 2015, as of December 2017 number of cases has significantly increased to 28,612 cases and 466 deaths with all 26 geographic regions of mainland Tanzania already reported at some point.

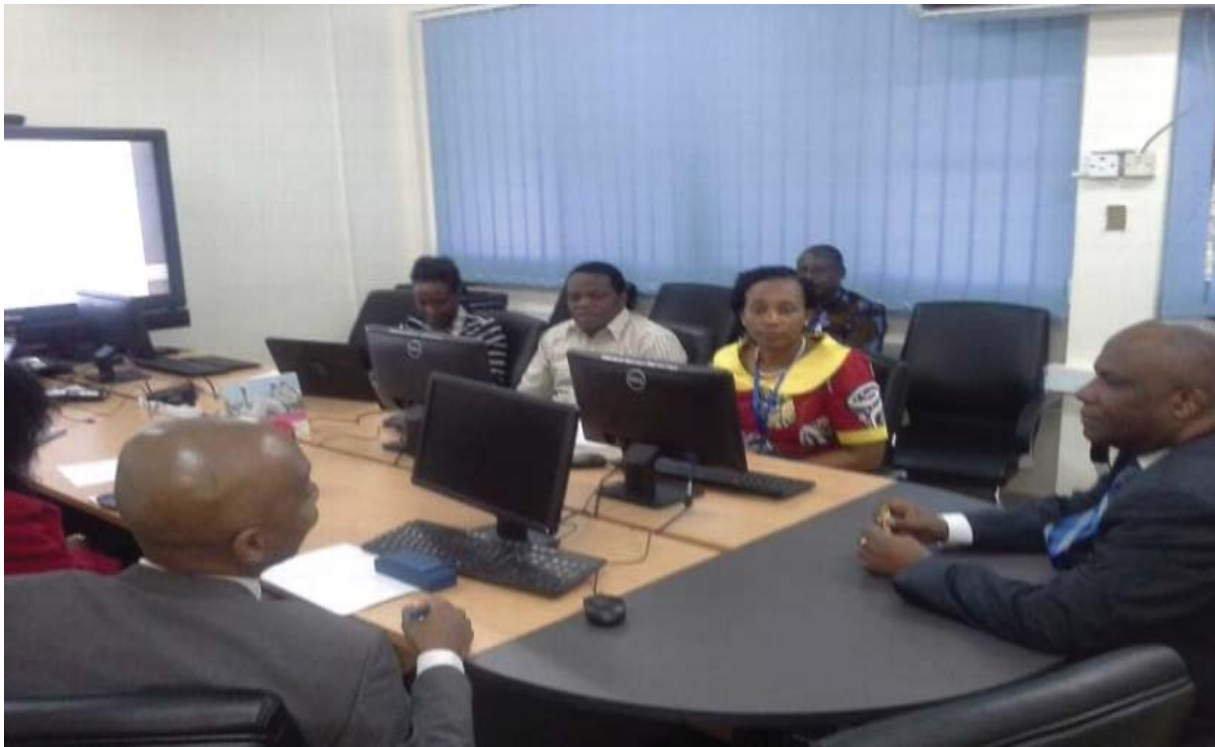


Figure 5.8: The PHEOC with CMO chairing one of the cholera response meeting

The scale of the outbreak at the onset prompted the MOCHDGEC to establish the first public health emergency operation center (PHEOC) which provides a hub for the receipt, collation and dissemination of data and enabling action to strengthen cholera response coordination and other public health emergencies to come aimed to support the country in attaining compliance with the International Health Regulations (WHO/IHR) which requires all countries to rapidly detect and contain public health threats as source, including epidemic prone diseases such as cholera.

According to joint external evaluation report, in order to address all components of prevention and mitigation, preparedness, response and recovery, Tanzania should institute an overarching “Health Emergency Program” (HEP). Therefore, an established and properly resourced PHEOC can provide effective coordination, improving control of outbreaks like cholera and other health consequences of all emergencies. From the onset, Tanzania received support to establish the PHEOC through various partners including the East African public health laboratory network (EAPHLNP) conjointly with WHO and CDC which not only limited to provision of basic equipment such as laptop and desk top computers, emergency plans development such as All hazard response plan and SOPs, conducting simulation exercise to validate these plans but also supported deployment of rapid response team to technically support case management, surveillance, risk communication and WASH interventions in cholera hotspot areas. The highly active and engaged public health EOC has championed central Cholera response coordination with different stakeholders being gathered and informed for taking proper action during epidemic period.

Data from cholera outbreak shows there were significant reduction in the number of reported cholera cases by month as seen in the figure 3 below of which multiple factors could contribute to the drop in cases such as improved multisectoral response, resource tracking and deployment of rapid response teams (RRT) in hotspot areas.

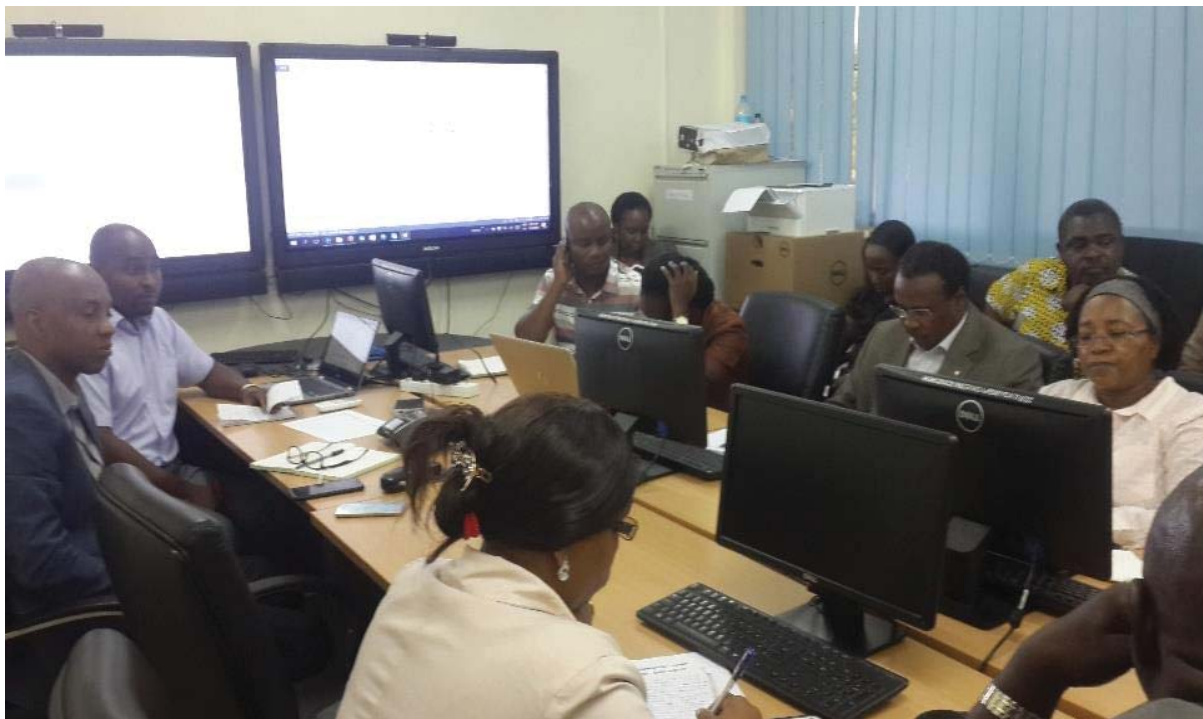
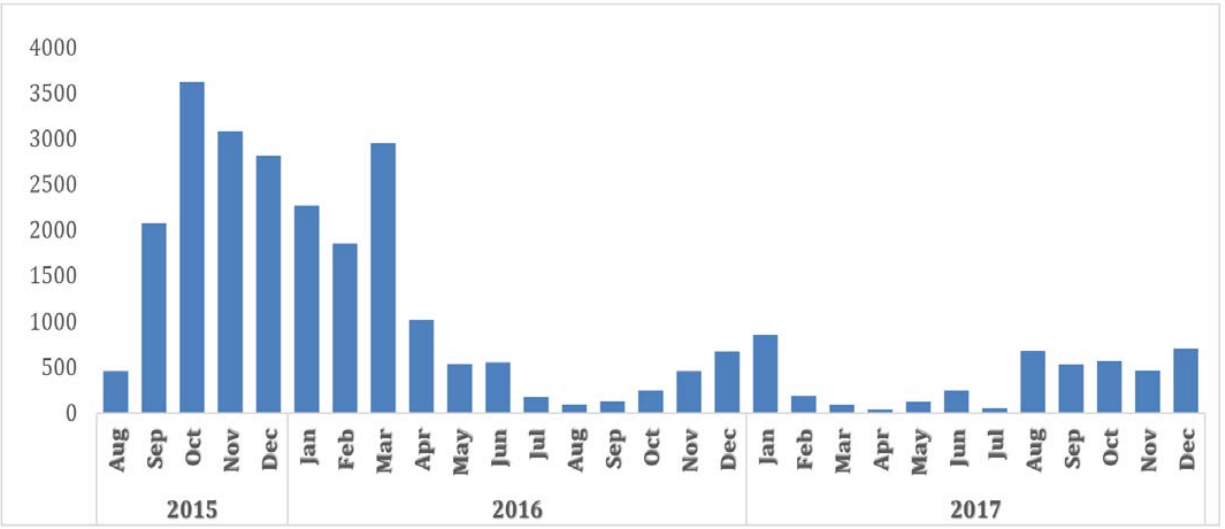


Figure 5.9: The cholera coordination meeting chaired by Deputy IM at the PHEOC with stakeholders participation in the PHEOC

Between September and December 2017, PHEOC's review of laboratory data led to early identification of cholera positive laboratory results in Kigoma, Dodoma, Mbeya, Rukwa and Dar es Salaam before they were captured by the syndromic surveillance and hence contributed in the improvement of surveillance performance which ultimately help to address an underreporting that was affecting cholera response management. The coordination of cholera response activities with engagement of multiple stakeholders done through public health EOC was a significant step in strengthening Tanzania's capacity to respond to public health emergencies at source.



Part 11:

KNOWLEDGE EXCHANGE AND NETWORKING MEETINGS DURING FISCAL YEAR 2017/2018



**Regional Training and Capacity Building TWG Meeting 11th to 14th July, 2017, Bujumbura
Burundi.**



Figure 6.0: Participants for the Regional Training and Capacity Building held in Bujumbura, Burundi.

The project convened a meeting of regional technical working group for training and capacity building with representation from Tanzania, Kenya, Uganda, Burundi and ECSA-HC. The meeting aimed to review the implementation of planned activities for the previous fiscal year (2016/17) and plan the activities for 2017/18 fiscal year. The following were the key outcomes of the meeting:-

1. Shared progress report on the implementation of the regional and in country training and capacity building TWG activities in the year 2016/17 which included;

- a. Country specific trainings that were done 2016-17 and the number of personnel's trained in each country,
- b. Regional training done for the 2016-17.

2. The country training needs were identified and a regional training work plan for the year 2017/18 developed. The main priorities were:- Training on E Learning TOT for administrators (ICT & Lab Specialists), Evaluating the Effectiveness of the Regional training, Training in Equipment Maintenance (hematology machine, GeneXpert), Global health Diplomacy for Project Managers and Health Administrators, Training of trainers for Lab Assessors, Sample packaging and transportation Feed back to sender Under WHO IATA and IAE Guideline.

3. Reviewed progress on implementing the certificate course in Laboratory Management at MUHAS with a record of 42 participants benefiting from the training in the first and second cohort.

4. Reviewed available opportunities in cascading the curriculum for Laboratory Management and next steps for adoption of the curriculum by other universities in East Africa starting with Makerere University;

5. Reviewed the e-learning platform and developed question banks for the Research Methodology and Biorisk training module and plan for next steps including advocating for participants enrolments. These two modules were in addition to the laboratory management and ICT modules that had been earlier completed.

The following were the main follow up actions:-

1. Institutionalize the Laboratory Management course in academic institutions of higher learning ranging from colleges to universities) in each country starting with Kenya and Uganda for the 2017/2018.

2. Advocating and Sensitization to the staff from the satellite laboratories under the EAPHLNP to start enrolling in the available courses

3. Evaluating the Outcomes of the Local and Regional Trainings conducted under the EAPHLNP

M&E Capacity Building and Data Quality Assessment and for the National and Satellite Laboratories under the EAPHLNP 21st to 25th August 2017.

The EAPHLNP emphasizes data quality because it is explicitly evidence based and a results oriented program.

ECSA-HC is responsible for consolidating reports from the countries to prepare and update country status reports for submission to the bank. In order to ensure that the reports submitted truly represents the actual status of project implementation and the results at country levels as well as build capacities of the site teams and the M&E team in each of the countries, ECSA-HC facilitates periodic data quality assessment and M&E onsite capacity building exercises. In the month of August and December 2017, ECSA-HC working with the participating countries conducted a Monitoring and Evaluation Capacity Building and Data quality verification exercise in the four countries participating in the second phase of the project namely, Tanzania, Uganda and Burundi. The following was achieved during the exercise: -

1) Provided onsite assistance to the staff from the satellite sites and National Public Health Laboratories on data collection and reporting;

2) Provided clarity of definition of some of the indicators considering frequent turnover of staff responsible for the M&E aspects at the facilities and discussed the strengths, weaknesses and recommendations for improvements, project indicator matrix and on the online reporting system

3) Validated and updated the data that has been received from the project sites for FY 2016-2017 (July to March 31st 2017)

Several cross-cutting issues were observed as follows:

1. Very few sites across the Region had a system for storing quarterly reports received from the sites for backup purposes, all the reports were available on the online system for reporting,

2. The understanding for some of the indicators were not the same for all the sites in all the countries

A few recommendations and follow up action to be taken by the national teams and ECSA-HC include:-

1. Countries should conduct their Internal DQA once the quarterly reports are submitted to the PCU, the country M&E officer should conduct internal data quality assessment/verification, using the tool developed by ECSA-HC at least on quarterly basis for the sites whose data were found to be below 80% accuracy and semi annually for the others site whose accuracy were above 80% and share the report with ECSA-HC on quarterly basis,

2. The Project Coordinating Units (PCU) and the satellite sites in each country should also keep records of all the reports submitted from the sites, and also the reports that are sent to ECSA-HC,

3. ECSA-HC to conduct DQA and capacity building exercises to selected sites in selected countries (sample the countries and the sites on annual basis).

4. ECSA-HC to develop Indicator reference sheet and share with the countries



Figure 6.0: DQA Team posed for a photo with the staff from Wajir Satellite Laboratory.

The World Bank Supportive Mission to Uganda June 12th to 15th and November 1st to 3rd, 2017 and Burundi 21st to 25th august, 2018.

Proper implementation of a project is a critical success factor for all development projects. Good design, management, dedicated team, good governance and committed leadership, partnership and regular communications and meetings with stakeholders all contribute to successful implementation and achievements of the project targets. In an effort to further improve the quality of the outcomes and achieve better results, World Bank provides implementation support in order to enhance the implementation of the activities by the countries. During the period two implementation support missions were conducted in Burundi and Uganda in the months of August and November respectively. The mission objectives were to (i) review the status of activities, discuss main challenges, and agree on priority areas for the next period (ii) review compliance on fiduciary aspects (i.e. financial management review, procurement reviews), and safeguards and identify any major issues, and proposed remedial actions (iii) discuss on strengthening the project coordination teams for effective implementation where necessary. The following were the main issues:

Uganda

1. Delayed commencements of civil works for the new laboratories;
2. Need for involvements of local staff in the updating the Environmental and Social Impact Assessment Report and compliance with environmental requirements;
3. Maximize utilization of the completed infrastructures under the project like the Entebbe Isolation Facility;
4. Delayed disbursements of facility improvement funds to the satellite laboratories for implementing improvement projects

Burundi:

1. Delayed completion of the constructions at the Institute National de la Santé Publique (INSP) especially the ventilation system for the TB laboratory and at the Central Hospital Univesitaire de Kamenge (CHUK)
2. Compliance to waste management requirements
3. Delayed procurement of laboratory reagents (Cartridges for GeneXpert Machines)
4. Need to fast track the Environmental and Social Impact Assessment (ESIA) for the three additional facilities to be constructed

M&E Capacity Building and Orientation to the Online Database for the Project Results for the Satellite Sites from 6th to 9th November 2017 in Mbale Uganda

The participating members states in the EAPHLNP are using a common results framework for monitoring the progress on implementation of the project activities. The Results Framework focuses on accountability for results and places a strong emphasis on intermediate and final outcomes, using existing indicators, data and data sources to measure the progress of project implementation and its contribution to the overall national health system strengthening (HSS). Countries are responsible for coordinating data management including preparation for routine project reporting. In order to ease the process of reporting, analyzing trends and improve the storage of information, the ECSA-HC Secretariat developed a web-based database for online reporting by countries and improve monitoring of the project progress. The portal is now fully developed and functional with some countries already trained and had started uploading their reports in the portal. Registered users can log in and access the online web based database through url: <http://eapblnmne.ecsahc.org/>. ECSA-HC organized an M&E capacity building workshop and orientation to the web-based database for online reporting by countries to the satellite sites in Uganda. The workshop was held in Mbale town with participants who included country M&E focal person and Operations Officer, data clerks and laboratory managers from all the satellite laboratories in Uganda. During the training:-

1. 26 staff were trained
2. Results Framework Indicators for the additional financing (and their data sources) was reviewed to harmonize the understanding and reporting
3. Reports for 2016-2017 from the satellite sites were uploaded into the system



Figure 6.1: Participants for the training on the online database for the project results held in Mbale, Uganda.

Inception Meeting of the Regional Project for Strengthening Cancer Registries in East Africa

Leveraging on the performance of the East Africa Public Health Laboratory Networking Project (EAPHLNP), ECSA-HC received US\$ 499,980 from the World Bank through the World Trust Fund for Statistical Capacity Building (TFSCB) to strengthen cancer registries in East Africa through the —Regional Program of Cancer Registries. The inaugural meeting of the project was held from 5th to 7th September 2017 in Nairobi, Kenya. The main aim of the meeting was to develop the roadmap for strengthening populationbased cancer registration in the EAC region. The meeting was attended by delegates from the participating countries of Burundi, Kenya, Rwanda, Tanzania and Uganda. The meeting participants were heads of cancer registries, experts on cancer care in the countries, representatives of the ministries responsible for health, members of the Technical Working Group on NCD and Cancer, representatives from the African Cancer Registries Network, University of Nairobi, University of Aga Khan (Nairobi) and EAC. ECSA-HC facilitated the meeting. The meeting observed that cancer constitutes a major burden in all the EAC countries; countries are implementing cancer care and control programs at different levels of advancement and coverage; and a very small proportion of the population in EAC is covered by cancer registration programs. The challenges in the cancer control programs include inadequate staffing and financing, inadequate skills mix and poor perceptions by the population.

The meeting recommended that: (i) EAC Partner States should develop appropriate harmonized policies for cancer care; (ii) the members states should adopt a pro-active system to engage meaningful partners to solve challenges of inadequate financial resources, skills and knowledge for cancer care in the region; (iii) noted that political will was essential for sustained improvement in cancer care and should be cultivated; (iv) exchange visits were recommended as important for care teams to benchmark their performance and learn from their peers on strategies to improve standards of care, management and control of cancer.



Figure 6.2: Launch of the World Bank funded cancer registry project in Nairobi, Kenya -5th to 9th September 2018

Annual Meeting of the Regional Disease Surveillance and Response Technical Working Group of EAPHLNP
The East Africa Public Health Laboratory Networking project operates through various technical working groups (TWGs) led by various participating countries. Among these is the Disease Surveillance and Response led by Kenya and co-facilitated by the EAC.. The TWG of Regional Disease Surveillance and Response held its annual meeting from 14th to 17th November 2017 in Bujumbura, Burundi, which was coupled with a table simulation exercise on cholera.

The meeting participants included disease surveillance TWG team members from the Republics of Burundi, Kenya, Uganda and the United Republic of Tanzania. The Republic of Rwanda was invited but was not represented. The meeting was also attended by representatives from UNFAO and facilitated by ECSA Health Community officials. The meeting discussed a wide range of issues including port health services, deployment of Rapid Response teams, improving the contribution of laboratories to disease surveillance and capacity building for staff. The Framework for Cross-Border Disease Surveillance was revised to reflect the current status and needs. In response to the recent outbreaks of cholera in the region, a table top simulation for a cholera was carried out to test the current response plans and build more capacity.

The meeting recommended that Partner states make effort to (i) improve port health services; (ii) continue to build capacity of health workers through various means including simulation exercises that have been efficient for health workers capacity building; and (iii) better strategies for equipment maintenance - the Kenya model of equipment management centre of excellence was commended; (iv) fast track development and implementation of post JEE national Action Plans. Additionally, the meeting recommended wider dissemination of the regional contingency plan and urged countries to make efforts to align the country plans with the regional plan. The TWG



Figure 6.3: Participants for the Regional Disease Surveillance TWG Meeting held in Bujumbura.

Cross Border Disease Surveillance Review Meeting between the Republic of Kenya and the Republic of Uganda held in the Mororo-Kitale Surveillance Zone One of the ways the EAPHLNP strengthens the performance of the EAIDSNet is to support cross-border disease surveillance efforts. Following the reported Marburg virus disease outbreak in Uganda, the Regional Surveillance TWG proposed to enhance disease surveillance in the trans-boundary area. A meeting that was attended by experts in the sectors of immigration, port health, animal, wildlife and environmental health from the districts of (Uganda) Amudat, Abim, Napak, Kaabong, Moroto, Nakapiripirit, Kotido, Kween, Kapchorwa and Bukwo; and the Kenya sub-counties of Mt. Elgon, Sirisia, Cheptais, Kwanza, Endebes, Loima, Turkana West, Pokot North and West Pokot, was held in Kitale from 5th to 8th December 2018. The meeting noted that disease surveillance across the border was important due to the high level of free movement of people and animals across the border which goes along with disease transmission. The burden of infectious diseases and zoonoses in the zone was very high. The meeting recommended that countries strengthen cross border disease surveillance by enhancing community involvement, involving all essential sectors, increasing funding for disease surveillance activities, and improving health workers' competencies by training and simulation exercises. The meeting also recommended regular revisions of contingency plans to match international best practices. Because of the unique situation of some of the pastoral communities, the meeting recommended a communication strategy for the surveillance zone. Risk communication targeting the needs of the population was necessary. In addition, the meeting noted that EAPHLNP was providing resources for many cross-border activities but countries needed to support the activities to ensure sustainability.

A tabletop simulation exercise mimicking an outbreak of MVD that started in Uganda and cases made contacts with other people across the border in Kenya was conducted. The exercise involved scenarios of case management, contact tracing, community risk communication and behavioral change communication, involvement of community leaders in outbreak control and aspects of multi-Sectoral involvement. Participants scored the evaluation highly and recommended that more such activities are necessary to update the knowledge and skills of health workers. The simulations also tested the readiness documents and procedures available.



Figure 6.4: Participants for the cross border meeting between Kenya and Uganda

Annex 1: List of Regional Convening and Workshops in the year 2017/2018

Meeting dates	Meeting Group	Country	Town	Meeting venue	Meeting theme	ECSA participation
July 10-14, 2017	Regional training and Capacity Building	Burundi	Bujumbura	Gahahe Hills Hotel	Take stock the progress on training activities, discuss challenges, share experiences, and draw lessons	MM, BM
August 21-25, 2017	M&E Capacity Building and Data Quality Assessment for the EAPHLNP Sites in Burundi, Uganda and Tanzania	Burundi, Uganda and Tanzania			Technical Assistance in M&E	BM, IC, UL
September 5-7, 2017	The inception meeting of the Regional Project for Strengthening Cancer Registries in East Africa	Kenya	Nairobi	Safari Club Hotel	Strengthening Cancer Registries in East Africa	MM, WW, YD
October 9-13, 2017.	48 World Union Conference on Lung Health	Mexico	Guadalajara	International Conference Center	Strengthening Health Systems to support management and control of TB burden in East, Central and Southern Africa:	BM, MM, WW
November 1-3, 2017	World Bank Supportive Mission to Uganda	Uganda,	Kampala	MoH	Review the Status of Project Implementation	BM
November 6-9, 2017	M&E Capacity Building and Orientation to Online M&E Reporting System	Uganda,	Mbale		Orientation to the online data base for the EAPHLNP Results	BM, VN

November 14-17, 2017	Regional Disease Surveillance TW/G Meeting and Cholera Table Top Simulation Exercise held in Bujumbura	Burundi	Bujumbura		Table Top Simulation Exercise	BM, WW, MM
December 5-7	Cross-Border Meeting Between Uganda and Kenya, and VHF Table Top Simulation Exercise held in Kitale	Kenya	Kitale		Table Top Simulation Exercise	BM, WW, MM
December 8-15, 2017	M&E Capacity Building and Data Quality Assessment for the EAPHLNP Sites in Kenya	Kenya			Review the quality of data received	BM, MM
January 27-03 February 2018.	CORDS Conference	Thailand	Bangkok		Improving Detection, Preparedness and Response Through Surveillance and Research	WW, BM
February 5-8, 2018	World Bank Supportive Mission to Kenya	Kenya,	Nairobi	MoH	Review the Status of Project Implementation	BM, MM
March 16– 18 2018	Symposium on Implementation Antimicrobial Resistance Action Plans in East Africa	Tanzania	Dar es Salaam	Hayatt Regency Hotel,	Symposium on Implementation Antimicrobial Resistance Action Plans in East Africa	BM, MM, WW
April 12-18, 2018	World Bank Supportive Mission to Uganda	Uganda	Kampala	MoH	Review the Status of Project Implementation	BM, MM
April 24-26, 2018	Cross-Border Meeting Between Uganda, Kenya and South Sudan	South Sudan	Nimule	Nimule Town	Review the cross border surveillance activities	BM, MM, WW, SS
May 14 – 17 2018.	Regional Operational Research Technical Working Group Workshop and Results Dissemination Symposium	Kenya	Machakos	67 Airport Hotel	Translating Research into Policy: Regional Operational Research Technical Working Group Workshop and Results	BM, MM, PC K

						Dissemination Symposium	
June 4-8, 2018	World Bank Supportive Mission to Tanzania	Tanzania	Dar es salaam	MoH		Review the Status of Project Implementation	MM & BM
June 10-14, 2018	TB Conference in Durban SA	South Africa	Durban			Abstract Presentation	MM

MM- Martin Matu, VN-Victor Nestory, TM –Talkmore Maruta, IC- Ivandra Chirime, WW- Willy Were, SS- Stanley Sonoiya (EAC); BM-Benedict Mushi,

Annex 2: Updated results framework

Uganda: Progressive/cumulative updating of Results Framework – Uganda July 1st, 2017 – June 30th, 2018

Project Outcome Indicators	Baseline 2009	Performance by sites and composite achievement at national level over the period under consideration									
		ARUA	Fort Portal	Lacor-Gulu	MBALE	Mbarara	YR6 2017/18	ACHIEVED Q1, 2, 3 & 4 2017/18	Mulago	Moroto	NTRL
POI# 1. Average turn-around time for TB GeneXpert test ¹ (hrs)	48	24	32	24	24	24	24	27	4	24	60
POI# 2. Satellite laboratories awarded at least three star status under regional accreditation program based on WHO/AFRO accreditation approach (cumulative number, percent).	0	No	Yes	No	No	No	6 (85.7%)	3 (42.8%)	Yes	Yes	
POI# 3. Number of beneficiaries (out of which x%)	48,000	38,574	42,944	210,149	18,823	38,858		751,313	51,603	6,235	9,729

¹ POI#1. The GeneXpert machine testing time is 2 hours to process the sample and provide results, other processes (during the pre and post analytical stages) to consider when computing average Turn Around Time(TAT), are, sample referral, processing, results validation and courier services for results.

	completed with results disseminated	0	2	0	3	3	3	3	3	3	3	3	3	0	0	0
	Offshoot proposals developed for short term operational studies.	0	3	2	5	7	5							5	1	
IOI#10. Number of GeneXpert tests performed per quarter;		0	2,374	2,023	1,153	515	4,612	17,280	29,904	4,003	330	5,065				
IOI#11. Number of laboratory tests performed per quarter			70,385	84,621	287,472	38,456	88,838	280,000	1,023,260	90,698	20,694	15,463				
IOI#12. Laboratory Clients Satisfaction Rate (Percent)		0	59.8	85	91.3	71	90	75	62.5% ^b	85	95	80				
Intermediate Outcome Indicators		Baseline 2009	ARUA	Fort Portal	Lacor-Gulu	MBALE	Mbarara	YR7 2017/18	ACHIEVED Q1,2,3 &4	Mulago	Moroto	NTRL				

TANZANIA RESULTS FRAMEWORK TARGETS & ACHIEVEMENT 2017-2018 ACHIEVEMENT (QUARTER 1-4)

PROJECT OUTCOME INDICATORS		TARGET 2017/18	ACHIEVEMENTS JULY 2017 TO JUNE 2018		TARGET YR9 2018/19	FRQ OF REPORTING (COMMENTS)	
POI# 1. Average turn-around time for TB GeneXpert test ³ (Hrs)		36hrs	26Hrs	24hrs		Quarterly	
POI# 2. Satellite laboratories awarded three star status under regional accreditation program based on WHO/ AFRO five-step accreditation approach (cumulative number, percent).		6 (85%)	3 (60%)	7 (100%)		Annually (Musoma 2stars, & Maweni 1 star	
POI# 3. Number of beneficiaries (out of which x% female).		160,000 (60%)	181,536 (58.0%)	170,000 (60%)		Annual	
POI# 4. People receiving TB drug susceptibility tests among DOTS treated TB cases not responding to treatment (number, percent).		1600 (90%)	1570	1650 (90%)		Awaits NTLP Report (Numbers)	
POI# 5. Proportion of reported communicable disease outbreaks having laboratory confirmation of etiological agent (percent)		100%	100%	100%		Annual (cholera, Anthrax & unknown condition)	
POI# 6. Proportion of outbreaks in cross border areas that joint investigations were done (both in country joint investigations and inter-country joint		60%	100%	60%		1 In country (Monduli &Ngorongoro) and one inter-country (Tz & Malawi)	

³ POI#1. The GeneXpert machine takes 2 hours to process the sample and give results, there are also a lot of other processes (sample preparations) that needs to be taken into account before sample is taken to the machine, in this case the we still need to measure TAT

investigations)		Frequency and Reports	
Intermediate Outcome Indicators		Frequency and Reports	
IOI# 1. Satellite laboratories compliant with WHO SOPs (cumulative number, percent)	6 (100%)	6 (100%)	Annual
IOI# 2. Number of days the national reference laboratory reporting stock-out of tracer reagent for TB liquid culture in past quarter (days).	0	0	Quarterly
IOI# 3. Satellite laboratories reporting stock-outs of tracer reagent for stools culture (percent).	16.6%	0 (0%)	Quarterly
IOI# 4. Number of Health facilities	Constructed,	2	Cumulative
	Renovated	3	Ocean road Laboratory
	Equipped	8	All satellite laboratories
IOI#5. Share of national and satellite laboratories that comply with Biomedical Waste Management requirements (cumulative number, percent)	7 (100%)	7 (87.5%)	Annual
IOI# 6. Quarterly publication of a regional surveillance bulletin by East Africa integrated disease surveillance network with country-specific data (yes/no).	Yes	Yes	Monthly –Surveillance bulletin is being produced-
IOI# 7. Health personnel receiving training (number).	240	1365	815 community health workers from 2 Regions were trained on community based surveillance.
IOI# 8. Proportion of laboratory staff trained and found to be proficient (Competent) in performing assignments	100%	85%	Annual Previous year's value
IOI#9. Operational Research studies	developed and approved by a recognized IRB	3	Annual
	completed with results disseminated	3	Annual
	Offshoot proposals developed for short term operational studies.	15	-13 have been completed- dissemination is ongoing -Two New offshoot are going on for 2017- 18
IOI#10. Number of GeneXpert tests performed	24,000	12725	Quarterly
IOI#11. Number of laboratory tests performed	294,494	365,924	Quarterly
IOI#12. Laboratory Clients Satisfaction Rate	75%	75	80%

Kenya: The Updated Results Framework for Kenya, Report for July to June, 2018.

Project Outcome Indicators	Baseline 2009	TARGET YR6 2015/16	ACHIEVED YR 6 2015-2016	TARGET YR7 2016-2017	ACHIEVED YR 7 July-June 2016-2017	TARGET YR 8 2017-2018	ACHIEVE D July-June, 2017-18	TARGET YR 9 2018-2019	
POI# 1. Average turn-around time for TB GeneXpert test (Hrs)		48hrs	8.8hrs	36hrs	15.1hrs	24hrs	23.4 Hrs	24hrs	
POI# 2. Satellite laboratories awarded three star status under regional accreditation program based on WHO/AFRO five-step accreditation approach (cumulative number, percent).	0(0%)	5 (71%)	85%	5 (71%)	6/10 (60%)	6 (60%)	8/10 (80%)	7 (100%)	Old 6/6=100%, Overall Old and New 6/8=75%
POI# 3. Number of beneficiaries (out of which x% female).	81,254 -60%	150,000	239,127 65%	160,000	153,781 (62%)	170,000	403,423 (58%)	180,000	Annual
POI# 4. People receiving TB drug susceptibility tests among DOTS treated TB cases not responding to treatment (number, percent).	6,569 61%	8500 80%	8,776	8600 81%	2323 61.2	8700 82%	3226 68%	8700 82%	Quarterly

POI# 5. Proportion of reported communicable disease outbreaks having laboratory confirmation of etiological agent (percent).	20%	65%	100%	70%	96%	75%	100%	80%	Quarterly
POI# 6. Proportion of outbreaks in cross border areas that joint investigations were done (both in country joint investigations and inter-country joint investigations)		50%	0%	60%	0	70%	0	80%	Annual
Intermediate Outcome Indicators	Baseline 2009	YR6		YR7	YR8			YR9	Frequency and Reports
IOI# 1. Satellite laboratories compliant with WHO SOPs (cumulative number, percent).	0	5 71%	7 100%	7 100%	7 (87.5%)	7 (100%)	7 (100%)	6 (66.7)	Quarterly
IOI#2. Number of days the national reference laboratory reporting stock-out of tracer reagent for TB liquid culture in past quarter (days).	0	1.5	0	10	0	5	30	5	
IOI# 3. Satellite laboratories reporting stock-outs of tracer reagent for stools culture	100%	42%	0	28%	41%			0%	Quarterly

(percent).								14%	25%		
IOI # 4.N number of Health facilities ; Constructed, Renovated Equipped	0	5 (62%)	5 62%	5 (62%)	5/7 (62%)	8 (100%)			5/7 (62%)	8 (100%)	5/5=100% constructed, for old and new 5/7=62%
		1 (100%)	1 (100%)	1 (100%)	1 (100%)	1 (100%)			1 (100%)	1(100%)	
		5(62%)	7(87%)	5(62%)	6/8(75%)	5(62%)			6/8(75%)	8(100%)	
IOI #5. Share of national and satellite laboratories that comply with Biomedical Waste Management requirements (cumulative number, percent)	0 (14%)	5 (62%)	7 (87%)	5 (62%)	5 (62%)	8 (100%)			6 (67%)	8 (100%)	
IOI# 6. Quarterly publication of a regional surveillance bulletin by East Africa integrated disease surveillance network with country-specific data (yes/no).	No	Yes	Yes	Yes	Yes	Yes				Yes	Quarterly

Project Outcome Indicators		Baseline				Target Values										YR8 2019/20	Com men ts
		2012	YR1 2012/13	YR2 2013/14	YR3 2014/15	YR4 2015/16	ACHIEVED YR4 2015/16	YR5 2016/17	ACHIEVE D YR5 2016/2017	YR6 2017/18	ACHIEVED YR6 2017/18	YR7 2018/19	YR8 2019/20				
IOI# 2. Number of days the national reference laboratory reporting stock-out of tracer reagent for TB liquid culture in past quarter (days).	<20		<18	<15	<10	<5	0	<5	NA	<5	90	<5	<3				
	80%		80%	60%	78%	78%	NA	78%	NA	78%	3 (37%)	78%	89%				
IOI# 3. Satellite laboratories reporting stock-outs of tracer reagent for stools culture (percent).																	
IOI# 4. Number of Health facilities	Constructed	0	0	1	6	6	6	9	6	9	6	9	9				
	Renovated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA				
	Equipped	0	0	0	6	6	6	9	6	9	6	9	9				
IOI #5. Share of national and satellite laboratories that comply with Biomedical Waste Management requirements (cumulative number, percent)																	
IOI# 6. Quarterly publication of a regional surveillance bulletin by East Africa integrated disease surveillance network with country-specific data (yes/no).																	
IOI# 7. Health personnel receiving training (number).																	
IOI# 8. Proportion of laboratory staff trained and found to be proficient (Competent) in performing assignments																	

Project Outcome Indicators		Target Values											Comments	
		Baseline												
		2012	YR1 2012/13	YR2 2013/14	YR3 2014/15	YR4 2015/16	ACHIEVED YR4 2015/16	YR5 2016/17	ACHIEVED YR5 2016/2017	YR6 2017/18	ACHIEVED YR6 2017/18	YR7 2018/19		YR8 2019/20
IOI#9. Operational Research studies	developed and approved by a recognized IRB	No	No	Yes	3		3	3	3	3		3		
	completed with results disseminated			0	3		0	3	0	3		0	3	
	Offshoot proposals developed for short term operational studies.			0	0		0	1	0	2		0	3	
IOI#10. Number of GeneXpert tests performed;					376	2709	760	3303	890	3 379	719	3 457	3 537	
IOI#11. Number of laboratory tests performed per quarter					441,970	452,577	519 352	463,439	496 274	474,562	504,956	485,951	497,614	
IOI#12. Laboratory Clients Satisfaction Rate					65%	65%	98%	75%	72.5%	75%	76.30%	80%	80%	

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