State of the EAC Health Sector Amidst the COVID-19 Crisis

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***Working Paper* - COVID-19_008**

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Bringing Rigour and Evidence to Economic Policy Making in Africa

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List of abbreviatons and acronyms

AERC	Africa Economic Research Consortium
CDC	Centre for Disease Control and Prevention
CH	County Hospitals
CHWs	Community Health Workers
COVID-19	Coronavirus Disease 2019
CPHL	Central Public Health Laboratories
DRC	Democratic Republic of Congo
EAC	East African Community
EARCC	East African Regional Coordination Committee
EOC	Emergency Operation Centre
EPR	Emergency preparedness and response
EVD	Ebola Virus Disease
FBO	Faith-Based Organization
FELTP	Field Epidemiology and Laboratory Training Programme
GDP	Gross Domestic Product
GIZ	Germany Development Agency
GOSS	Government of South Sudan
HC	Health Centre
HMIS	Health Management Information System
HSSP	Health Sector Strategic Plan
IDSR	Integrated Disease Surveillance Response
IHR	International Health Regulations
INSP	National Institute of Public Health
JEE	Joint External Evaluations
JICA	Japan International Cooperation Agency
MIDIMAR	Ministry of Disaster Management and Refugee Affairs
MMR	Maternal Mortality Rate
MOH	Ministry of Health
MoHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
MoU	Memorandum of Understanding
NADDEC	National Animal Disease Diagnostic and Epidemiological Centre
NGO	Non-Governmental Organization

NHL-QATC	National Health Laboratory and Quality Assurance Training Centre
NLSSP	National Laboratory Services Strategic Plan
NPHL	National Public Health Laboratory
NTRL	National Tuberculosis Reference Laboratory
NRL	National Reference Laboratory
PHCCs	Primary Health Care Centres
PHCUs	Primary Health Care Units
PHEOC	Public Health Emergency Operations Centre
PHEIC	Public Health Emergency of International Concern
POE	Point of Entry
RoU	Republic of Uganda
RSI	Health Regulations International
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
SDGs	Sustainable Development Goals
SH	State Hospitals
SMEs	Small and Medium-sized Enterprises
SOPs	Standard Operating Procedures
THs	Teaching Hospitals
UNECA	United Nations Economic Commission for Africa
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
UVRI	Uganda Virus Research Institute
WHA	World Health Assembly
WHO	World Health Organization

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Executive summary

On 11 March 2020, the World Health Organization (WHO) declared the ongoing COVID-19 outbreak as a global pandemic with recommendations for countries to take appropriate measures to eliminate virus spread. As the pandemic continues to evolve, an estimated 156,496,592 confirmed cases and 3,264,143 deaths have been reported in more than 220 countries and territories (WHO, 2021).

The COVID-19 disease caused by SARS-CoV-2 virus is highly transmissible from person to person, with a reproduction number, Ro, (number of additional cases resulting from initial case) estimated between 1.6 and 2.4 (Aylward & Liang, 2020). The COVID-19 burden has been asymmetrically distributed, with the Americas accounting for the greatest proportion of reported new cases, followed by Europe, South-East Asia, and Eastern Mediterranean. Africa and Western Pacific are the least affected regions (Aylward & Liang, 2020).

The East African region has crossed the first year since the first cases were reported in March 2020. The region has recorded an estimated 7.3% of the cases and 4.4% of deaths reported in Africa. As of 8 May 2021, there were 246,427 confirmed COVID-19 cases across EAC countries, and among them 54,278 (22%) were active cases. There were 3,709 reported deaths in the region (EAC, 2021).

Based on available records, Kenya has recorded the highest number of confirmed COVID-19 cases in the EAC region at 163,238 (66.2%), followed by Uganda at 42,308 (17.1%), Rwanda at 25,586 (10.4%), South Sudan at 10,637 (4.3%), and Burundi at 4,149 (1.7%). Tanzania's last report on 29 April 2020 indicated 509 confirmed COVID-19 cases and 21 deaths (EAC, 2021). These moderately low numbers, compared to other regions, could be partially attributed to Africa's young population age structure, potentially underreporting of events and low testing rates. Another factor, however, is the containment measures adopted by several EAC member states in order to mitigate the spread. The first case in the East African region was reported on 13 March 2020 in Kenya, followed by initial case reports in other EAC states the same week. The approach by most countries was to put in place enhanced measures to flatten the curve of COVID-19 transmission, including lockdown restrictions, immediate isolation of confirmed cases, quarantining close contacts of confirmed cases, contact tracing, quarantining travellers, mandatory use of face masks, and expanding testing and treatment capacities. As the virus continued to spread, EAC countries took different approaches to reducing the incidence of the pandemic.

In April 2020, the EAC unveiled a regional COVID-19 Response Plan to reinforce measures in place and prevent further spread of COVID-19 in the region. The Response Plan was submitted to EAC Partners States to guide key interventions and help coordinate the regional response. East African countries have adopted and implemented strategies differently in response to the pandemic. Most countries sought to leverage existing preparedness and response measures put in place during recent outbreaks in the region, such as Ebola Virus Disease (EVD) and rift valley fever virus. The COVID-19 pandemic, however, has exposed critical gaps in national and regional health systems. Despite contingency plans at national and regional (EAC contingency plan for epidemics and other events of public health concern 2018-2023) levels, each country had constraints in healthcare workforce, financing, and healthcare service delivery. For example, most East African countries had not reached the recommended Abuja Declaration threshold of 15% of government budget earmarked to strengthen health systems and ensure their preparedness for emergencies. The policy makers faced difficult decisions in distributing scarce resources efficiently between increasing demands of pandemic response and the need to maintain the delivery of other critical services, while mitigating the impact on social and economic development which required great demands on the national budget. EAC states like Kenya and Rwanda significantly revised their budget allocation towards efforts to mitigate the impact of COVID-19 crisis.

The public health measures to flatten the curve of COVID-19 spread also impacted social programmes, mobility and overall economic activities. The pandemic has exacerbated existing gaps in access to basic services and protection challenges, particularly for the most vulnerable groups.

The report provides an analysis of the healthcare systems and socioeconomic disruptions at national and regional levels. The report also identifies the regional effects of COVID-19, and policy responses to this unprecedented crisis. While this report is largely focused on the health impacts of the COVID-19 crisis in the EAC, it is important to reflect on the socioeconomic impact and outcomes across the region.

The ongoing COVID-19 epidemic waves, some linked with SARS-CoV-2 variants, continue to affect existing COVID-19 containment measures. A review of the national response among EAC member states provides an evidence-based approach to how countries have sought to balance public health measures and socioeconomic programmes to minimize the impact of the crisis on households and overall society.

1. Introduction

On 11 March 2020, the World Health Organization (WHO) declared the COVID-19 outbreak as a global pandemic with recommendations for countries to take appropriate measures to mitigate its spread. As of 8 May 2021, an estimated 156,496,592 confirmed cases and 3,264,143 deaths have been reported in more than 220 countries and territories (WHO, 2021). The COVID-19 disease caused by SARS-CoV-2 virus is highly transmissible from person to person, with a reproduction number, Ro, (number of additional cases resulting from initial case) estimated between 1.6 and 2.4 (Aylward & Liang, 2020). The virus particularly affected older individuals, and individuals with underlying conditions who were evaluated to have higher fatality rates compared to other age groups.

The World Health Organization has referred to flattening the curve in presenting COVID-19 epidemic curves and the need to 'spread' the increase in number of cases per day to avoid overwhelming the healthcare systems (Aylward & Liang, 2020). Countries have adopted intervention measures for surveillance, testing, tracking, and treating to varying degrees.

The COVID-19 burden has been asymmetrically distributed (Figure 1). The Americas account for the greatest proportion of reported new cases, followed by Europe, South-East Asia and Eastern Mediterranean regions. Africa and Western Pacific are the least affected regions per current estimates (Figure 1).

The African continent was predicted to have the highest burden of COVID-19 based on severe limitations in healthcare systems, critical infrastructure and other vulnerabilities. These predictions have not reached the inflection points anticipated. Some factors put forth are the younger population structure compared to other continents and stringent measures put in place. Other factors are the limited testing capacity which may lead to underestimated epidemiological situation. The effects of COVID-19 extend beyond the health sector, with significant socioeconomic implications that threaten to reverse development gains.

The East African Community (EAC) comprises six member states: Burundi, Kenya, Rwanda, Southern Sudan, Tanzania, and Uganda. The EAC region has recorded an estimated 7.3% of the cases and 4.4% of deaths reported across Africa. As of 8 May 2021, there were 246,427 confirmed COVID-19 cases across EAC countries, and among them 54,278 (22%) were active cases. There were 3,709 reported deaths in the region (EAC, 2021).

Kenya has recorded the highest number of confirmed COVID-19 cases in the EAC region at 163,238 (66.2%), followed by Uganda at 42,308 (17.1%), Rwanda at 25,586 (10.4%), South Sudan at 10,637 (4.3%), and Burundi at 4,149 (1.7%). Tanzania's last report on 29 April 2020 indicated 509 confirmed COVID-19 cases and 21 deaths (EAC, 2021).

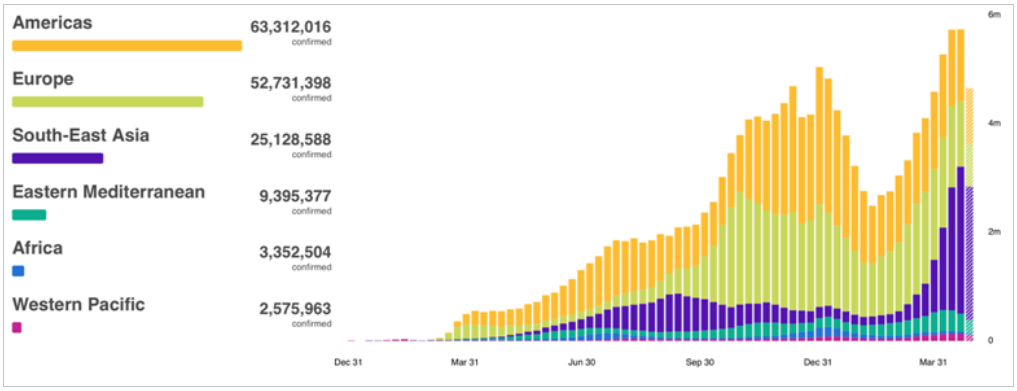
Since the onset of the outbreak, countries have had to make difficult decisions to balance the increasing demands of COVID-19 pandemic response with the need to maintain the delivery of critical services. EAC countries issued regulations and measures to flatten the curve of COVID-19 transmission, through public-health measures (wearing face mask, physical distancing, and hand washing), including travel and movement restrictions, nationwide lockdowns, and other mitigation strategies which had impacted the spread of COVID-19 and resulted in the lower burden. The COVID-19 pandemic has exacerbated existing gaps in access to basic services and protection challenges, particularly for the most vulnerable groups. The East African region is dependent on subsistence agriculture for GDP, with a prevalent informal sector which was heavily disrupted by COVID-19 containment measures. The region also has an increased dependency on service and tourism sectors, two of the most affected sectors by the COVID-19 crisis.

At national level, governments had to increase funding support to the health sector, as well as address urgent socioeconomic needs. The scope of measures including lockdowns, curfews and cross-border restrictions were considered in the context of increasing vulnerabilities at household levels.

This report seeks to examine the effects of COVID-19 on health outcomes in EAC countries, document the interventions put in place to flatten the curve of COVID-19 transmission, and describe interventions to mitigate the widespread of its socioeconomic outcomes. The report also provides recommendations to EAC policy makers based on the analysis presented.

The report starts with an exploration of the regional context in terms of healthcare situation, and socioeconomic context. The findings section covers the epidemic preparedness of EAC states, before presenting the current epidemiological and socioeconomic situation in the region. The discussion and recommendations sections provide an overview of results and actionable recommendations within a broader policy context in the East African region and Africa at large.

Figure 1: COVID-19 confirmed cases globally (as of 8 May 2021)



Source: World Health Organization (2021).

Objectives

This report aims to achieve the following objectives:

1. Provide regional context to frame the situation pre-COVID-19, with a focus on the healthcare sector.
2. Describe the epidemic preparedness in EAC states to prevent, detect, and rapidly respond to outbreaks.
3. Document interventions put in place to flatten the COVID-19 curve in EAC states.
4. Analyse the effects of COVID-19 pandemic on health outcomes and continuity of health services.
5. Outline interventions to mitigate the socioeconomic impact while flattening COVID-19 curve in the East African region.
6. Provide key actionable recommendations to EAC policy makers based on the findings.

2. Regional context

East African countries continue to face health challenges, including adverse effects of infectious diseases, a growing double burden of communicable and non-communicable diseases, and public health outbreaks.

Healthcare outcomes

The EAC states have recorded several achievements in improving health metrics and disease burden estimates. The data released by WHO, UNICEF, UNFPA, World Bank, and the United Nations shows that maternal and under-five deaths have significantly reduced over the past decade.

In Rwanda, the maternal mortality has declined at an unprecedented rate from 1,160 to 248 per 100,000 live births between 2000 and 2017. The under-5 mortality had also substantially declined from 181 to 38 per 1,000 live births.

Uganda registered tremendous achievement between 2011 and 2016 by reducing the maternal mortality ratio from 438 per 100,000 live births in 2011 to 336 per 100,000 live births, and child mortality has decreased from 38 deaths per 1,000 live births in 2011 to 22 deaths per 1,000 live births in 2016. Deliveries in health facilities increased from 42% to 73%, while measles vaccination coverage increased from 75% to 80% (Uganda Bureau of Statistics, 2011, 2016).

Kenya also recorded a decrease in maternal mortality ratio from 618 to 353 per 100,000 live births between 2005 and 2015. Under-5 and maternal mortality showed similar declining trends to 46 per 1,000 live births in 2017, with the most substantial drops witnessed post 2006.

Tanzania recorded a decline in maternal deaths from 721 to 524 per 100,000 live births between 2005 and 2015; while under-5 mortality reduced from 94 to 58 per 1,000 live births during the same period.

In South Sudan and Burundi, although maternal mortality has decreased from 1,000 to 730 per 100,000 live births and 814 to 568 per 100,000 live births between 2005 and 2015, respectively, these rates are still among the highest in the world. Combining this with existing high fertility rates in a country like South Sudan, gives the probability of an average reproductive South Sudanese woman (12–49 years of age) dying during pregnancy to be 14.3% (Makuei et al., 2018).

Overall, the most substantial drops in mortality correspond to the rollout of free maternity services, new vaccines, increased deliveries in health facilities, scale-up of effective malaria and antiretroviral treatments, and expanded free delivery of bed nets, and preventive interventions for HIV/AIDS.

Structure of health systems in East African region

The EAC member states have put in place similar pillars for public health systems, which present an opportunity to implement strategies that have worked in one country at a neighbouring country.

The Kenya health sector comprises the public system, with major players including the MOH and parastatal organizations, and the private sector, which includes private for-profit, NGO, and Faith-Based Organization (FBO) facilities. Health services are provided through a network of 12 national referral hospitals, 541 country hospitals, 8,764 health centres, and dispensaries (Makuei et al., 2018). The provision of health services in Uganda is decentralized with district and sub-district playing key role in delivery and management of health services at those levels with a total of 129 hospitals and 4,265 health centres in the country and village health teams (Republic of Uganda [RoU], 2015).

Health services delivery in South Sudan is structured along the following four tiers; Primary Health Care Units (PHCUs), Primary Health Care Centres (PHCCs), County Hospitals (CH), and State Hospitals (SH)/Teaching Hospitals (THs). These facilities are, to a large extent, aligned to the administrative subdivisions of the country in both rural and urban areas (Government of South Sudan [GOSS], 2012).

The health pyramid in Burundi has three levels: the central level responsible for health policy, planning strategy, coordination of activities, mobilization and allocation of resources, and performance monitoring; the intermediate level which constitutes 18 provincial health offices; and the peripheral level made up of 46 health districts each managed by a district management team (équipe cadre de district/ECD), 68 district hospitals (HD) and 897 health centres (CDS). The district is the operational unit of the healthcare system, bringing together the community level, CDS and HD (Republique de Burundi, 2016).

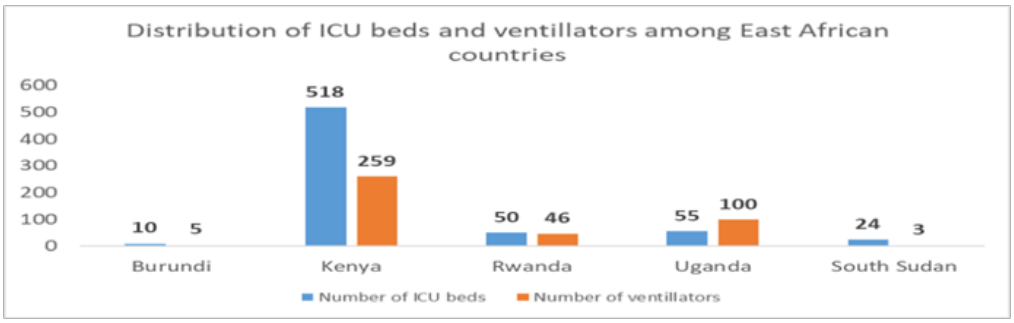
In Tanzania, the primary healthcare services also constitute the basis of the healthcare services, with community-based health activities bringing health promotion and prevention to the families in villages and neighbourhoods. Additionally, there are five national specialized hospitals, 27 regional hospitals, 12 specialized clinics, 614 health centres, 5,819 dispensaries which provide preventive and curative outpatient services. There are 100 council hospitals providing healthcare to referred patients and provide medical and basic surgical services (Ministry of Health and Social Welfare, 2020).

ICU bed capacity and advanced care

One of the questions that this report seeks to respond to is to assess the case management readiness of ICU services for all complicated and severe cases in different countries of the EAC region. The average number of beds in the EAC is below the African average of 1.8 beds per 1,000 inhabitants (Craig et al., 2015).

Figure 2 shows an absolute number of ICU beds and ventilators across the six countries of the EAC region. Kenya presents more than 500 ICU beds as compared to the rest of the countries. The best estimate was to have these numbers per capita, in addition to its current bed occupancy rate in ICU that would help make predictions related to the needs of using the remaining ICU beds for COVID-19 patients.

Figure 2: Distribution of ICU beds and ventilators in East African countries



Source: National estimates of critical care capacity in 54 African countries (Craig et al., 2015).

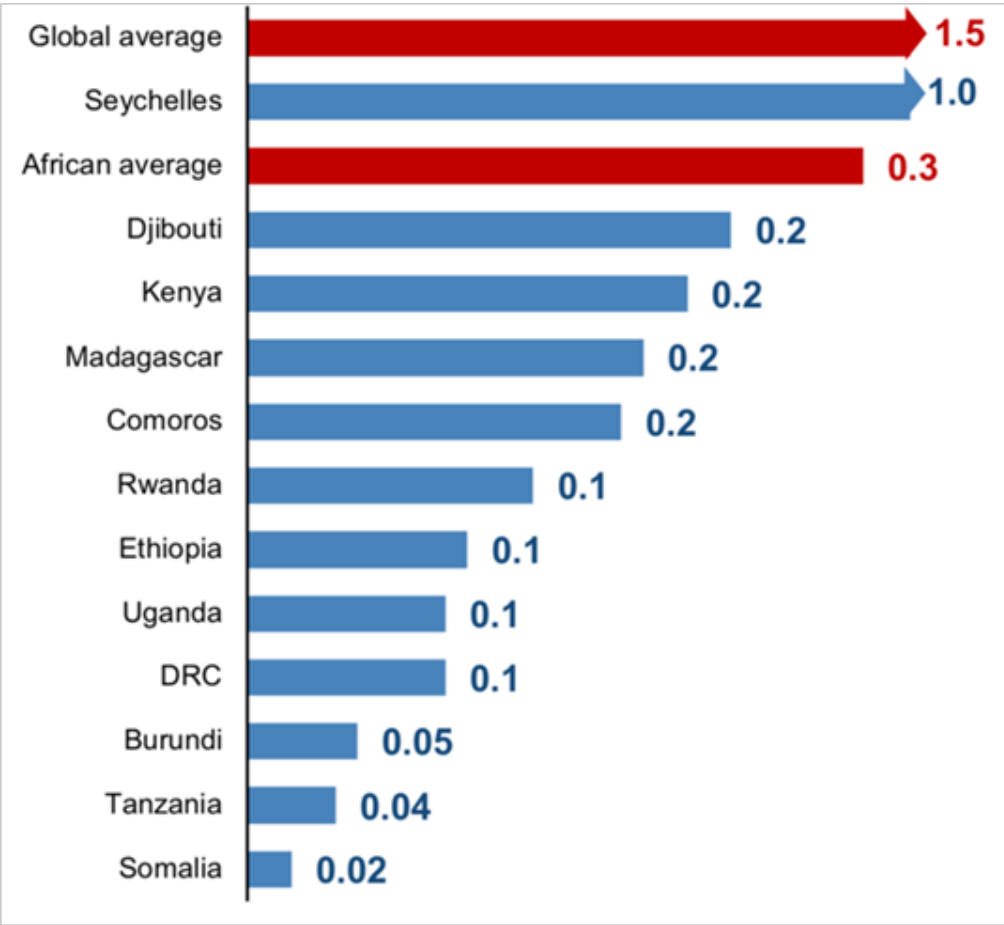
Healthcare personnel

Human resources for health is critical to sustain health gains witnessed during the past decades, and adequately respond to public health crisis. The inequitable distribution of health workers to disease burden within Eastern Africa countries amid the rising COVID-19 cases is of great concern. In Kenya, the proportion of healthcare workforce to the population is 0.157 per 1,000 people (World Bank, 2021).

In Uganda the number of physicians per 1,000 population is 0.03, while the number of nurses per 1,000 people is 0.46. In addition to these formally trained medical health workers are teams of 179 community health workers, making a density of 5.17 village health team members per 1,000 population (Uganda Bureau of Statistics, 2016). Although there is an increase of health workforce in Rwanda by both number and proportion at a rate of 6.9% since 2002, reported to be estimated at 29,413 (0.7%), the proportion of doctor or nurse per population is still low (National Institute of Statistics of Rwanda, 2016). While in South Sudan, physicians proportion accounts for 1 per 65,574 populations (Global Health Workforce Alliance, 2013). In the EAC region, the supply of health workforce is still challenging with a gap between the population epidemiological needs and actual production of targeted skills need in each country.

The involvement of civil societies and private sector is key to produce health workforce to manage and prevent outbreaks, from clinicians to allied health workers and support services staff. Task shifting and greater engagement of Community Health Workers (CHWs) has gained importance, particularly in their role of home-based care. Figure 3 shows the density of medical doctors (per 1,000 inhabitants) in the East and Horn of Africa.

Figure 3: Density of medical doctors (per 1,000 inhabitants) in the East and Horn of Africa (2019)



Source: WHO Statistics, 2019.

Healthcare financing

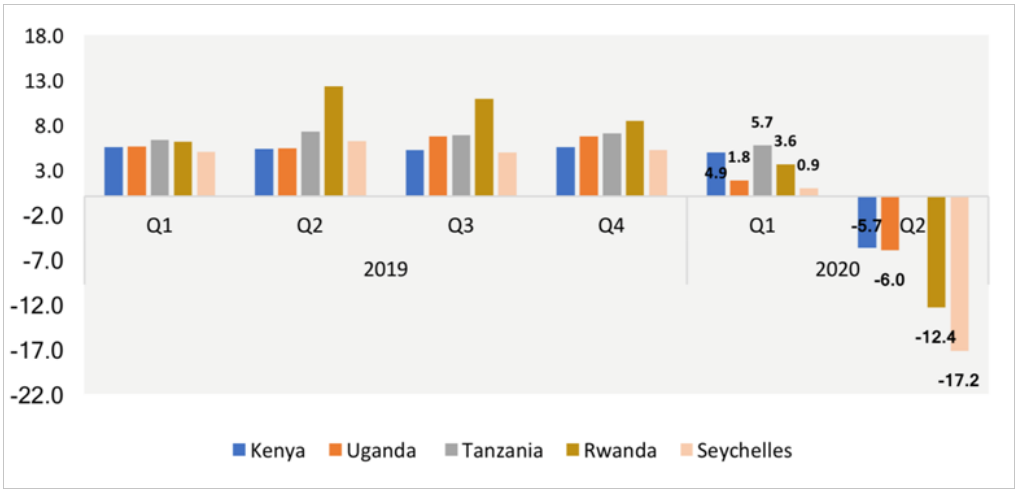
Most EAC member states spend less than US$50 per capita on healthcare, which is compounded by limited public health resources, and need for strengthening expenditure monitoring. The results section highlights the implications of national budget earmarked for healthcare expenses. This is particularly relevant in the

context of budget allocation towards public health emergencies, and other critical healthcare services. The comparison of these indicators (health financing, advanced care, healthcare workforce) is important to understanding the severe constraints that policy makers face in distributing scarce resources efficiently during outbreaks. It often means diverting resources to fight the pandemic. The epidemic response activities and budget would be within the existing constraints of current health service delivery, healthcare workforce, and financial resources.

Socioeconomic consequences

The COVID-19 pandemic containment measures caused unprecedented economic and social disruption in Africa and other continents. The EAC member states are experiencing a significant drop in GDP, linked with the impact of measures on key sectors contributing to economic growth. Notably, the East African region has a high dependency on service and tourism sectors, two of the most affected sectors by the COVID-19 crisis. Estimates from the UN Economic Commission for Africa (UNECA) show a significant decrease in GDP growth rates for East African countries, identified within the first two quarters of 2020. The estimates show a greater growth decline in service and tourism-dependent countries like Rwanda.

Figure 4: Quarterly GDP growth rates for selected EAC countries (in %), 2019-2020



Source: UNECA Economic and Social Impacts of COVID-19 in Eastern Africa.

The crisis has also impacted the livelihood and employment for the informal sector and service workers. The report covers important socioeconomic indicators.

3. Methodology

Study design

The report is a descriptive cross-sectional study that applied mixed methods using primary data, review of government and international reports, as well as published papers.

Data collection and source of information

Data was collected from various reports, guidelines, policy documents, COVID-19 testing database, hospital-based Health Management Information System (HMIS), and stakeholder interviews. The Joint External Evaluations (JEE) in each of the six countries were used to assess country capacities to prevent, detect, and rapidly respond to public health emergencies such as COVID-19.

Data analysis

The data collected during the desk review and stakeholder interviews was analysed across selected themes/pillars of epidemic preparedness and response in order to provide a review across EAC states.

4. Research findings

The East African Community (EAC) states are facing COVID-19 pandemic with increasing impact on the healthcare systems and other sectors. This section outlines the epidemic preparedness, key interventions, and activities implemented to mitigate the COVID-19 pandemic.

Epidemic preparedness

The EAC region had been on high alert prior to the COVID-19 pandemic, due to outbreaks affecting various countries in the region. Key pillars of epidemic preparedness include a strong and resilient national legislation, policy, and financing framework comprising of: (1) availability of legal framework to support the implementation of public health emergency preparedness and response (EPR), (2) availability of policies to support the implementation of public health emergency preparedness and response, (3) percentage of national budget allocated to the health section in 2020, (4) percentage reserved for emergencies, (5) availability of a permanent public health emergency operations centre (EOC) to facilitate preparedness, response and resilience, (6) availability of a One Health coordination mechanism, and (7) availability of multisectoral coordination mechanism for emergencies. The assessments done in the WHO's Joint External Evaluation (JEE) show that none of the EAC member states has scored 5/5, signalling inadequate infrastructure to prevent, prepare and manage outbreaks. The section hereunder outlines the efforts undertaken at national and regional levels across key pillar of epidemic preparedness.

Table 1 : Overview of national legislation, policy, and financing prepardness

Pillar	Priority Areas	Maturation Level					
		Kenya	Uganda	Tanzania	Rwanda	Burundi	South Sudan
National legislation, policy, and financing	Availability of legal framework to support implementation of public health emergency preparedness and response	2	3	2	3	1	2
	Availability of policies to support implementation of public health emergency preparedness and response	2	3	2	3	1	2
	Availability of a permanent public health emergency operations centre to facilitate preparedness, response and resilience	2	4	2	4	1	1
	Availability of a One Health coordination mechanism	3	2	3	3	1	1
	Availability of a multisectoral coordination mechanism for emergencies	3	2	3	3	1	2

Joint External Evaluation (JEE) report

National legislation, policy, and financing

Responding to a pandemic such as COVID-19 requires countries to work individually and collectively to mitigate health and socioeconomic impact. At the COVID-19 pandemic onset, the EAC states had developed a regional contingency plan with integrated disease prevention and control strategies for epidemics and other events of public health concern. The contingency plan promotes the integration of strategic approaches from recent epidemics into preparedness and response plans both for zoonotic and non-zoonotic diseases (EAC, 2015). The adoption of the revised IHR 2005 that entered into force in 2007 in the WHA (World Health Assembly) resolution aiming

at protecting, controlling and providing public health response to the international spread of diseases, underscores the importance of countries to work both individually and collectively within the EAC framework. Adaptive policies and legal framework are needed to support the implementation of national and regional responses within the EAC region, while ensuring for adequate funding through the national budget or other existing mechanisms at country level. The JEE of IHR requirements done in past years have highlighted the need to implement a One Health approach. Specific budgets availability during a public health emergency is also a major aspect of national system and policies preparedness.

In the following paragraphs, a description of each country status highlights, not only progress, but also challenges that need to be addressed to mitigate the impact of COVID-19 in each EAC member state.

South Sudan has several regulations and policy to guide public health surveillance and response. These documents include the National Health Policy (2016-2026); the draft National Health Sector Development Plan (2017-2021); the National Disaster Risk Management Policy (2016); and the General Medical Council Provisional Order (2014). There is limited information on the government budget for emergencies and the level of implementation of each of these policies (WHO, 2017a).

In Uganda, the existing legal and regulatory frameworks governing public health surveillance and response are coordinated by the Office of the Prime Minister and the Ministry of Health, through its Public Health Emergency Operations Centre (PHEOC). The country has put in place cross-border agreements related to health. The government has reserved 3.5% of the national budget for emergencies according to the Public Finance Management Act of 2015 (WHO, 2017b).

Kenya also has existing legislation documents guiding public health emergency response. These include the Public Health Act; the Food, Drugs and Chemical Substances Act; the Environment Management and Co-ordination Act; the Animal Diseases Act; and the Kenya Veterinary Policy, 2015. The country has also established several agreements with other countries regarding public health emergencies, including Kenya-Namibia human resources employment and training, 2009; Kenya-Botswana technical cooperation in health, 2011; Kenya-African Union MoU for health volunteers to the African Union, and Kenya-United States of America agreement on Biological Threat Reduction, 2015. Kenya does not have a specific budget line for public health emergencies; however, resources are mobilized through line ministries to ensure core activities are implemented (WHO, 2017c.)

In Tanzania, specific health sector policies, plans and acts have been established, including National Health Policy 2007, Health Sector Strategic Plan IV (HSSP), and the Public Health Act 2009. The funding for public health emergencies is allocated through the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC). There is also a National Emergency and Disaster Fund under the Prime Minister's Office which was critical in addressing recent outbreaks (WHO, 2016).

In Rwanda, there were development and implementation of specific health sector policies, plans and acts, including National Health Policy 2018, Health Sector Strategic

Plan IV [HSSP, IV]. The funding for public health emergencies is allocated through the Ministry of Health. The MIDIMAR is in charge of disaster management and funding of the National Emergency and Disaster addressing outbreaks (WHO, 2018).

Burundi has legal instruments favourable to the implementation of the Health Regulations International (RSI) (2005), in particular in terms of epidemiological surveillance of diseases with potential epidemic and response.

Overall, East African countries have achieved some progress in putting in place laws and policies to facilitate public health responses; in particular, the Integrated Disease Surveillance Response (IDSR) Guidelines. The East African Community (EAC) also created a One Stop Border Posts Act in 2016 for border operations, including surveillance within the EAC region, except in South Sudan. However, existing legislation and other requirements have to be revised to facilitate full and efficient preparedness and response of the new COVID-19 pandemic threat.

In terms of proportions of budget amounts allocated to the healthcare sector, almost all East African countries have spent more or less than 15% of their government expenditure as in the Abuja Declaration. Updated figures were not available by the time of data collection.

Table 2: Domestic general government health expenditure (% of GDP)

	2013	2014	2015	2016	2017
Kenya	5.5	5.5	5.2	5.0	4.8
Rwanda	6.8	6.9	6.5	6.8	6.6
South Sudan					9.8
Tanzania	4.6	4.0	3.6	3.9	3.6
Uganda	7.2	6.9	6.5	6.3	6.2
Burundi	8.1	6.9	6.6	7.5	7.5

Source: World Bank Database.

Coordination at national and decentralized levels

The COVID-19 pandemic has tested the resilience of EAC states in coordinating the response and how communities are engaged in preventing the spread. The coordination of national resources requires different ministries, stakeholders, and administrative levels to partner in developing coherent response systems for public health threats. It is important, particularly for decentralized systems, to have a well-defined coordination system and information flow during an epidemic. Community awareness and engagement is a critical step in slowing the transmission of COVID-19 and requires everyone's participation in adopting public preventive measures such as washing hands, wearing face masks and keep social distance. To achieve the acceptable level of knowledge, attitude and practice, countries need to establish two-way communication with all affected and at-risk populations on regular basis with key stakeholders including local leaders.

Leveraging from the previous experiences in responding to epidemics such as Ebola, countries such as Kenya, Rwanda, Tanzania, and South Sudan have established a coordination committee that is multi-sectorial and multidisciplinary, where all responsible ministries are brought together under a national coordination committee, often chaired by a high-office or Cabinet level such as the Prime Minister's office. This approach facilitates a speedy and smooth implementation of strategic decisions at the technical level. An emergency operation centre is often set up to ensure daily coordination at various levels and sectors.

In Burundi, for example, there is a multidisciplinary coordination committee for emergency management put in place in case of Public Health Emergency of International Concern (PHEIC). The committee is headed by the Director General of Public Health, and members of the committee include executives from relevant ministries depending on the nature of the event, i.e., Ministry of Agriculture and Livestock, Ministry of Transport, Ministry of Security, etc. (WHO, 2018). There is no national emergency operations centre. During a PHEIC, it is possible for the lower coordination level to directly inform the upper coordination levels. The central level then coordinates with the provinces and districts. At regional level, the EAC has established an ad hoc Regional Coordination Committee (EARCC), which was re-assigned as Regional Task Force on COVID-19, to facilitate interventions that require a regional approach. The committee is linked to the national COVID-19 task force of each Partner State, and works closely with bilateral agencies such as GIZ, JICA, and USAID. Despite the established coordinated mechanism in the EAC states, there is lack of multisectoral emergency public health management mechanism at regional level. It means that, in case of a PHEIC, there is a lack of standard regional deployment procedures and plans for emergency rapid response which need to act in accordance with the ministries in charge from the member states.

Real-time surveillance and screening at points of entry

Stopping the spread of COVID-19 requires a trace, test, isolate approach. To achieve this, there is need to increase capacity to identify suspected cases of COVID-19 in the general population quickly based on the onset of signs or symptoms. At regional level, surveillance has been enhanced where there is an East African Integrated Disease Surveillance network in place, although there is an inadequate human resources capacity in field epidemiology and surveillance. Training (FELTP), tools and guidelines are required to ensure the surveillance system is effective and aligned across the EAC region. Kenya has implemented the IDSR strategy since 2003, which includes 36 human diseases, with a functioning surveillance system supported by focal points at national and subnational levels. The IDSR is both paper-based and electronic-based. The case counts for all selected diseases, and are reported weekly by health facilities and tallied at national level for analysis and response. The EOC coordinates event-based surveillance from direct and indirect sources.

In Burundi, there is a list of notifiable diseases and syndromes, including

notification done on paper, by telephone, and electronically through DHIS2. The notification reports are transmitted from the peripheral level (45 health districts distributed across 129 municipalities in the country) to the intermediate level (17 provincial health offices), then to the central level. In terms of laboratory data, only the laboratory of the National Institute of Public Health (INSP) provides information in real-time and feeds the national surveillance systems. The surveillance system does not integrate yet the private sector (hospitals and laboratories) (WHO, 2017c).

Laboratory and diagnostics capacity

An essential component of outbreak detection and response is diagnostics capacity through public health laboratories. Efforts have been accelerated across the region to prepare laboratories and establish and sustain laboratory confirmatory capacity, while also expanding the diagnostics coverage.

Tanzania has developed a public health laboratory network with a national health laboratory and quality assurance training centre (NHL-QATC) and four zonal reference laboratories with an ISO 15189 international accreditation. The country has two biosafety level 3 laboratories that can diagnose highly infectious pathogens (such as Ebola). Laboratories at district level can conduct microscopy, biochemical, haematological, and rapid diagnostic tests. The country has established a laboratory information management system that links the national, zonal, and regional laboratories for rapid turnaround times for results.

In Burundi, the National Institute of Public Health (INSP) and the Kamenge University Hospital Centre provide tests for four priority diseases (cholera, malaria, meningococcal meningitis, and measles). There are an estimated 1,113 public and private laboratories at all levels of the health system, including 47 hospital laboratories (Republique du Burundi, 2017). However, less than 80% of districts have a system that secures transfer of samples to national laboratories, capable of performing advanced diagnostic tests in the context of diseases under surveillance.

South Sudan has one national public health laboratory (NPHL) serving as the main referral laboratory and four laboratories at national teaching hospitals, seven at state hospital level, 17 at county hospital level, and 143 at primary healthcare centres. However, there is no well-established sample transportation system. The samples for testing for IDSR priority diseases are often transported to the NPHL using international partners vehicles (WHO, 2017a).

Uganda operates nearly 1,500 laboratories in the country. These range from laboratories attached to level III health care facilities at the sub-county level up to national referral laboratories. There are four well-established national referral laboratories: Uganda Virus Research Institute (UVRI), the National Tuberculosis Reference Laboratory (NTRL), the Central Public Health Laboratories (CPHL), and the National Animal Disease Diagnostic and Epidemiological Centre (NADDEC). The national reference laboratories are well-equipped to quickly detect diseases of concern in both the human and livestock/wildlife sectors using a wide range of

diagnostic platforms.

Kenya national laboratory system comprises the national reference laboratories at the Ministry of Health, medical research laboratories at the Kenya Medical Research Institute, teaching and referral hospital laboratories, Government Chemist laboratories and the Central Veterinary Laboratory. Two of the NPHLS reference laboratories (National HIV Reference Laboratory and National Microbiology Reference Laboratory) are accredited by the Kenya Accreditation Service for ISO 15189. In addition, there are three laboratories at the county level, four hospital laboratories and three partner laboratories that have also received accreditation under ISO 15189 standards. The country has capability to conduct the core tests at the national level for all ten priority diseases.

Rwanda National Laboratory Services Strategic Plan (NLSSP) 2015-2019 is a key instrument in guiding the provision of accessible quality laboratory services by strengthening the national diagnostic network. Rwanda operates a five-tier national medical laboratory system that comprises 664 public and private laboratories: The National Reference Laboratory (NRL); seven referral hospital laboratories; four provincial hospital laboratories; 39 district hospital laboratories; and 478 public health care laboratories. There are also 136 private clinics. Rwanda has a laboratory-based disease surveillance system, and is capable of conducting nine of the core tests on the IHR immediately notifiable list.

At regional level, the EAC led the Mobile Laboratory Project which provided training to laboratory experts in each Partner State in collaboration with global partners. The project facilitated the procurement of nine mobile laboratories of biosafety level 3 that can diagnose EVD and SARS-Cov-2/COVID-19, which were handed over to Partner States starting April 2020. The EAC also facilitated the procurement of 600 test kits distributed to Partner States. EAC member states are part of the East Africa Public Health Laboratory Network Project supported by the World Bank to address cross-border and cross-country issues.

Community engagement and risk communication

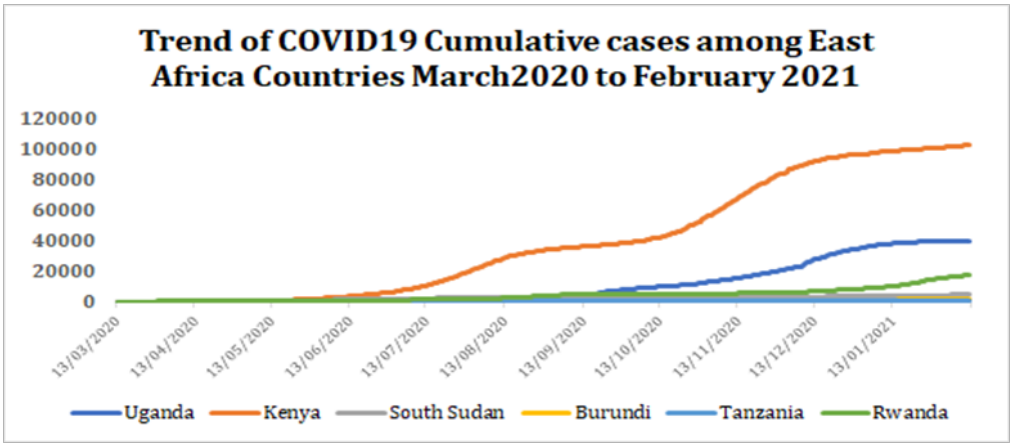
Previous outbreaks such as EVD had shown the importance of adequate risk communication and community engagement in early phases of preparedness and response. These are pillars that promote health behaviours, prevention, and avoid misinformation and stigma. The EAC Response Plan also targets to strengthen risk communication and community engagement.

Descriptive and analytical epidemiology of COVID-19 in East Africa

Trends of COVID-19 cumulative and active cases in EAC

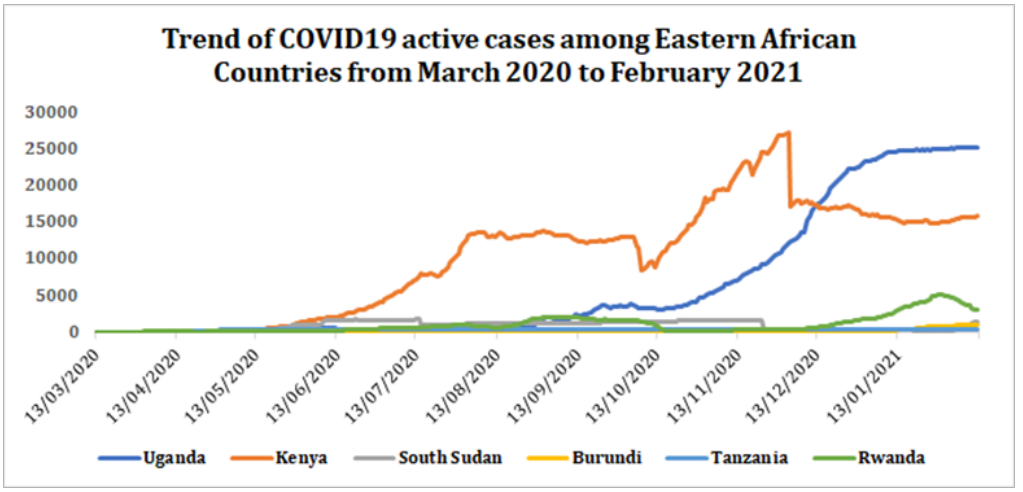
The East Africa countries identified their first COVID-19 case on 13 March 2020, two months after the declaration of COVID-19 as public health of emergency of international concern by the WHO, which stimulated interventions such as airport screening for temperature and thereafter followed by containment measures such as total lockdown in Rwanda, Uganda, South Sudan, and Kenya. In line with the global trend, the number of cases in Eastern Africa has continued to increase. Based on available records, Kenya has recorded the highest number of confirmed COVID-19 cases in the EAC region at 163,238 (66.2%), followed by Uganda at 42,308 (17.1%), Rwanda at 25,586 (10.4%), South Sudan at 10,637 (4.3%), and Burundi at 4,149 (1.7%). Tanzania's last report on 29 April 2020 indicated 509 confirmed COVID-19 cases and 21 deaths (Worldometers, 2021). It is important to mention that not all countries have the same COVID-19 testing capacity, which requires cautious interpretation of the data while comparing cases or deaths proportion across countries in EAC region. In addition, these rates could be well-interpreted if standardized per capita or per 1,000 population.

Figure 5: Trend of COVID-19 cumulative cases in EAC countries (March 2020-February 2021)



[Source: https://www.worldometers.info/]

Figure 6: Trend of COVID-19 active cases in EAC countries (March 2020-February 2021)

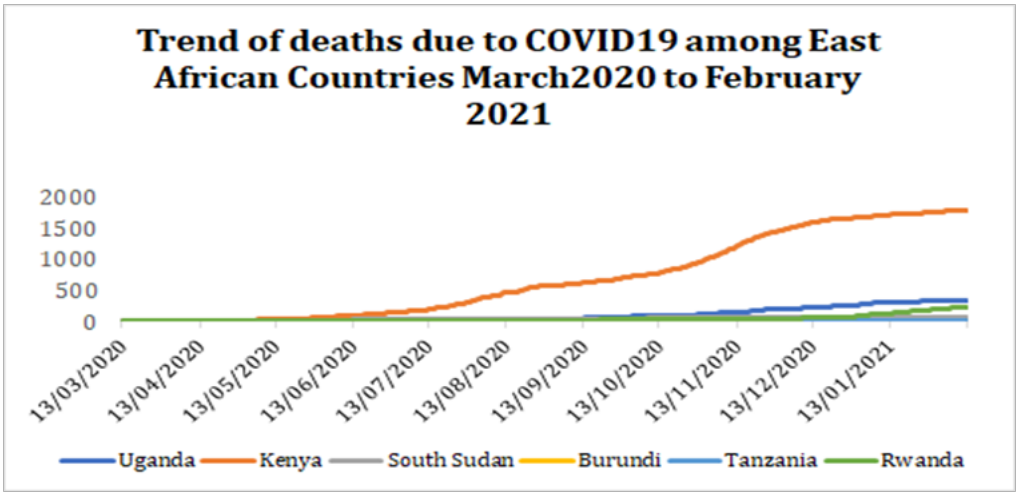


[Source: https://www.worldometers.info/

Trends of mortality due to COVID-19 in EAC

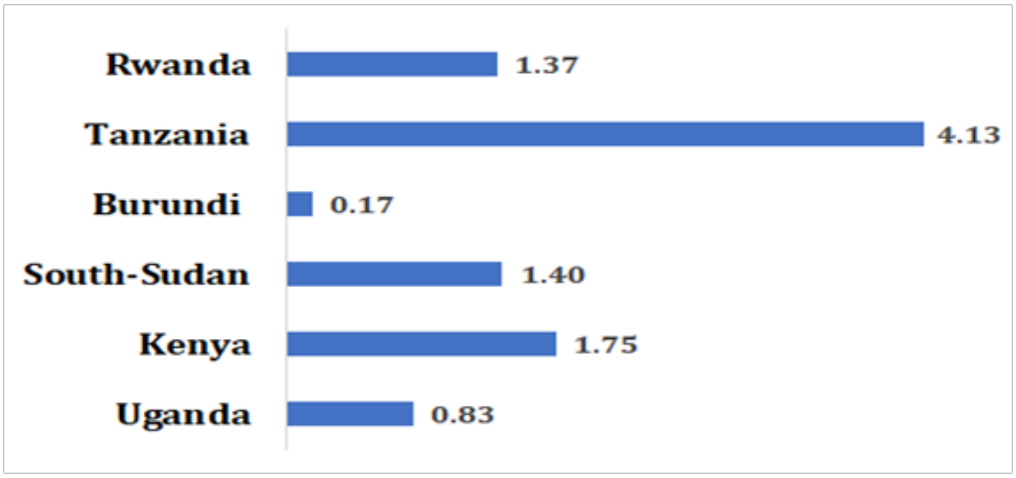
As of February 2021, the number of COVID-19 related deaths in the region stood at 2,457. The fatality rate (1.5%) is below the Africa average (2.4%), which showed a contained number of severity cases in the region. The number of cumulative recovered cases was 120,469 (72% of cases in the region).

Figure 7: Trend of deaths due to COVID-19 in East African countries (March 2020- February 2021)



[Source: https://www.worldometers.info/]

Figure 8: Case fatality by country in EAC



[Source: https://www.worldometers.info/]

These case fatality rates represent the ratio between the number of confirmed COVID-19 deaths and the number of confirmed cases, which depend on a particular context. This variability in case fatality rates among EAC states reflect different types of responses at a particular time and in particular populations.

Established approaches to curb COVID-19 cases

In April 2020, the EAC unveiled a regional COVID-19 Response Plan to reinforce measures in place and prevent further spread of COVID-19 in the region. The Response Plan was submitted to EAC Partners States to guide key interventions and help coordinate the regional response. East African countries have adopted and implemented strategies differently in response to the pandemic since the first confirmed case in the region on 13 March 2020 in Kenya and followed by the increase of cases across the other EAC states (Uganda, Tanzania, Rwanda, Burundi, and South Sudan). The initial phases of interventions in most of the countries involved strict physical distancing measures and establishment of non-pharmaceutical interventions such as wearing face masks and hand washing. However, the level of public preventive methods across countries differs. In Rwanda, for example, especially in Kigali, public places such as markets, churches, bars and restaurants have clear instructions on what to do to protect its citizens. Whereas, other places in the country are hard to monitor. In other countries such as Burundi or Tanzania, these measures are less respected and hard to implement.

Coordination, communication, and community engagement

High-level coordination in each country facilitated and prioritized emergency

preparedness and response to curb COVID-19. In most countries, the Prime Minister's office chaired the national response committee with all relevant ministries (health, finance, governance, disaster relief, foreign affairs, etc.) involved. National Emergency Response Committees were established in most of the countries, including Uganda, Kenya, and Rwanda which are comprised of different ministries that coordinate contact tracing and other interventions such as IPC measures and routine surveillance. Daily updates are provided on the number of cases and deaths, and are updated on the burden of COVID-19, with the exception of Tanzania that stopped reporting daily cases. Eastern African Countries employed different media platforms, including social media (radios, televisions, SMS messages, and twitter), group emails, and WhatsApp messages to engage, mobilize, and sensitize the population on COVID-19 preventive interventions. Awareness has been done in local languages in all countries to enable the community to understand well prevention measures and the countries' responses.

Enhanced surveillance, contact tracing, and testing policy

Testing is one of the most important tools in detecting and curbing the spread of the virus. Leveraging from previous experiences in responding to epidemics such as Ebola, EAC states sought to boost their laboratory capacity, although diagnostics coverage has remained limited in several areas. As of 2 November 2020, data from EAC countries showed that Kenya, Uganda, South Sudan, and Tanzania tested only people with symptoms and also others who meet specific criteria such as essential services workers, people admitted to hospital, contacts of confirmed cases they into contact, and returning travellers from overseas. Rwanda testing strategy focused on anyone showing COVID-19 symptoms (Our World In Data, 2021).

In Burundi, the major challenges highlighted by health authorities are limited capacity to strengthen systematic screening of COVID-19 in all health provinces and at the various entry points. The management of alerts, the identification and contact follow-up and, and effective case management will need to be reinforced (WHO, 2020a). Contact tracing and follow-up are conducted by the rapid response teams or équipe d'intervention rapide (EIRs), both at central level and health district levels. Additionally, district hospital laboratory technicians were trained on the collection and use of the GeneXpert device for the diagnosis of COVID-19. Voluntary testing is free of charge for anyone residing in Burundi. Rwanda's testing strategy initially focused on anyone showing COVID-19 symptoms, and has evolved to regular community testing surveys (Our World In Data, 2021). Rwanda has also deployed various approaches to bridge the gap of testing capacity by initiating a pooling approach, where pools of samples are tested together, which has more than doubled testing capacity in the country (Mutesa et al., 2021). At national and regional levels, the testing and surveillance guidelines continue to evolve based on the epidemic dynamics, particularly for travellers.

Case management and home-based care

The initial approach for case management in most countries, including Kenya, Rwanda, Uganda, and Tanzania involved isolation of all cases in treatment centres. However, with escalating number of cases over time, the approach was adjusted to home-based care for people with asymptomatic and mild symptoms in Uganda, Kenya, and Rwanda, while severe cases were evacuated to treatment centres. The approach helped to reduce the demands on the health system in most of the countries.

In Burundi, most of cases recorded are of minor form (minor symptoms and asymptomatic cases). The current protocol for the treatment of minor cases is based on the administration of azithromycin, chloroquine and vitamin C, with daily medical monitoring provided by healthcare providers (WHO, 2020a). The management and treatment of cases varies based on the country's guideline under the coordination of WHO, CDC, and other international organizations.

Border control measures

The current outbreak led to significant travel disruptions and restrictions in the East African region (Figure 6). Kenya has deployed health officers at 22 of the 38 listed points of entry (POE). The Jomo Kenyatta International Airport monitors all travellers entering the country. Overall, clinical and diagnostic services are provided at most points of entry, although formal arrangements for referral to nearby healthcare facilities are being developed (WHO, 2017c).

Similar measures are in place in Rwanda, both at the Kigali International Airport and major points of entry.

In Burundi, there is ongoing and systematic screening of incoming and outgoing travellers at all 35 entry points at the borders with DRC, Rwanda, and Tanzania. It includes Bujumbura International Airport, an important step as commercial flights resumed on 8 November 2020 (WHO, 2020b). A mobile laboratory was deployed at the Kobero entry point in Muyinga district to support the screening of Burundian refugees repatriated from Tanzania and Rwanda.

Health effect and continuity of services

The continuity of health services during the pandemic response is crucial to avoid poor health outcomes and deaths from other health conditions. An analysis was conducted in Rwanda with key health routine indicators such as family planning and child vaccination. The results (reference to the Rwanda report) show that there was no disruption of services during the pandemic and there was no trend in demonstrating any signal of an increase of key health impact indicators such as maternal and child mortality. At the pandemic's onset, facilities such as hotels were designated as isolation centres for COVID-19 cases. The health facilities were left to their regular activities to

avoid service disruptions, although elective procedures were often rescheduled. There was systematic quarantine in a local hotel while waiting for the laboratory result. This approach aimed to ensure continuity of services for patients in health facilities while ensuring rapid detection and isolation of cases.

Impact on other sectors and social protection programmes

At national level, governments have put in place initiatives to address the social and economic disruptions. Burundi has launched a national contingency plan to financially support the identified priority areas (strategic food stocks and subsidies for vulnerable populations) estimated at US$27.8 million, although additional funds (US$52.1 million) are needed (UNECA, 2020).

In Kenya, an estimated US$377 million have been provided for additional health expenditure, food relief, and for business. An additional 5,000 healthcare workers were hired, and bed capacity in public hospitals expanded. Several strategies were implemented to boost the economy of the country during the pandemic. Tax measures and loan flexibility are in place. The economic stimulus priorities include, among others, the country initiated the hiring of local labour for the rehabilitation of access roads and footbridges; supply of farm inputs through e-vouchers targeting 200,000 small-scale farmers; and support to flower and horticultural producers to access international markets (UNECA, 2020).

Rwanda has developed an Economic Recovery Plan including support to vulnerable households (food distribution, subsidized access to agricultural inputs, cash transfers, etc.) and adopted various tax deferral and relief measures (including VAT refunds and exemptions for locally produced masks). The government has also launched a private sector fund for SMEs and sectors that were highly impacted. The salaries of top civil servants were redirected to welfare programmes in April (UNECA, 2020).

In South Sudan, a COVID-19 fund estimated at US$5 million was allocated to the Ministry of Health to combat the pandemic, with additional US$3 million provided to other affected ministries. The government also redirected fund towards the purchase of items for pandemic prevention and treatment.

The Tanzania Government allocated an estimated US$302 million for health spending and affected SMEs. Medical items were granted VAT and customs exemptions (UNECA, 2020).

Uganda put in place US$1.3 million for the Preparedness and Response Plan between January and June 2020. Supplementary budget (US$80 million) was allocated to support the health sector and vulnerable communities. Other initiatives include food distribution campaigns to the vulnerable in the urban areas; expedited repayment of domestic government arrears to the private sector suppliers; and tax exemptions for items used for medical use were all implemented during the SARS-COVID-19 outbreak.

In most EAC countries, the mobile money providers and commercial banks reduced

charges on mobile money transactions and other digital payment charges (UNECA, 2020).

It is important to note that these recovery interventions are implemented in the context of changing epidemic dynamics (such as new SARS-CoV-2 variants), and changing COVID-19 mitigation measures. The beneficiaries will require additional support. In Kenya, for example, the beneficiaries of debt repayment relief early in the pandemic are facing difficulties as repayment suspensions were not maintained, and in some cases, suspension did not apply to interest.

5. Discussion

East African countries continue to face health challenges, including adverse effects of infectious diseases, a growing double burden of communicable and non-communicable diseases and public health outbreaks.

East African countries have adopted and implemented strategies differently in response to the pandemic since the first confirmed case in the region on 13 March 2020 in Kenya, a few weeks after the virus was first reported in Africa. Other cases were recorded across the EAC states within the following weeks. As of 8 May 2021, Kenya has recorded the highest number of confirmed COVID-19 cases in the EAC region at 163,238 (66.2%), followed by Uganda at 42,308 (17.1%), Rwanda at 25,586 (10.4%), South Sudan at 10,637 (4.3%), and Burundi at 4,149 (1.7%). Tanzania's last report on 29 April 2020 indicated 509 confirmed COVID-19 cases and 21 deaths.

At the onset of COVID-19 in the EAC region, several countries had been on high alert due to previous outbreaks in the region, including EVD outbreaks. In April 2020, the EAC unveiled a regional COVID-19 Response Plan to reinforce measures in place and prevent further spread of COVID-19 in the region. The Response Plan was submitted to EAC Partners States to guide key interventions and help coordinate the regional response. The contingency plan, which was approved in 2018 and adapted in 2020, promotes the integration of strategic lessons from recent epidemics into preparedness and response plans, both for zoonotic and non-zoonotic diseases.

The COVID-19 pandemic has affected individual countries differently, given strengths and vulnerabilities of health systems and other government framework in place. Based on the preparedness assessment done during Joint External Evaluations (JEE) in the region prior to COVID-19, there were still many challenges that include: (1) availability of legal framework to support the implementation of public health emergency preparedness and response, (2) availability of policies to support the implementation of public health emergency preparedness and response, (3) percentage of national budget allocated to the health sector in 2020, (4) percentage reserved for emergencies, (5) availability of a permanent public health emergency operations centre (EOC) to facilitate preparedness, response and resilience, (6) availability of a One Health coordination mechanism, and (7) availability of multisectoral coordination mechanism for emergencies at the regional level. There is also a lack of cross-border strategies, particularly in surveillance and diagnostics.

The COVID-19 response requires countries to work individually and collectively to

mitigate health and socioeconomic impact. The report presents several key indicators (health financing, advanced care, healthcare workforce) to show the regional context and severe constraints that policy makers face in distributing scarce resources efficiently during outbreaks. It often means diverting resources to fight the pandemic.

Adaptive policies and legal framework were needed to support the implementation of national and regional responses within the EAC region. Overall, EAC states had achieved some progress in putting in place laws and policies to facilitate public health responses such as the Integrated Disease Surveillance Response (IDSR) Guidelines and East African Community (EAC) One Stop Border Posts Act in 2016.

The coordination of national resources also requires different ministries, stakeholders, and administrative levels to partner in developing coherent response systems for public health threats. It is important, particularly for decentralized systems, to have a well-defined coordination system and information flow during an epidemic. Kenya, Rwanda, Tanzania, and South Sudan established a coordination committee that is multi-sectorial and multidisciplinary, where all responsible ministries are brought together under a national coordination committee, often chaired by a high-office or Cabinet level such as the Prime Minister's office. This approach facilitates a rapid and effective implementation of strategic decisions at the technical level. An emergency operation centre is often set up to ensure daily coordination at various levels and sectors, as observed in several EAC states. At regional level, the EAC established an ad hoc Regional Coordination Committee (EARCC) which was re-assigned as Regional Task Force on COVID-19 to facilitate interventions that require a regional approach, and engages bilateral agencies such as GIZ, JICA, and USAID. Despite the established coordinated mechanism in the EAC states, there is lack of multisectoral emergency public health management mechanism at regional level.

Testing is one of the most important tools in curbing the spread of the virus. Leveraging previous experiences in responding to epidemics, EAC states sought to boost their laboratory capacity, although diagnostics coverage has remained limited in several areas. In early phases of COVID-19, Kenya, Rwanda, Uganda, South Sudan, and Tanzania tested only people with symptoms and also others who meet specific criteria such as essential services workers, people admitted to hospital, contacts of confirmed cases they into contact, and returning travellers from overseas. The testing capabilities were a major challenge in COVID-19 mitigation. Some countries like Rwanda deployed pooled testing seeking to optimize use of testing resources. At national and regional levels, the testing and surveillance guidelines continue to evolve based on the epidemic dynamics, particularly for travellers.

The current outbreak led to significant travel restrictions regionally and globally. Kenya, Rwanda, Uganda, and Tanzania deployed health officers at major points of entry and airports to monitor all travellers entering the country. All EAC states have quarantine requirements for overseas travellers.

The initial approach for case management in most countries, including Kenya, Rwanda, Uganda, and Tanzania involved isolation of all cases in treatment centres. However, with escalating number of cases over time, the approach was adjusted to

home-based care for people with asymptomatic and mild symptoms. The approach helped to reduce the demands on the health system. However, the treatment of severe cases still faces major challenges based on current case management and ICU capacity.

The continuity of health services during the COVID-19 pandemic response is crucial to avoid poor health outcomes and deaths from other health conditions. An analysis conducted in Rwanda with key health routine indicators (family planning, child vaccination) shows that there was no significant disruption of services. Most EAC states, however, struggle to avoid health service disruptions, and additional analysis of health outcomes is needed to assess the effects of the COVID-19 pandemic on health outcomes.

The crisis has also impacted the livelihood and employment for the informal sector and service workers. The report covers important socioeconomic indicators. At national level, governments have put in place initiatives to address the social and economic disruptions. These interventions include contingency plan to financially support priority areas (strategic food stocks, subsidies for vulnerable populations), food relief, tax measures, loan flexibility, supply of farm inputs through e-vouchers targeting small-scale farmers, cash transfers, and private sector fund for SMEs. These recovery interventions are implemented in the context of changing epidemic dynamics and COVID-19 mitigation measures, which may result in the beneficiaries requiring additional support.

6. Conclusion and policy implications

Conclusion

The World Health Organization (WHO) has referred to flattening the curve in presenting COVID-19 epidemic curves, and the need to 'spread' the increase in number of cases to avoid overwhelming the healthcare systems. The African continent was predicted to have the highest burden of COVID-19 based on severe limitations in healthcare systems, critical infrastructure and other vulnerabilities. These predictions have not reached the inflection points anticipated. Some factors put forth are the younger population structure compared to other continents and stringent measures put in place in several countries. However, the limited testing capacity and potential underreporting of COVID-19 cases and deaths may lead to underestimating the actual burden of the COVID-19 pandemic on the continent.

The East African region has crossed the first year since the first cases were reported in March 2020. The region has recorded an estimated 7.3% of the cases and 4.4% of deaths reported in Africa. As the pandemic continues to evolve, the EAC member states face severe constraints in their health systems. The pandemic exposed critical gaps in terms of financing, quality, and resilient health system capable to respond to different outbreaks. EAC states have adopted different approaches to reducing the incidence of the pandemic, including lockdown restrictions, isolation of confirmed cases, quarantining close contacts of confirmed cases, contact tracing, quarantining travellers, mandatory use of face masks, and expanding testing and treatment capacities.

EAC member states still face major challenges in health financing, with healthcare spending still below recommended thresholds, which is compounded by limitations in building blocks especially human resources for health (health personnel), weak data systems and use (health information systems), low capacity for testing, and leadership and governance.

A review of the national response among EAC states provided an overview of progress and challenges in key pillars of epidemic preparedness, including policies and budget to support the implementation of public health emergency preparedness and response, coordination mechanisms, communication and community engagement, enhanced surveillance, testing, contact tracing, and case management. The policy makers faced difficult decisions in distributing scarce resources efficiently between increasing demands of pandemic response and the need to maintain the delivery

of other critical services, while mitigating the impact on social and economic development which required great demands on the national budget.

The effects of COVID-19 extend beyond the health sector. The pandemic has exacerbated existing gaps in access to basic services and protection challenges, particularly for the most vulnerable groups. The crisis and subsequent mitigation measures have impacted the livelihood and employment for the informal sector and service workers. At national level, governments have put in place initiatives to address the social and economic disruptions (food relief, tax measures, loan flexibility, supply of farm inputs for small-scale farmers, cash transfers, and private sector fund for SMEs).

The widespread implications of the pandemic threaten to reverse some of the region's development gains and challenge progress to the SDGs. As the pandemic response continues, there is an urgent call for equitable access to COVID-19 vaccines and other advances, sharing lessons learnt, ensuring a regional approach in response implementation, continuous community engagement, adequate resource allocation in the face of cyclical epidemic dynamics, recovery interventions for most affected communities, and strong national and subnational leadership.

Policy implications and recommendations

The report provides an analysis of the healthcare systems and socioeconomic disruptions at national and regional levels in the EAC. Some of the policy and mitigation measures to this unprecedented crisis in EAC can also be observed at continental level.

Although the EAC region had been on high alert prior to the COVID-19 pandemic, due to outbreaks in the region, the assessments done in the WHO's Joint External Evaluation (JEE) show that none of the EAC member states had adequate preparedness to prevent, prepare, and manage outbreaks. Countries can build on the efforts undertaken at national and regional levels across key pillars of epidemic preparedness: coordination mechanisms, communication and community engagement, enhanced surveillance, testing, contact tracing, and case management.

The increased regional movements and integration have highlighted the need to develop effective regional approaches, as public health crises often transcend borders. The EAC Regional Contingency Plan for Epidemics due to Communicable Diseases, Conditions and other events of Public Health Concern 2018–2023, mentioned in this report, was unveiled in April 2020 to reinforce measures in place and prevent further spread of COVID-19. This contingency plan provides a basis for integrating strategic lessons from recent epidemics into COVID-19 ongoing response and recovery plans.

There are key responses and recommendations for policy that EAC countries can target with support from stakeholders:

(1) There is a need to further strengthen and support the core capacities of public health systems to detect and respond to disease outbreaks, particularly current vulnerabilities outlined in detecting, tracing, isolating, and treatment.

(2) Cascaded contingency plans are needed at national and subnational levels. These contingency plans should be provided adequate funds to ensure effective preparedness and response. The contingency plans can leverage existing coordination mechanisms at highest national levels, and include mechanisms for quick access to funds.

(3) At regional level, there is an opportunity to establish a pool of rapidly deployable health experts with experiences from previous outbreaks. During previous outbreaks (e.g., EVD), countries like Kenya and Rwanda sent support teams in response to public health emergencies in neighbouring countries. These approaches can be adapted and expanded to curb COVID-19 consequences in weakening the healthcare systems.

(4) In terms of surveillance, there is a regional Integrated Disease Surveillance (IDSR) network in place. In most countries, weekly surveillance reports (usually paper-based) from facilities focal points to the central level where the data is entered into an electronic web-based system (DHIS 2) and are accessible by health authorities. These mechanisms should be adapted and shared by each country for compilation and decision-making at the regional level.

(5) A regional pooled procurement plan can increase access to essential products and vaccines during outbreak. The EAC member states should have a framework for pooled procurement, including sharing vital information on prices and purchasing practices, leading to pooled orders to leverage purchasing power. In order to build stronger foundation epidemic preparedness and response, the contingency plans should be supplemented by structural frameworks such as Memorandum of Understanding (MoU) between EAC member states with terms of references and SOPs to improve the coordination and integration of a regional response. Such frameworks would formalize and establish a shared and increasing pool of health experts, equipment and logistics, and overall emergency management resources. In the same vein, there is a need to establish a supranational laboratory in the region beyond small BSL2-3 with capacity to test and control quality of country laboratories.

(6) It is important for policy makers to encourage the use of technology and digital solutions, which can significantly benefit the epidemic response, as seen in Rwanda. Government should invest in extending access to digital solutions (data use for policy decisions, use of robots to reduce workload among health providers, to cite few examples).

(7) Integration of community engagement into the response and containment strategies for outbreak. Develop risk communication and crisis communication strategies phased according to the stage of the outbreak, with a strong focus on preventing misinformation. These efforts should be led by local authorities and the government to ensure trust, consistency and effectiveness at all levels. It can be adapted to other diseases.

(8) It is important to reflect on the socioeconomic implications across the region. Policy makers should maintain measures to support the most affected segment of the population, including the youth, elderly, people living with disability, women, and the informal sector.

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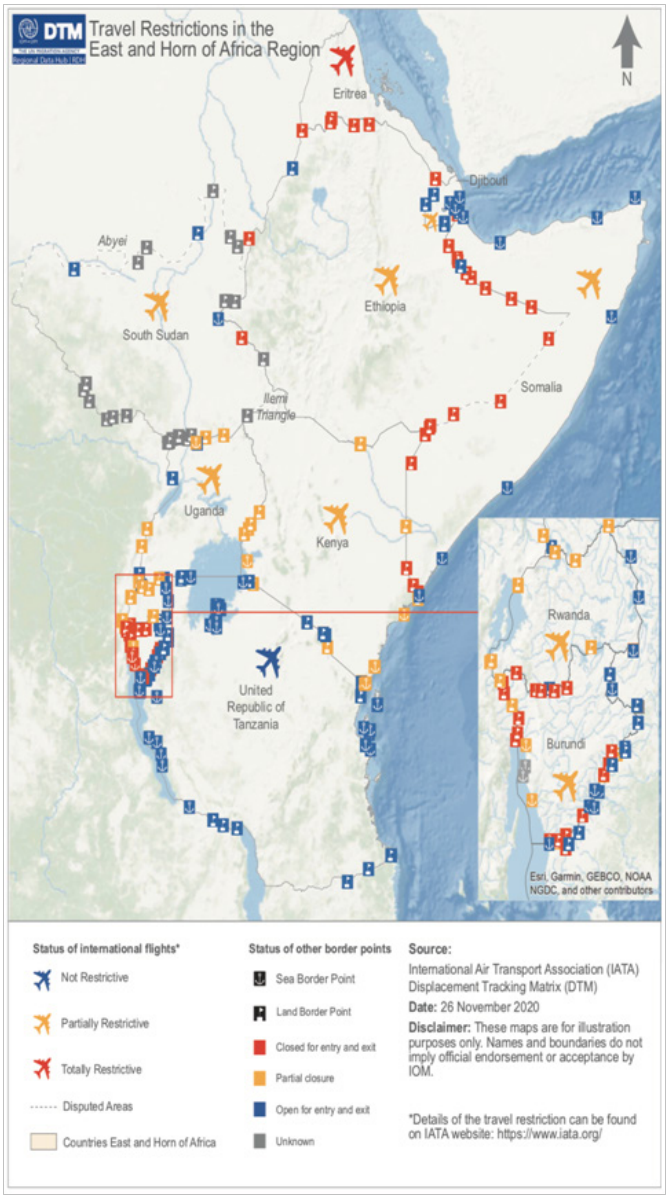
Appendix

Figure A1: Travel restrictions in the East and Horn of Africa



Mission

To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

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Contact Us
African Economic Research Consortium
Consortium pour la Recherche Economique en Afrique
Middle East Bank Towers,
3rd Floor, Jakaya Kikwete Road
Nairobi 00200, Kenya
Tel: +254 (0) 20 273 4150
communications@aercafrica.org