



# COVID-19 RESPONSE IN AFRICA AND THE COVAX MECHANISM

VOICES FROM THE FIELD:  
SIERRA LEONE, SUDAN,  
UGANDA



**EMERGENCY**  
MEDICINE, HUMAN RIGHTS AND EQUALITY

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**EMERGENCY ONG Onlus** is an independent non-governmental organisation. It provides free, high-quality medical and surgical treatment to victims of war, landmines and poverty. It promotes a culture of peace, solidarity and respect for human rights. Since 1994, EMERGENCY has worked in 20 countries around the world, providing free medical care in accordance with its core principles: equality, quality and social responsibility. EMERGENCY has treated over 12 million people.

**CERGAS and DONDENA** are two research centers based in Bocconi University. CERGAS is the Center for Research on Health and Social Care Management. It contributes to relevant and timely research within the healthcare sector, while simultaneously bringing new and advanced levels of empirical and analytical knowledge to the field. DONDENA is the Centre for Research on Social Dynamics and Public Policy. It is an international centre for applied research based on an interdisciplinary approach to the analysis of Population Dynamics and Health, Politics and the Welfare State. Its researchers develop and adopt innovative analytical methods to understand and evaluate complex relationships and changes over time.



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# INTRODUCTION

## GENERAL CONTEXT

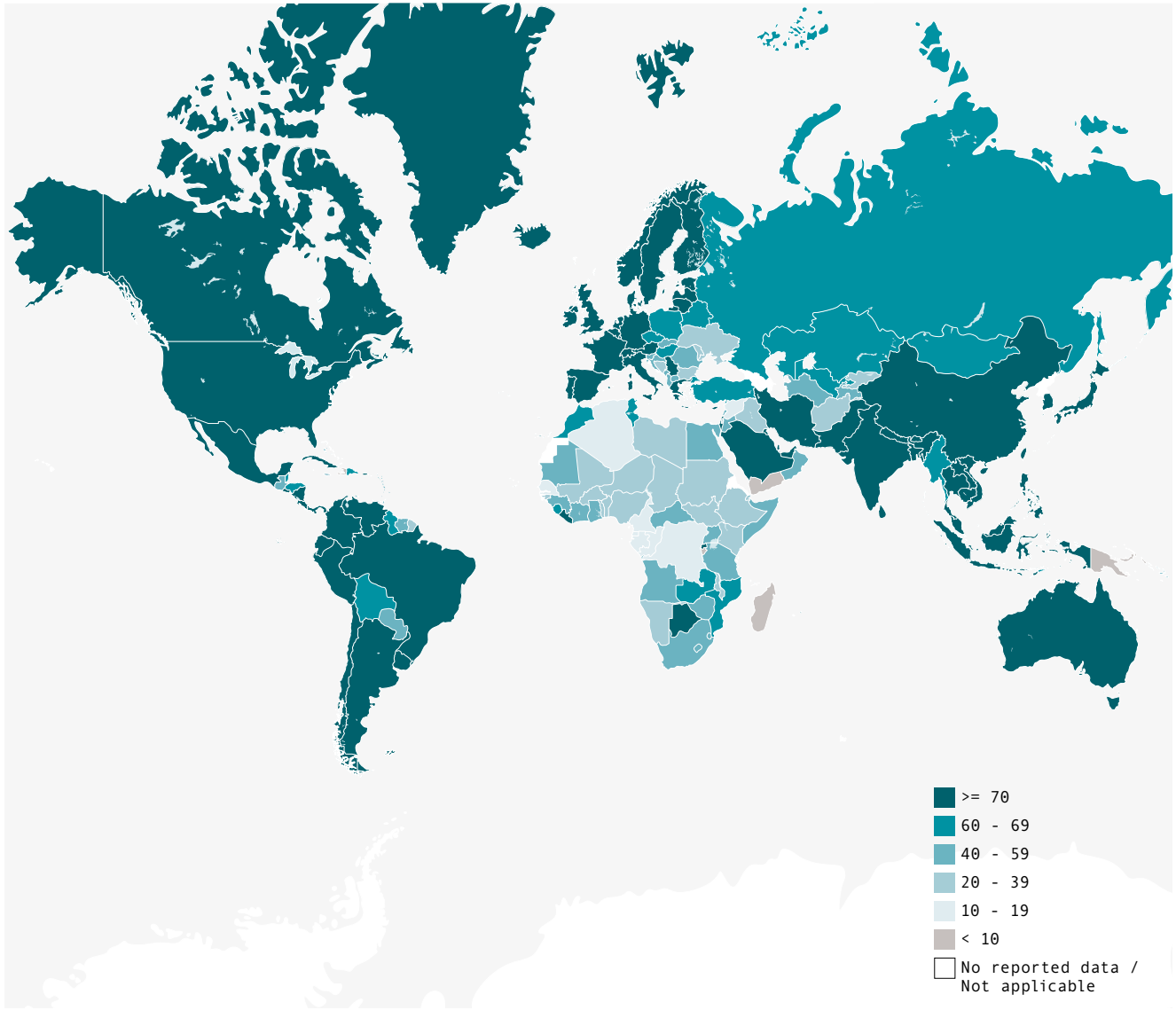
Overall, Africa has seen fewer confirmed Covid-19 cases and deaths per capita than other parts of the world. Cases have been concentrated in a few countries, led by South Africa, where testing rates have also been higher. **Studies suggest that cases, and to a lesser extent mortality, have largely been undercounted in much of Africa.** Many African governments quickly ramped up Covid-19 surveillance and control measures in early 2020, drawing on lessons they had learnt while managing prior outbreaks of other infectious diseases. A few governments did however minimise or deny the risk of Covid-19 at times. Starting in mid-2020, many countries loosened restrictions on travel, schools and businesses, but some later re-imposed them during case spikes. Covid-19 has exacerbated challenges to the health systems of many African countries, disrupting routine immunisations, diagnosis and treatment of other diseases, maternal and child healthcare, and other health services. The pandemic has intensified food insecurity (especially in areas with conflicts or natural disasters) and prompted long school closures, without the option of remote attendance, in some countries. The initial economic impact in Africa was severe and pushed tens of millions more people into extreme poverty, according to the World Bank<sup>1</sup>.

In Africa, 29.8% of the population were fully vaccinated as of March 2023, compared to 64.2% globally<sup>2</sup>. In at least 14 African countries, fewer than 30% of the population had received at least one dose as of March 2023, with some countries producing much lower figures, like the Democratic Republic of Congo (12.9%) and Mali (17.8%)<sup>3</sup>.

African governments have obtained Covid-19 vaccines through the multilateral COVAX initiative, direct purchases and bilateral donations. As of today, the COVAX Facility system continues to be the leading source of vaccines delivered in Africa, accounting for 62.3% of doses received<sup>3-4</sup>. COVAX, an acronym for Covid-19 Vaccines Global Access, is the vaccine-related and primary branch of the Access to Covid-19 Tools (ACT) Accelerator<sup>5</sup>. The ACT Accelerator is a global collaboration begun in April 2020 to develop, produce and equally distribute Covid-19 tests, treatments and vaccines. It is co-directed by the Coalition for Epidemic Preparedness Innovations (CEPI), the Gavi Alliance, the WHO and UNICEF<sup>6</sup>. The main goal of COVAX is to guarantee all countries in the world quick, safe and equitable access to Covid-19 vaccines. This means allowing each country to access a sufficient number of doses to protect at least the vulnerable population,

regardless of its ability to pay. In fact, COVAX is based on a cost-sharing mechanism financed by self-financing participants (mainly high-income countries) and by the separate financial platform of COVAX AMC (Advanced Market Commitment), which includes funding from Official Development Assistance (ODA) and contributions from the private sector and philanthropists<sup>7</sup>.

Overall, as of March 2023, around 2 billion Covid-19 vaccine doses have been shipped to 146 recipient countries under the COVAX Facility<sup>8</sup>. Nevertheless, only 36% of people in Africa have received at least one dose<sup>3</sup>. Without wishing to detract from the results achieved, the charitable mechanism fell short of expectations and in some cases was not able to fulfil the commitments made towards low- and middle-income countries. **African countries, on average among the world's poorest, generally lack vaccine production capacity and were unable to compete with wealthier countries to procure doses for much of 2021.** Furthermore, a temporary vaccine export ban in India (a major COVAX supplier), delays in donor-pledged deliveries, donations of nearly expired doses and global supply chain constraints posed additional challenges. According to the last WHO Monthly Bulletin on Covid-19 Vaccination in the WHO African Region<sup>9</sup>, which considers 46 countries out of 54, the absorption rate of the vaccines received in Africa remains suboptimal overall, with only 70% of doses administered out of the total received. Twelve countries out of 46 (26%) have administered fewer than 50% of the doses they have received. Thirty-five countries out of 46 have reported expired doses. Precisely, the percentage of doses received in these 35 countries that are expired was 4.5%, whereas it was 3% in Africa overall. African countries are still facing constraints in distributing and administering shots on a mass scale. Key challenges include ensuring sufficient trained healthcare workers and supplies, keeping vaccines at cold temperatures and overcoming local hesitancy towards vaccines. As of today, the COVAX Facility continues to be the leading source of vaccines delivered in Africa. Nonetheless, COVAX's target of vaccinating 70% of each country's population by mid-2022<sup>10</sup> has not been reached.

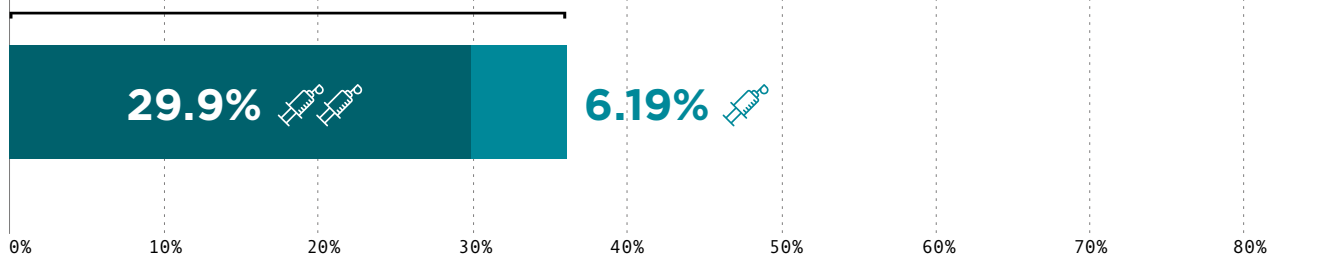


SHARE OF PEOPLE VACCINATED AGAINST COVID-19, MAR 30, 2023

**WORLD 69.8%** of the world population has received at least one dose of a COVID-19 vaccine.



**AFRICA 36.09%** of the African population has received at least one dose of a COVID-19 vaccine.



■ WORLD share of people with a complete initial protocol  
■ AFRICA share of people with a complete initial protocol  
■ WORLD share of people only partly vaccinated  
■ AFRICA share of people only partly vaccinated

## RESEARCH QUESTION

The report focuses on the Covid-19 response and vaccination campaigns in three different African countries: Sierra Leone, Sudan and Uganda. **The countries have been selected due to the longstanding presence of EMERGENCY, which was considered as an asset to facilitate dialogue with local institutions.** Building on this, the research aims to collect the direct views of policy makers and first responders in the three selected countries. The report shows how the response has differed depending on contexts and available resources, with a focus on international support mechanisms. The final objective is to identify weaknesses and good practices, and to help draw conclusions about how to be better prepared for future pandemics. The research investigates inequalities in securing vaccine doses at a national level and the subsequent difficulties of distributing Covid-19 vaccines, taking into account relations with the COVAX mechanism. To fully understand the underlying dynamics of such problems, the document explores the international coping mechanisms that have come into place, investigating possible problems in international support for Low- and Middle-Income Countries while analysing the effects of different policies on the healthcare systems of those countries. Building on these findings, the report includes a recommendations section for important national and international entities involved.

This paper does not claim to be an unassailable evaluation of national and international entities and systems; rather, it should be seen as a useful policy tool to analyse the underlying problems of vaccine distribution in these countries. The objective is to open and possibly influence the political debate about improving short-term solutions and to stimulate a discussion about building sustainable medium- and long-term approaches, to help prevent and manage future pandemics. Following the aforementioned reasoning, the report's main goal is to suggest best practices for resilience during major pandemic crises. **This document is designed to contribute to advocacy work to keep equal access to vaccines in Africa a topic in the Italian and international political agenda.** EMERGENCY believes that it is crucial to understand how such unequal access to vaccines, which should be global common goods, was possible, in order to avoid the repetition of such a pattern.

## OUTREACH

- **3 Countries:** Sierra Leone, Sudan and Uganda
- **39 semi-structured interviews** with people from **17 different international, national and local institutions and organisations**
- **9 semi-structured interviews** with members of EMERGENCY's staff

## METHODOLOGY AND STRUCTURE

The research has been conducted using a mixture of different sources of information and data.

**The first part of the report**, where the research team built the descriptive analysis of the contexts, has been structured using mainly secondary data. Including an overview of the context for the three states allows

us to better understand the systemic differences between African countries. These differences have led to divergent approaches to countermeasures and vaccination campaigns in each country.

**The second and central part of the research** is made up of an analysis of the primary data collected to structure the investigation into the international support mechanisms and local health systems, and to inform policy recommendations. These data have been gathered through a semi-structured interview format devised by the research team. It was composed of open-ended questions, integrated by Likert scales, covering subjects like the policies that have been put in place in the selected countries as well as the functioning of the international coping mechanisms and the effects on local health systems. A list of interviewees was compiled through convenience sampling, including members of four different ministries of health, local health providers, staff and technicians from international organisations. Interviewees were chosen with a view to achieving as much geographical coverage and variety in terms of gender, role and employer as possible. Interviews with national and international stakeholders were conducted at their premises or at EMERGENCY's hospitals in Goderich, Khartoum or Entebbe. The average length of the interviews was 35 minutes. According to each personal preference, the interviews were conducted anonymously or not. A consent form and a privacy notice were provided to authorise the use of personal details and images in the published material. Whenever requested, interviewees also received the questionnaire in advance, to allow them to read the questions beforehand and have reasonable time to decide how they wanted the interview to be conducted.

**In the third section**, the primary and secondary data have been complemented with informal interviews to EMERGENCY's staff in the field. These interviews have a shorter and freer structure, allowing the staff to share their personal experience of Covid-19 as healthcare workers. Interviews with EMERGENCY's staff have been conducted in EMERGENCY's hospitals in Goderich, Khartoum and Entebbe.

**The last section** is dedicated to conclusions and policy recommendations. The final part of the research has been done by the research team after careful analysis of the collected data. It has been possible to compare the different answers from the three countries, highlighting similarities and differences, allowing for informed recommendations that take into consideration different points of view.


All routinely collected data have been analysed retrospectively after anonymisation.




# CHAPTER I: RESEARCH CONTEXT


## OVERVIEW OF COUNTRIES

### SIERRA LEONE

  
POPULATION  
**8,059,155**

  
AREA  
**71,740 km<sup>2</sup>**



 EMERGENCY'S HOSPITALS

 CAPITAL CITY OF THE COUNTRY

On 27 April 1961, Sierra Leone became an independent and sovereign state after almost two centuries of British domination. The young democracy had to face a decade-long civil war between 1991 and 2002, whose long-term consequences are still a burden to the nation. However, Sierra Leone has since started on a new path towards national unity, peace and stability. **In 2014, the most widespread outbreak of the Ebola virus ever recorded devastated West Africa, killing thousands.** Sierra Leone was hit particularly badly: 14,124 people were infected, of whom 3,956 died between May 2014 and March 2016<sup>11</sup>. Given its epidemiological history, the risks of epidemics and other public health crises remain high in the country. **Today, Sierra Leone is one of the poorest countries in the world, with 52% of its population living below the poverty line<sup>12</sup>, and ranking 181st out of 195 in the UNDP**

Human Development Index<sup>13</sup>. Furthermore, **the country is estimated to have one of the world's highest maternal mortality rates.** Child mortality is also very high; although the situation has greatly improved since 1990, the figures are still striking, with 82 deaths per 100,000 live births<sup>14</sup>. Life expectancy at birth is 53 years, below the average on the continent, which is around 64 years. Since the 1990s, the country's population has almost doubled, from 4 to 8.3 million in 30 years, and the proportion of people between 30 and 50 years old has increased, probably as a consequence of the end of the Civil War. Communicable diseases are the leading cause of death and disease in Sierra Leone, of which malaria is the single biggest killer, accounting for 38% of all hospital admissions. Lower respiratory infections, neonatal disorders and diarrhoeal diseases are also among the most common causes of



death in the country. The incidence of HIV is decreasing in the country, although it remains very high. HIV-related deaths have fallen from 53 per 100,000 in 2009 to 32 per 100,000 in 2019<sup>15</sup>. Meanwhile, non-communicable diseases and injuries are a growing public health concern. The probability of dying in Sierra Leone of a non-communicable disease, such as cardiovascular disease, cancer, diabetes or chronic respiratory disease, is 31%<sup>14</sup>. These diseases, together with injuries and mental health disorders, are increasingly responsible for premature death and disability, contributing to the double burden of communicable and non-communicable diseases in the country. Inequities in access to services and differences in health outcomes between districts and between rich and poor further worsen the situation of health in the country.

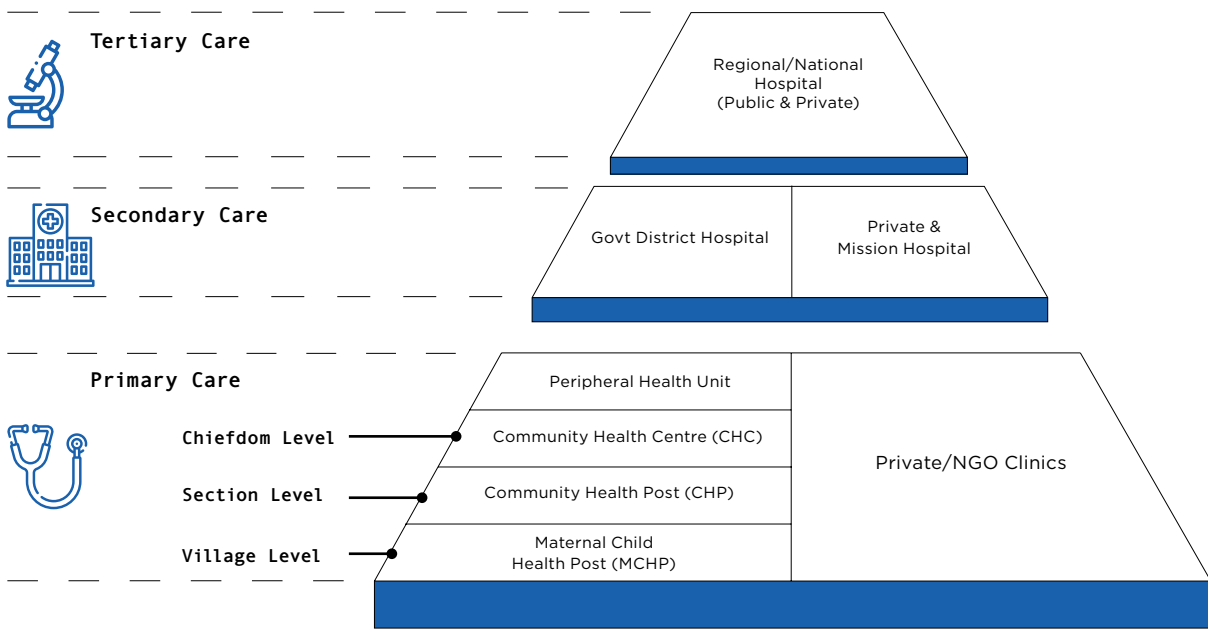
In terms of health system structure, Sierra Leone has three levels of care: peripheral health units (PHUs), district hospitals and regional hospitals. PHUs provide primary care and include community health centres (CHCs) at the chiefdom level and community health posts (CHPs) and maternal and child health posts (MCHPs) at village level. CHCs are run by community health officers (CHOs). To become a CHO, one must complete a three-year basic

training programme, which may include basic knowledge in surgery and operative obstetrics in order to broaden access to these services<sup>16</sup>. District hospitals provide secondary care, such as X-rays, ultrasounds, blood tests and so on. They are led by medical officers who have finished their studies and are undertaking a two-year work placement in order to become doctors. Finally, regional hospitals (also called referral hospitals) provide tertiary care. There are 80 hospitals in the country, both public and private, mostly in the Freetown area<sup>17</sup>.

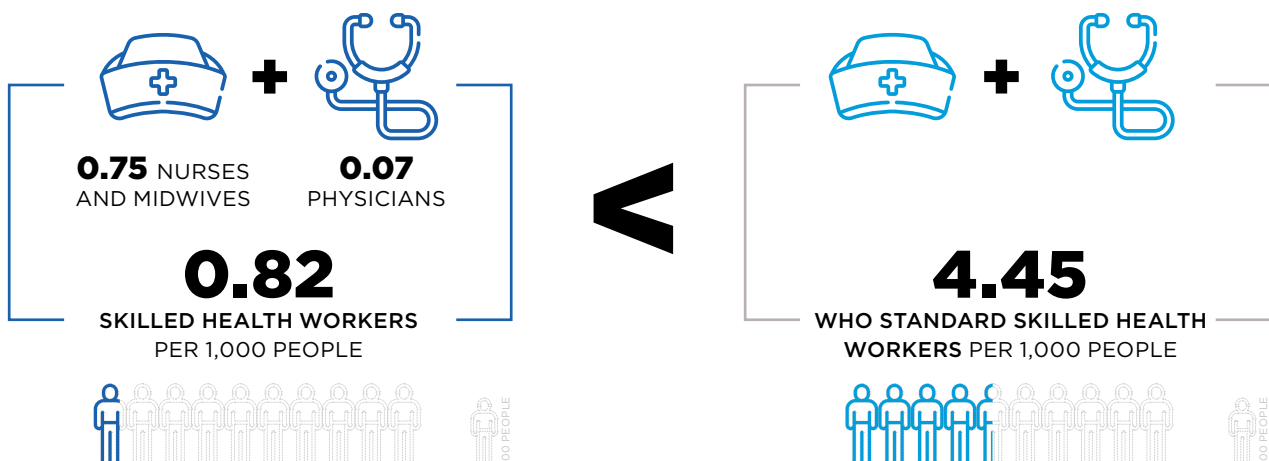
Sierra Leone suffers from a chronic shortage of healthcare workers, which is affecting the quality of the country's healthcare services. For every 1,000 people in the country, there are 0.07 physicians, and 0.75 nurses or midwives<sup>19</sup>. To meet the WHO standard of 4.45 skilled healthcare workers per 1,000 people, an additional 14,000 workers would be required<sup>20</sup>.

Based on this evidence, it is clear that Sierra Leone still has a long way to go to providing accessible, high-quality, universal healthcare, and that both the country and the international community need to make further efforts on this front.

**HEALTH SERVICE STRUCTURE SIERRA LEONE**



**HEALTHCARE WORKERS' SHORTAGE IN SIERRA LEONE**



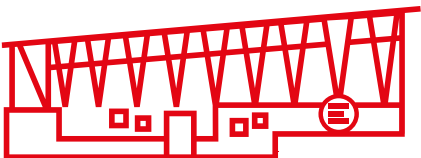



**The health system in Sierra Leone is primarily based on out-of-pocket payment.** Since the majority of people cannot afford healthcare, this creates significant financial barriers to access. To address the problem of financial inaccessibility in the health system, the government launched a “Free Healthcare Initiative” in 2010, making healthcare completely free of charge for pregnant and breast-feeding women and for children under the age of five. This scheme is supported primarily by the United Kingdom and the United Nations, which have donated medical equipment, paid healthcare workers’ salaries and provided drugs<sup>21</sup>. In 2018, another programme was launched to address health financing issues generally. The Sierra Leone Social Health Insurance (SLeSHI) scheme provides free access to health services to all citizens who can afford to pay a subscription<sup>22</sup>. Despite these significant reforms, the country’s health system is still weak and its extent still very limited.

**Further efforts to improve the health system were made after the Ebola epidemic hit the country in 2014.** Sierra Leone has come up with new policies and plans to improve its resilience to future epidemics. Immediately after the outbreak of the epidemic, three plans were launched to handle the crisis: the President’s Recovery Priorities, the National Health Sector Strategic Plan and the Basic Package of Essential Health Services. Together with these programmes, an Emergency Operations Center (EOC) was built. This facility is to be activated whenever a major crisis threatens the country. Despite being designed for the Ebola crisis, these measures remained effective in 2020 and allowed the country to implement a swift initial reaction to the Covid-19 pandemic. Additionally,

the country’s infectious disease response system (ISDR) has been enhanced considerably since 2016. When Ebola hit, it was barely functional, but now healthcare workers are trained to report key diseases and all facilities in the country are required to submit weekly reports on their internal conditions. Sierra Leone also developed a National Health Sector Strategic Plan for 2017–21<sup>23</sup>, which covers several years and targets all key areas of intervention. The 2018–22 National Action Plan for Health Security (NAPHS) covers the same areas of intervention and helps further respond to emergencies. Although the development of all these additional programmes is a positive indicator of the country’s commitment to building a stronger public health system, they have not been expanded in proportion to Sierra Leone’s human, economic, and management capabilities<sup>23</sup>. Sierra Leone’s participation in the Joint External Evaluation (JEE) scheme is another indicator of its commitment to improvement. Within the JEE, the Field Epidemiology Training Program (FETP) has helped train a significant number of field epidemiologists in the country. According to JEE scores<sup>24</sup>, Sierra Leone has successfully come up with a plan to address critical gaps in preparedness for epidemics, but it is still failing to implement and sustain it. Furthermore, thanks to the launch of a common health platform at the national and regional levels, the country has developed strong links between its public health and security authorities, which was an important gap to fill. However, it is still very weak in workforce development, emergency response operations, its national laboratory system and the assessment and treatment of zoonotic diseases and antimicrobial resistance. All this poses serious threats to the country’s health system.

## EMERGENCY IN SIERRA LEONE


<p><b>GODERICH</b> <b>SURGICAL CENTRE</b> GENERAL AND EMERGENCY SURGERY, ORTHOPAEDIC AND RECONSTRUCTIVE SURGERY, TRAUMATOLOGY</p>  <p>Emergency room, clinics, 3 operating theatres, sterilisation unit, intensive care, wards, physiotherapy, digital radiology, laboratory and blood bank, pharmacy, classroom, technical and cleaning services, guest house.</p> <p><b>67 BEDS</b></p> <p><b>349 LOCAL STAFF</b></p> <p><small>Data from 2022 - Photo © Luca Onesti</small></p>	<p>SINCE 2001</p> 
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# OVERVIEW OF COUNTRIES

## SUDAN

 POPULATION  
**44,909,353**

 AREA  
**1,886,067 km<sup>2</sup>**



● EMERGENCY'S HOSPITALS

● CAPITAL CITY OF THE COUNTRY

Following its independence from British-Egyptian rule, the Republic of Sudan was founded in 1956, covering the territory of the present-day republics of Sudan and South Sudan. Since then, the history of the country has been defined by almost uninterrupted internal conflicts and civil wars, some of which are still not completely over. In January 2011, South Sudan held a referendum on secession and on 9 July was proclaimed independent. Numerous economic shocks followed in Sudan, especially because of the loss of oil revenue, which constituted the majority of the country's revenues and exports. This resulted in high inflation, slowing down economic growth and leading to violent demonstrations nationwide. In December 2018, mass protests erupted, sparked by continuous food price increases and widespread disagreement with the government, and resulted in the deposition of Omar Al-

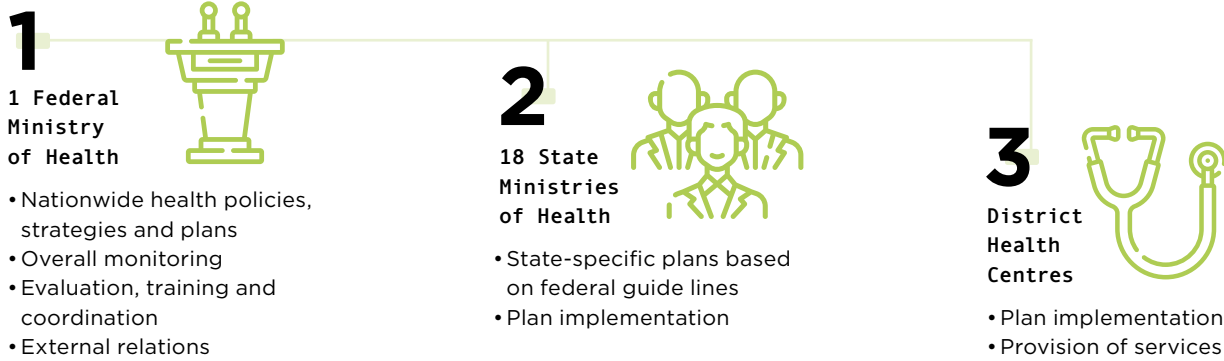
Bashir in April 2019. Since then, the political landscape has remained volatile, preventing the country from taking the path to growth and stability. **Political instability, the high incidence conflict, and the droughts and floods that are typical in Sudan, have resulted in a large population of internally displaced people, in addition to the hundreds of thousands of refugees being hosted in the country.**

The country hosts about 800,000 South Sudanese refugees and 330,000 refugees and asylum seekers from Eritrea, Syria, Ethiopia, the Central African Republic, Chad and Yemen<sup>25</sup>. Child and maternal mortality are still strikingly high in the country, despite decreases in recent years. Child mortality has halved since the beginning of this century and is now at 63 per 1,000 live births<sup>14</sup> – slightly below the average on the African continent. Similarly, maternal mortality is below the African average and has

dropped by half in the last two decades, from 667 per 100,000 live births in 2000 to 295 per 100,000 live births in 2017, with the majority of deaths due to home deliveries without qualified birth attendants and a lack of emergency obstetric care at medical facilities<sup>26</sup>. Life expectancy at birth (65 years) is also better than the average on the continent. The age pyramid is triangular, as the population is mainly made up of young people. However, the age distribution is shifting over time. Since the 1990s it has more than doubled, and the proportion of older people has

risen. **Despite advances in recent years, communicable diseases are still estimated to cause 36% of deaths in Sudan**, among which dengue fever, Rift Valley fever (RVF), cholera, chikungunya and diphtheria are the most common. On top of this, non-communicable diseases are accounting for an ever greater number of deaths, reaching 54% of all deaths in 2019<sup>27</sup>. **The dual burden of communicable and non-communicable diseases further erodes the country's already frail health system, making efforts to ameliorate the situation even more difficult.**

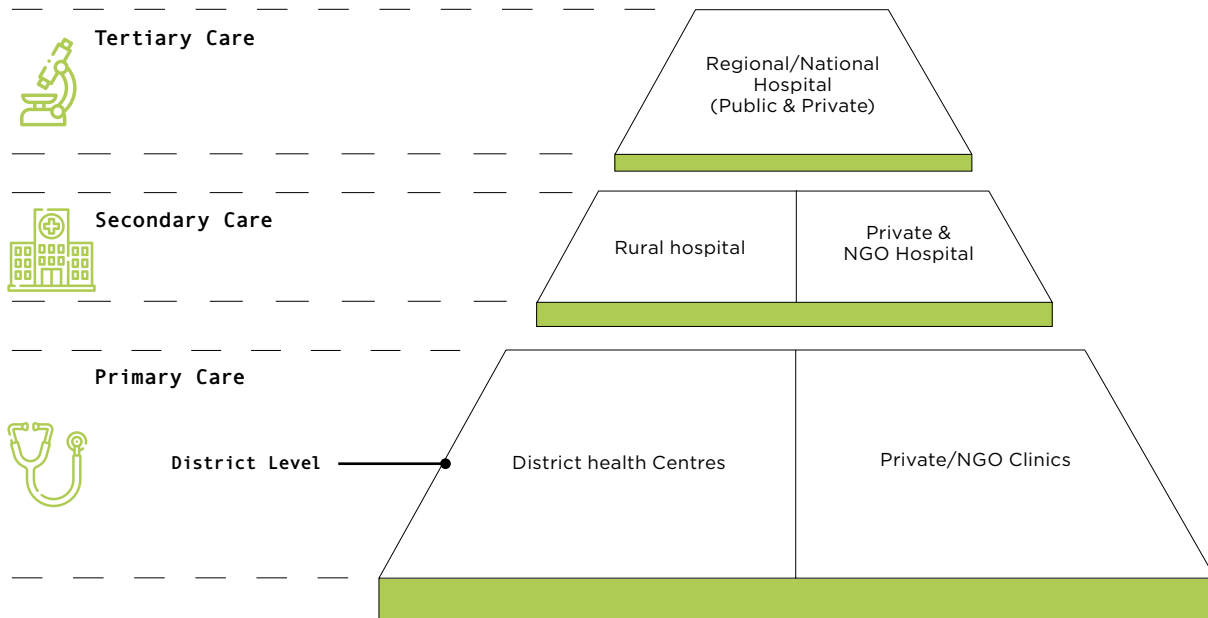
**HEALTHCARE ORGANIZATION SUDAN**



**In Sudan, the healthcare structure has three levels: the federal, comprising the Federal Ministry of Health (FMOH); the state level, comprising the State Ministries of Health (SMOHs); and the local, comprising the District Health Centres (DHCs)**<sup>28</sup>. The development of nationwide health policies and plans occurs at the federal level. The FMOH is responsible for establishing national policies, plans and strategies, as well as for overseeing their implementation, coordinating efforts, providing training and managing external relations. The state level focuses on developing and implementing state-specific plans and strategies based on federal guide lines, while the local level mainly deals with providing health services. Primary healthcare, health promotion and community involvement in healthcare and environmental concerns are primarily the responsibility of district or local entities, which also manage water and sanitation services. This

decentralised system, in which the district system plays a key role, allows for greater local management and administration, and reduces the burden of supervision by higher authorities<sup>28</sup>. Households in Sudan use DHCs more frequently than secondary and tertiary services, with little difference in this trend between urban and rural areas. This highlights the important role of DHCs in protecting the health of the nation. Access to DHCs is a critical factor in access to healthcare and distance is a major determinant of healthcare-seeking habits in Sudan, with 55% of households stating that they choose healthcare facilities based on proximity to their home. To better connect the three levels of care, the Sudanese health service has developed a Health Information System (HIS), the first in this part of Africa. It is responsible for data collection, processing, analysis and dissemination<sup>28</sup>.

**HEALTH SERVICE STRUCTURE SUDAN**

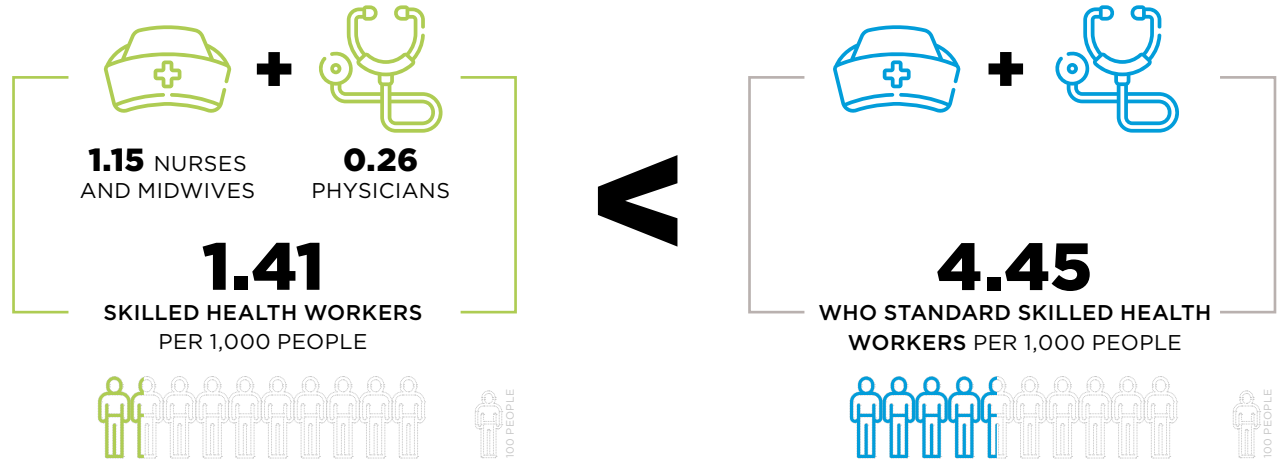


Rural hospitals are managed by the SMOHs and receive referrals from healthcare centres and other lower-level facilities. Tertiary teaching, specialist and general hospitals located in the state capitals are also operated by the SMOHs and the FMOH. Private clinics, healthcare centres and hospitals offering a range of care and specialist services are also available<sup>29</sup>. Non-profit organisations, often working

in coordination with the FMOH, also operate in Sudan and offer programmes including secondary care, consultations, hospitalisation and reproductive and antenatal care.

For every 1,000 people in Sudan there are 0.26 physicians and 1.15 nurses or midwives<sup>30,31</sup>.

#### HEALTHCARE WORKERS' SHORTAGE IN SUDAN



Sudan's health system is marked by insufficient protection for the poor, a lack of health workers, difficulties supplying health commodities, poor geographical spread, poor coordination and uneven use. In 1992, to face these long-standing problems, a ten-year strategic plan was made to improve equity and provide basic healthcare to everyone. Its objectives included reducing infant and maternal mortality rates, eradicating epidemic and endemic diseases, and achieving 100% immunisation<sup>28</sup>. While some progress was made towards these goals, there are still several gaps that must be addressed. In the early 2000s a 25-year strategy for the health sector was prepared by the FMOH for the period 2003-2027, together with smaller, medium-term plans that are in place at both the federal and state levels. However, there have been challenges to implementing these plans and strategies, due to high inflation, the cost of civil wars, cuts to social spending and political instability, which often leave healthcare a low priority. Even though some policies were in place for facing emergencies when the Covid-19 pandemic hit, the latter posed a significant challenge to the country's health system. **To increase resilience to potential epidemics in the future, the Sudanese government developed a National Health Sector Recovery Reform Policy for 2021-2024**, which provides a comprehensive strategy and road-map for various players in the country's health sector and accounts for the possibility of sudden and drastic changes in the government's composition.



Over the years Sudan has tried to implement sector reforms to ensure that healthcare is a universal right, participatory, sustainable and equitable at all levels. Nevertheless, access to healthcare has been limited since the 1990s, when the government began to withdraw healthcare services. To maintain access, Sudanese people often have to borrow money from relatives, work more or spend less on other essentials. Many end up buying partial treatments, which led to further health problems. At the same time, the government has invested in medical higher education, opening 30 new medical schools and making Sudan the country with the most medical schools in Africa. However, the density of healthcare workers varies greatly

between the big cities and rural areas. **An estimated 70% of these workers live in the capital city, Khartoum, where they can serve just 20% of the population<sup>32</sup>**. Sudan has also struggled to retain healthcare workers, many of whom leave the country for better living and working conditions. In an effort to compensate for reduced government spending on health, the Ministry of Health introduced social health insurance in 1997. By 2017, this scheme covered most of the population in Khartoum and a few other states but left many in the rest of the country uninsured. Geographical barriers also pose a challenge to healthcare in Sudan, especially in rural areas where conflict, lack of transport and uneven distribution of resources reduce the availability of healthcare workers.

<p><b>KHARTOUM</b>  <b>SALAM CENTRE FOR CARDIAC SURGERY</b>                  ADULT AND PAEDIATRIC CARDIAC SURGERY, CARDIOLOGY, INTERVENTIONAL CARDIAC SURGERY</p>  <p>6 clinics, 3 operating theatres, sterilisation unit, intensive and sub-intensive care, wards, physiotherapy, digital radiology, laboratory and blood bank, pharmacy, classrooms, play room, technical and cleaning services, guest house.</p>	SINCE 2007	<b>63 BEDS</b>
		<b>523 LOCAL STAFF</b>
		<small>Data from 2022 - Photo © Mathieu Willcocks</small>
		

<p><b>MAYO</b>  <b>PAEDIATRIC CENTRE</b>                  PAEDIATRICS, PAEDIATRIC FIRST AID, PREVENTIVE MEDICINE, SEXUAL AND REPRODUCTIVE HEALTH SERVICES</p>  <p>2 paediatric clinics, observation ward, obstetric clinic, vaccination clinic, post-natal clinic, pharmacy, laboratory, technical and cleaning services, area for reception and medical education, area for cooking courses for patients' parents.</p>	SINCE 2005	<b>6 OBSERVATION BEDS</b>
		<b>47 LOCAL STAFF</b>
		<small>Data from 2022 - Photo © Mathieu Willcocks</small>
		

<p><b>PORT SUDAN</b>  <b>PAEDIATRIC CENTRE</b>                  PAEDIATRICS, PAEDIATRIC FIRST AID, PREVENTIVE MEDICINE, SEXUAL AND REPRODUCTIVE HEALTH SERVICES</p>  <p>3 paediatric clinics, radiology, laboratory, pharmacy, ward, sub-intensive care, warehouse, offices, services, outdoor areas for reception and play, technical and cleaning services.</p>	SINCE 2011	<b>15 BEDS</b>
		<b>130 LOCAL STAFF</b>
		<small>Data from 2022 - Photo © Mathieu Willcocks</small>
		

<p><b>NYALA</b>  <b>PAEDIATRIC CENTRE</b>                  PAEDIATRICS, PAEDIATRIC FIRST AID, PREVENTIVE MEDICINE</p>  <p>3 paediatric clinics, 1 cardiology clinic, radiology, laboratory, pharmacy, ward, sub-intensive care, warehouse, offices, services, outdoor areas for reception and play, technical and cleaning services.</p>	SINCE 2020	<b>14 BEDS</b>
		<b>164 LOCAL STAFF</b>
		<small>Data from 2022 - Photo © Mathieu Willcocks</small>
		

# OVERVIEW OF COUNTRIES

## UGANDA



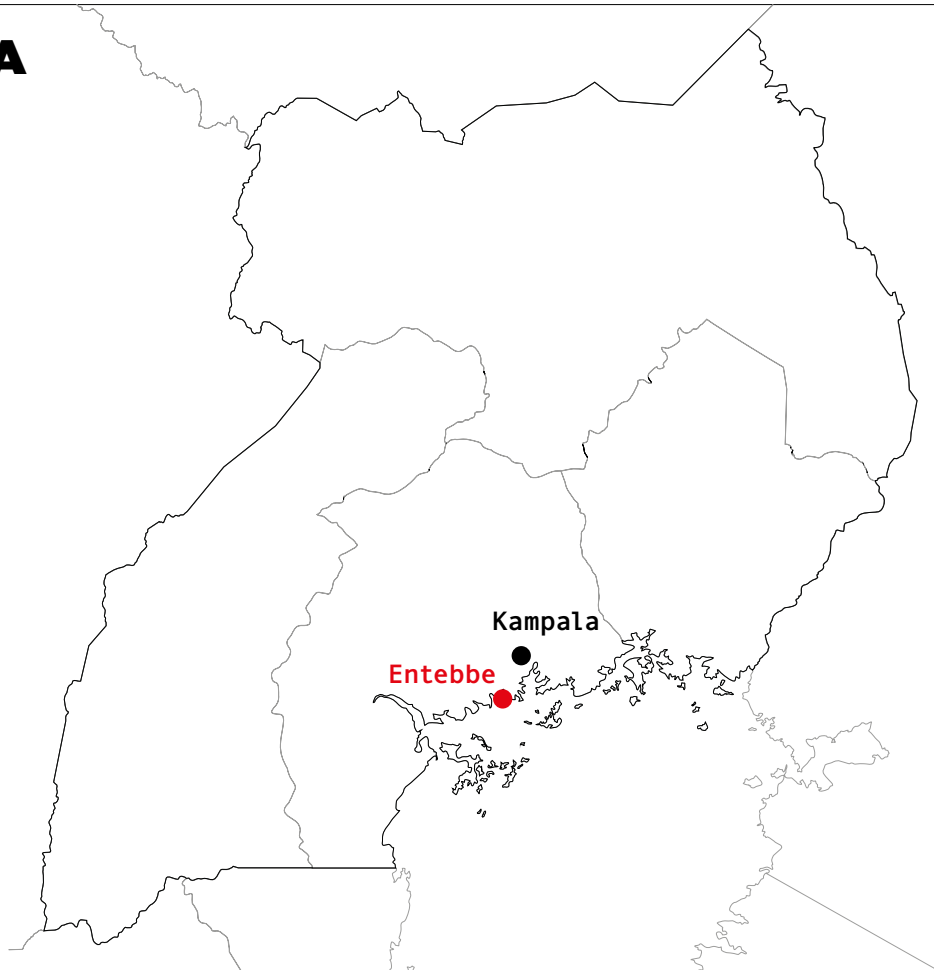
POPULATION

42,729,036



AREA

241,038 km<sup>2</sup>



● EMERGENCY'S HOSPITALS

● CAPITAL CITY OF THE COUNTRY

Uganda was a British protectorate from 1894 to 1962, when it was proclaimed independent. Since then, it has experienced many coups d'états, which have shaken it politically, economically and socially. In the last 30 years, it has taken part in the Great African War and been marked by constant internal warfare, mainly near the border with Sudan. From 1997 to 2008, the country sustained economic growth of about 7% per year<sup>33</sup>. The economy is transitioning from an agricultural to an industrial and service economy, with the key drivers of economic growth shifting towards more industrial activities. **The percentage of Ugandans living below the poverty line decreased from 56.4% in 1992 to 19.7% in 2012, but poverty remains deep-rooted in rural areas.** Due to Uganda's small size, there is often close contact between humans and wildlife. These interactions can take the form of animals damaging crops, illegal

hunting of wildlife for bush meat, or deforestation for the production of charcoal. This human-animal conflict is a significant challenge to conservation efforts in the country and can lead to the spread of zoonotic diseases. Uganda is also home to a large refugee population and the centre of the world's fastest growing refugee crisis, with around 1.3 million people fleeing to the country in 2018 alone<sup>34</sup>. These movements, along with human-animal conflict, make the country a hotspot for emerging and re-emerging outbreaks of zoonotic and vector-borne diseases. Zoonoses such as RVF, trypanosomiasis, non-typhoidal salmonellosis, anthrax, brucellosis and bovine tuberculosis are significant foodborne diseases in Uganda, and have had detrimental effects on public health, the economy (trade and tourism), food safety and security, as well as certain social groups (children, the immune-compromised, the elderly and women, particularly

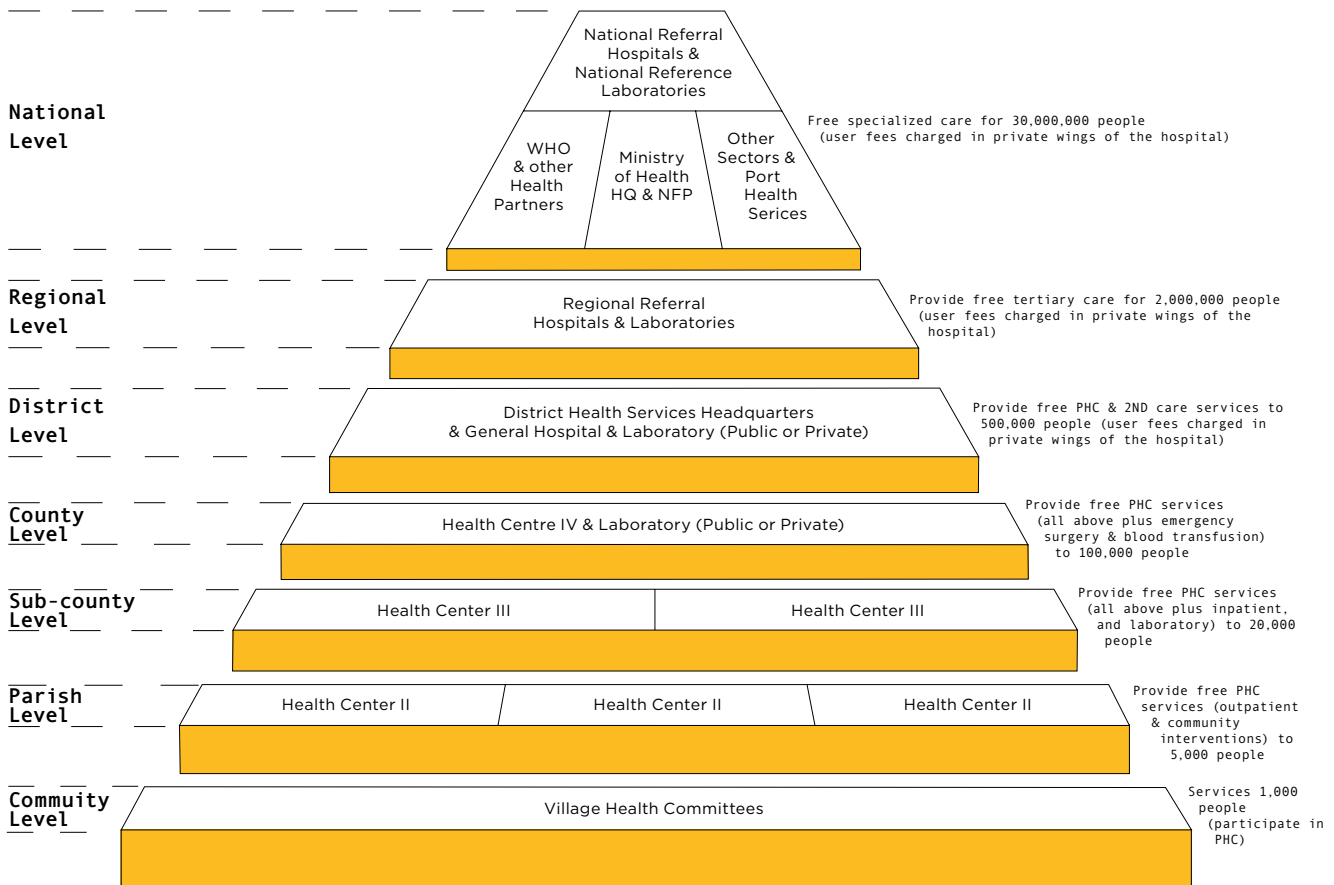


pregnant mothers). As of mid-2020, Uganda's population is estimated at 45.75 million, with an annual growth rate of 3.3%. About 47% of the population was under the age of 15. The country's total fertility rate (the average number of children per woman) declined from 7.1 in 1990 to 5.9 in 2015, and to 5 in 2020<sup>35</sup>. **Despite these challenges, Uganda's**

**political commitment to family planning has recently been strengthened.** These trends suggest that Uganda may be on track to achieve an age structure that could enable it to enjoy a demographic dividend. Uganda's health system consists of health services provided by the public sector, by private providers, and by traditional

### HEALTH SERVICE STRUCTURE UGANDA

Organisation of health services in Uganda (source: <https://www.health.go.ug/cause/uganda-one-health-strategic-plan-2018-2022/>)



and complementary healers. It also includes community-based healthcare and health promotion. Non-profit providers work on a national and local basis and 78% have a religious character<sup>36</sup>. Non-governmental organisations have emerged as the prominent non-profit organisations for HIV/AIDS advice and treatment. For-profit providers include clinics and informal chemists. Traditional providers include herbalists, spiritual healers, traditional birth attendants, hydrotherapists and so on. **Uganda's health system has a decentralised structure with national and district levels. There is a focus on delivering the national minimum health care package. Specifically the system is divided into seven levels of care, including community and sub-district health centres, general hospitals and regional and national referral hospitals.** As of 2018, there are 6,937 healthcare facilities in Uganda, 55% of them run by private providers. The latter are especially prevalent in urban areas, accounting for 99% of the facilities in the capital city of Kampala. The majority of healthcare facilities and intensive care units are located in the Central region of the country. The Ministry of Health is responsible for the health sector in Uganda. It is currently implementing the Health Sector Strategic and Investment Plan (HSSIP), which is the third instalment in its health sector strategies. The Ministry coordinates everyone involved and is responsible for planning, budgeting, policy-making and regulation.

The district health management team is responsible for running the health sector at the district and sub-district levels. A health unit management committee composed of health workers, civil society representatives and community leaders is responsible for seeing that healthcare facilities are managed in line with communities' needs. There are a number of factors that affect the quality of health services in Uganda, including shortages of healthcare workers and a lack of trust in them, a lack of necessary treatments, high costs, and long distances to healthcare facilities. In 2009, a survey of Ugandan patients indicated a decline in the performance of public sector health services. These declines were indicated through comments about poor sanitation, a lack of workers, drugs and equipment, long waiting times, inadequate preventative care, a poor referral system, rudeness on the part of health workers, and a lack of services for vulnerable people such as the poor and elderly. The quality of health services affects their use in various ways, leading patients to avoid seeking services, use traditional healers, self-medicate or go to a private provider.

In recent years Uganda has been suffering brain drain of its specialist healthcare workers, which is also affecting the quality of its healthcare services. For every 1,000 people in the country, there are 0.15 doctors and 1.64 nurses or midwives<sup>37,38</sup>.



HEALTHCARE WORKERS' SHORTAGE IN UGANDA



**Uganda has a long history of multi-sector responses to disease outbreaks and public health threats.** With its One Health Platform, Uganda is now poised to turn this tradition into a strategic, forward-looking approach to integrated, multi-sector preparedness and response. The One Health Strategic Plan will serve as the road-map to make this approach a reality. It is estimated that the five-year One Health Strategic Plan will cost 1,450,000 US dollars to implement. The One Health Platform, with support from the USAID-funded Preparedness and Response (P&R) project, involved various government agencies in a series of strategic planning workshops and meetings to come up with the One Health Strategic Plan for Uganda. The stakeholders conducted a situation analysis, considering key public health risks such as zoonotic diseases, antimicrobial resistance (AMR) and biosecurity. Given the occurrence of endemic and emerging zoonotic diseases in Uganda, and the potential for exacerbation of outbreaks due to climate change, zoonotic disease prevention and preparedness will be a high priority in the strategic plan. The plan is structured around five strategic objectives, which cover a commitment to One Health at the high levels of government, institutionalisation and capacity-

building, strengthened preparedness and response, and communications and outreach. The Uganda National One Health Platform (NOHP) will be responsible for overseeing and coordinating the implementation of the plan, with the goal of building resilient and sustainable systems to prevent and respond to zoonotic diseases and address AMR and biosecurity. The vision of the plan is to reduce the burden of the primary zoonoses and AMR by 50% by 2022 through visionary leadership, coordination and innovation, with shared responsibility and accountability.

**Uganda is facing multi-sector health challenges that can be addressed with a One Health approach.** This strategy provides a clear framework for addressing these challenges in a coordinated and collaborative manner. To effectively implement the Strategic Plan, all involved, be they public or private entities, must allocate resources, commit to capacity-building, and prioritise cross-sector collaboration. By prioritising coordination, preparedness and response, Uganda will continue to work towards its goal of building resilient systems that can prevent and respond to zoonotic diseases, address antibiotic resistance and promote environmental health<sup>34</sup>.

EMERGENCY IN UGANDA

SINCE 2021

**ENTEbbe**  
**CHILDREN'S SURGICAL HOSPITAL**  
 GENERAL PAEDIATRIC SURGERY

3 operating theatres, sterilisation unit, intensive care, sub-intensive care, ward, observation ward, 6 clinics, digital radiology, laboratory and blood bank, CT scanner, pharmacy, administration, cleaning services, guest house for foreign patients, area for reception and medical education, outdoor play area.

**72 BEDS**

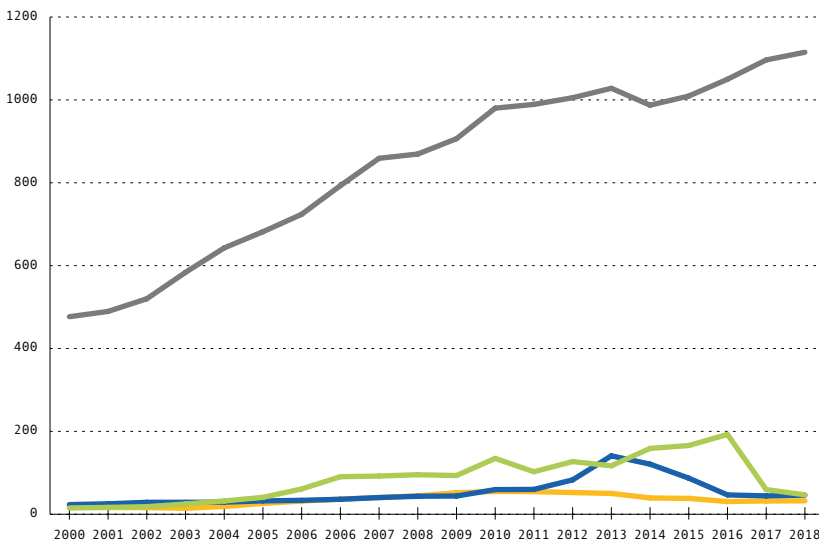
**348 LOCAL STAFF**

Data from 2022 - Photo © Will Boase



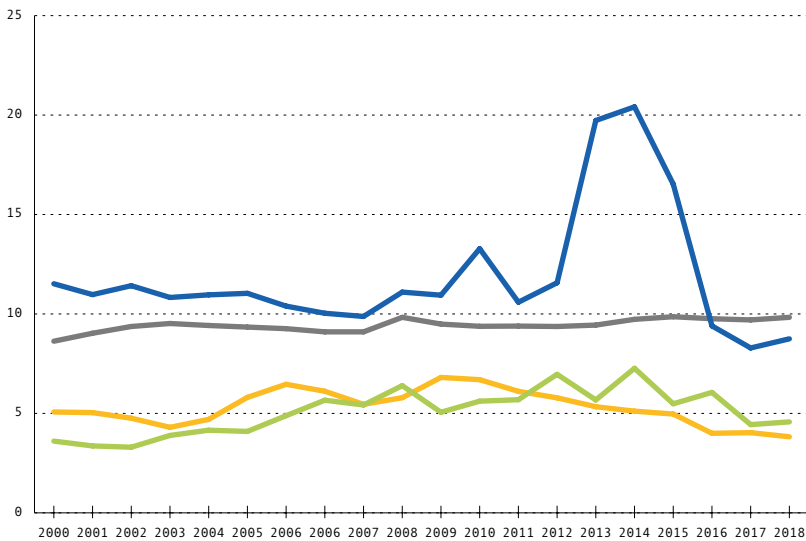
# HEALTH EXPENDITURE

C O V I D - 1 9 R E S P O N S E I N A F R I C A A N D T H E C O V A X M E C H A N I S M



**CURRENT HEALTH EXPENDITURE PER CAPITA (CURRENT US\$)**  
WORLD, SIERRA LEONE, SUDAN, UGANDA

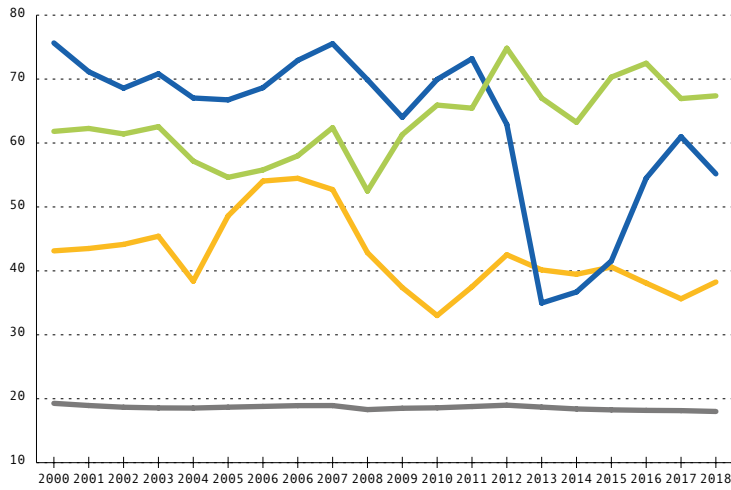
- WORLD
- SIERRA LEONE
- SUDAN
- UGANDA



**CURRENT HEALTH EXPENDITURE (% OF GDP)**  
WORLD, SIERRA LEONE, SUDAN, UGANDA

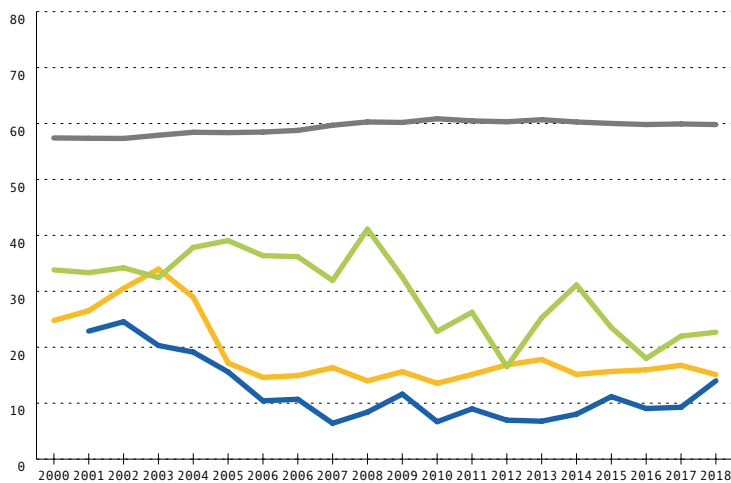
- WORLD
- SIERRA LEONE
- SUDAN
- UGANDA

Current health expenditure per capita in the three countries under consideration did not exceed 50 US dollars in 2019, which is far lower than the world average of 1,100 US dollars. Among the three countries, Sudan spends the highest amount on healthcare and Uganda spends the least, both in absolute and proportional terms. In terms of health expenditure as a percentage of GDP, Uganda also uses the lowest proportion of resources on healthcare, whereas Sierra Leone spends significantly more than the other two states, even exceeding the global average until 2016. The sharp increase in Sierra Leone's expenditure from 2013 to 2016 was probably due to its response to the Ebola epidemic. Its health expenditure, coupled with its very low GDP (4 billion US dollars compared to Sudan's 34.3 billion and Uganda's 40.5 billion), means it has the highest current health expenditure as a percentage of GDP of the three, above even the global average.



**OUT-OF-POCKET EXPENDITURE (% OF CURRENT HEALTH EXPENDITURE)**  
WORLD, SIERRA LEONE, SUDAN, UGANDA

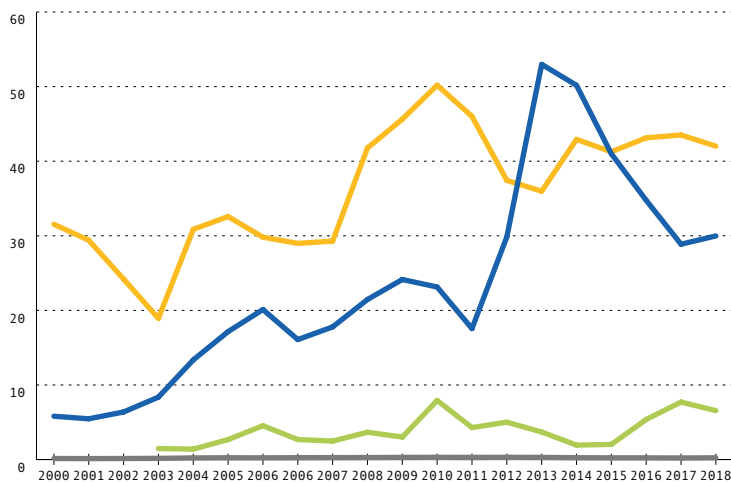
- WORLD
- SIERRA LEONE
- SUDAN
- UGANDA



**DOMESTIC GENERAL GOVERNMENT HEALTH EXPENDITURE (% OF CURRENT HEALTH EXPENDITURE)**  
WORLD, SIERRA LEONE, SUDAN, UGANDA

- WORLD
- SIERRA LEONE
- SUDAN
- UGANDA

As explained above, out-of-pocket payment is an extremely significant component of the healthcare budget in the countries in this study. In Sierra Leone it has always been the main source of financing (55% in 2019) – except in the Ebola response period – with government expenditure funding a very low share of the budget (15% in 2019). The same holds for Sudan, where out-of-pocket payment and government expenditure constitute respectively 67% and 22%. Uganda’s situation is slightly more balanced: out-of-pocket payment accounts for around 40% of current health expenditure and government funding for 20%. However, the contribution of external providers in Uganda is far more substantial than in the other two countries, accounting for 42% of the budget in 2019. In Sierra Leone the proportion of external expenditure is still very high (30% in 2019). In Sudan, by contrast, it is very low, around 6% in 2019, which, together with 2011, is the highest peak in the last 20 years.



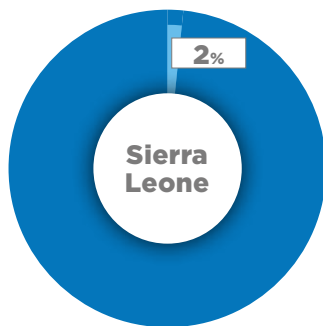
**EXTERNAL HEALTH EXPENDITURE (% OF CURRENT HEALTH EXPENDITURE)**  
WORLD, SIERRA LEONE, SUDAN, UGANDA

- WORLD
- SIERRA LEONE
- SUDAN
- UGANDA

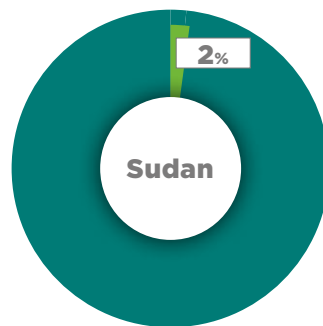
# COVID RESPONSE

## COVID-19 DATA

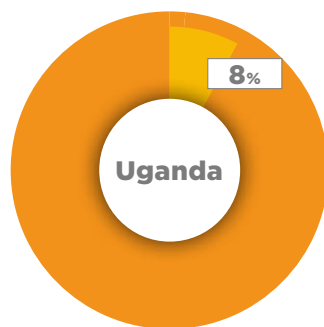
Total Covid-19 cases **7,760**  
Total Covid-19 deaths **125**



Total Covid-19 cases **63,663**  
Total Covid-19 deaths **4,992**



Total Covid-19 cases **169,810**  
Total Covid-19 deaths **3,630**

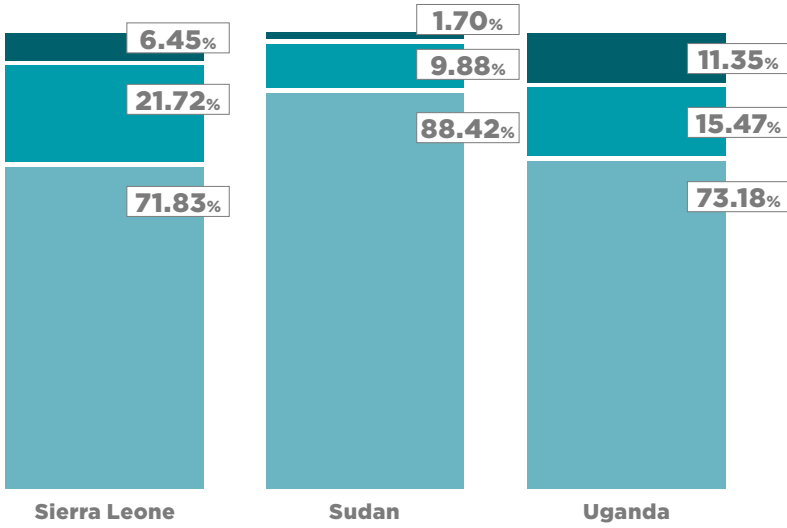


### COVID CASES

SIERRA LEONE, SUDAN, UGANDA

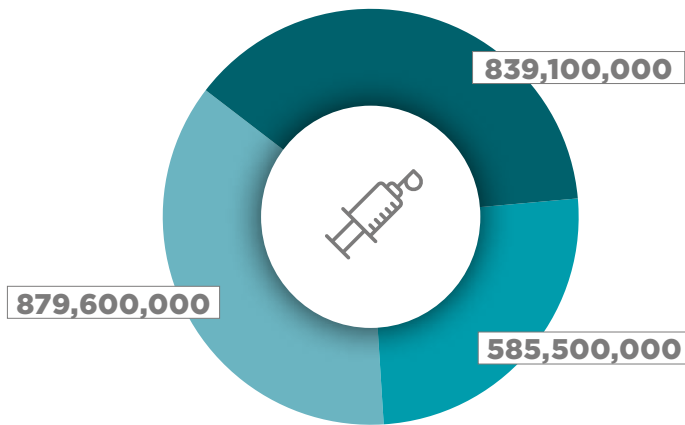
- Total Covid-19 cases registered
- Total Covid-19 deaths registered
- Total Covid-19 cases registered
- Total Covid-19 deaths registered
- Total Covid-19 cases registered
- Total Covid-19 deaths registered

These charts show the numbers of Covid-19 cases and deaths recorded in each country considered in this report, the number of doses allocated to each country through the COVAX system, and the number of doses received by each country through any system. **However, some context must be given if these data are to be interpreted correctly. Firstly, due to low testing capacity, cases and deaths are considered to be underestimated. This is because the lack of diagnostics and tests in these countries has greatly undermined detection capabilities.** Moreover, even though some countries, like Uganda, have been able to purchase a certain number of doses, these numbers do not appear in the tables as it is difficult to find correct and comparable data on this term. Finally, it is important to note that the number of doses allocated by COVAX to each country is different from the number of doses actually shipped. In Uganda this difference is very low, whereas in the other two states it corresponds to about 20% of planned doses. This inefficiency is due not only to issues on COVAX's side, but also to the donor countries failure to fulfil their commitments to COVAX, as may be seen in the chart below.



**COVID VACCINE - PROPORTION OF TOTAL DOSES DELIVERED**  
SIERRA LEONE, SUDAN, UGANDA

- Doses donated
- Doses delivered through AVAT
- Doses delivered through COVAX



**DONOR COUNTRIES' UNFULFILLED PROMISES**  
SIERRA LEONE, SUDAN, UGANDA

- Doses delivered
- Doses only donated
- Doses only announced



## COVID-19 POLICIES AND THE IMPACT OF COVID-19 IN SIERRA LEONE

On 30 March 2020, the first Covid-19 case in Sierra Leone was recorded. According to the WHO<sup>39</sup>, between that date and 28 November 2022 Sierra Leone had 7,758 confirmed cases of Covid-19 and 125 deaths. The daily rate of new confirmed Covid-19 cases peaked at more than 60 in February and August 2021 and in February 2022<sup>40</sup>. Since February 2022, the rate has been close to 0. Throughout the whole pandemic, Sierra Leone did not conduct a significant number of Covid-19 tests. Overall, 352,049 tests have been done, which corresponds to 46 tests per 1,000 of the population<sup>23</sup>. For this reason, the data obtained could be biased and misleading. Regarding the vaccination campaign, 5,122,711 doses have been administered and 43% of the population have received at least one dose of a Covid-19 vaccine<sup>40</sup>.

The initial response to Covid-19 in Sierra Leone was extremely quick and efficient. Policies to contain the spread of the virus, like body temperature checks and mandatory masks on public transport, were put in place and advice about social distancing and hand-washing was spread all over the country. This readiness was possibly a result of lessons learnt during the Ebola response and the subsequent preparedness policies. NaCOVERC (National Covid-19 Emergency Response Centre) was set up to face the emergency, along with District Covid-19 Emergency Response Centres to filter the response out to the districts<sup>41</sup>. At the end of March 2020, international passenger flights were suspended, land borders, schools and universities were closed, travel between districts was restricted, and gatherings of more than 100 people were prohibited. Starting from April 2020, two three-day national lockdowns, from 5 to 7 April and from 3 to 5 May<sup>41</sup>, and a nationwide curfew from 9 p.m. to 6 a.m.<sup>42</sup> were enforced. Bars, shops, restaurants, cinemas and markets stayed open, with masks and social distancing mandated, as well as parks, beaches and gyms. However, these measures did not last long. Compared to those of Ebola, Covid-19 symptoms are less evident and dangerous. Moreover, Sierra Leone's demographic conditions did not favour the spread of the virus as Sierra Leoneans are mainly young and the impact of Covid-19 is less severe on younger people. So, people's interest and concern declined over time and measures were loosened. In addition, the focus on the Covid-19 response resulted in a decrease in hospital use for all other diseases, as beds needed to be freed up for Covid-19 patients. Lockdown measures prevented people going to hospital, healthcare workers were infected, and income losses and steep increases in transport costs further increased financial barriers to accessing healthcare. Even if the decrease in hospital use was less than the world average and less than in Sierra Leone during Ebola<sup>41</sup>, it is feared that it significantly exposed people to other diseases. Lockdowns confine people indoors, but given the overcrowding of houses and the materials used to construct them, this measure leads to a rapid spread of diseases. As happened in other countries, it is reasonable to believe that as a result of lockdowns and underuse of hospitals, many people died at home because of malaria, even though unfortunately there are no precise data to quantify this tendency. The first vaccine to arrive in the country was Sinopharm. After that, many vaccines were delivered through COVAX, AVAT and bilateral donations. Hence Sierra Leone was given a larger range

of vaccines than other countries. However, its vaccination campaign was riddled with shortcuts. It was implemented primarily in Freetown and its diffusion was limited in the rest of the country.

***“The country has gone through a very serious epidemic, the Ebola crisis, that has taught us a lot of lessons about how to respond to situations of concern for public health. For this reason, there are mechanisms in place. There are response pillars that were already set, and people had experience in handling this. [...] When COVID arrived, the response was initially by the Ministry of Health and Sanitation. Then the NaCOVERC structure was established to handle the national response, which included people from the Ministry of Health and Sanitation, security forces, NGOs, parastatals and government institutions, etc. So, the Ministry of Health had influence in it, but a separate entity was created in which all other government institutions who were responsible for some response were properly coordinated.”***

Dr.med. Mustapha S. Kabba,  
Deputy Chief Medical Officer, Ministry of Health, Sierra Leone

The adoption of guidelines related to the Covid-19 pandemic has been challenging for people in Sierra Leone, due to various factors such as the cost of face masks and a decline in fear of the disease over time. Economic difficulties have been exacerbated by restrictions introduced to address the spread of Covid-19, leaving the poorest struggling to earn a livelihood. The lifting of travel restrictions has allowed for trade in a wider variety of markets but has also resulted in reductions in the quantity and quality of food consumed, which may harm children's nutrition. While there is a generally positive attitude towards efforts to prevent the spread of Covid-19, support for the poorest people has been sporadic and it is unclear how fairly the National Commission of Social Action's plans are being implemented. The re-opening of schools to children at exam age has been welcomed, but the extended closing of classes for other ages may have long-term effects on children's education<sup>43</sup>.



# COVID-19 POLICIES AND THE IMPACT OF COVID-19 IN SUDAN

Since the first positive case of Covid-19 was announced in Sudan on 13 March 2020, the number of confirmed cases and associated deaths continued to grow beyond the country's ability to respond. As of 14 December 2022, the WHO has reported 63,663 confirmed cases of Covid-19 in Sudan and 4,992 deaths. As of 12 December 2022, a total of 13,711,970 vaccine doses have been administered in Sudan<sup>44</sup>.

In the first quarter of 2020, response policies were established, including a lockdown that closed schools and universities, as well as shops, markets, restaurants and other businesses. Restrictions on visas and air travel, and postponement of non-life-saving work were also imposed<sup>45,46</sup>. These limitations constituted a significant danger to people's livelihoods, because of their devastating economic consequences, which were not properly addressed by the government<sup>46</sup>. They also proved to be useless at containing contagion, as people often struggled to respect them, and the government was unable to check that they were respected. Notwithstanding the epidemiological circumstances, on July 2020, restrictions on movement and on office capacities were loosened<sup>45</sup>.

The Covid-19 pandemic brought significant disruptions to healthcare services because of the general lockdown, but also because of sporadic closures after Covid-19 cases were confirmed in the hospital and because of the unavailability of medical workers<sup>47</sup>. The lack of personal protective equipment and essential medicines increased the probability of contagion, leading to widespread Covid-19 cases among medical staff and mass resignation by healthcare workers who did not feel safe<sup>48</sup>. As access to hospital services decreased, it also became impossible to reach the remotest parts of Sudan due to the shortage of vehicles and underfunding of mobile teams. In a country where approximately 81% of the population does not have access to a functional health centre within two hours' walking distance<sup>47</sup>, these gaps in access affect people's general well-being and safety from other risks and threats.

Because of the government's restrictions in response to the emergency, almost all the financial and technical support to face the pandemic came from international aid.

The Covid-19 pandemic exacerbated existing challenges in the healthcare system, resulting in a lack of access to the homes of suspected Covid-19 cases in certain areas. To address these issues, the WHO established infection prevention and control programmes and assigned key people at over 100 public health centres in seven locations in Khartoum State. Case management was supported through the ECHO project, which supplied essential medications, intensive care equipment, and capacity-building for over 400 clinical staff at isolation centres in six of the country's states. WHO also provided personal protective equipment and infection prevention and control supplies to targeted facilities on a monthly basis, and training and supervision to nearly 900 public healthcare workers to ensure these resources were used rationally. A surveillance system for Covid-19 infection among health care workers was also set up and reported monthly to both the Ministry of Health and the organisation. This system was successful, reducing the infection rate by 80%. Finally,

more logistical support was given in the form of vehicles, payment for rapid response teams, capacity-building, personal protective equipment, test kits, technical support with surveillance data management and ambulances equipped with medical supplies to transport Covid-19 patients. As a result of this support, the response time to alerts improved from a maximum of two to three days to a maximum of 24 hours.

It is possible that the Covid-19 pandemic contributed to price increases, although it is difficult to discern its specific impact independent of other factors such as

***“During the first wave, the response from the Federal Ministry of Health was very quick. At the beginning a state of emergency was declared and global measures such as curfews and lockdowns were adopted all over the Country. Policies were very quick, but we were lacking infrastructure and PPE was not there. Hospital capacities for things like ICU and oxygen were lacking.”***

Dr. Mousab Elhag  
Health Project Specialist, UNDP, Sudan

macroeconomic instability and locust infestations in East Africa. Social insurance coverage and quality tend to be lower for the poorest people, making them more susceptible to the effects of the health crisis<sup>49</sup>. However, almost all the population had difficulty accessing healthcare during the lockdowns, regardless of whether they lived in an urban or rural area, due to a shortage of medical staff and restrictions on movement. The health crisis also caused significant disruptions to education, with 62% of households having children who attended school prior to closures but only 9% attending classes during school closures, particularly in rural areas<sup>50</sup>. Access to financial services was also restricted during lockdowns to prevent the spread of Covid-19. Economic activity decreased significantly for most employees and incomes declined in both urban and rural areas, with only one-third of respondents who were working prior to the lockdown able to continue due to Covid-19. The crisis also affected family businesses, with one third of households unable to engage in normal farming work. Many households saw their income fall and had to resort to coping strategies such as cutting back on food, reducing consumption of goods, using savings for expenses, purchasing on credit and selling assets to address income losses and the rising food prices exacerbated by the health crisis.

# COVID-19 POLICIES AND THE IMPACT OF COVID-19 IN UGANDA

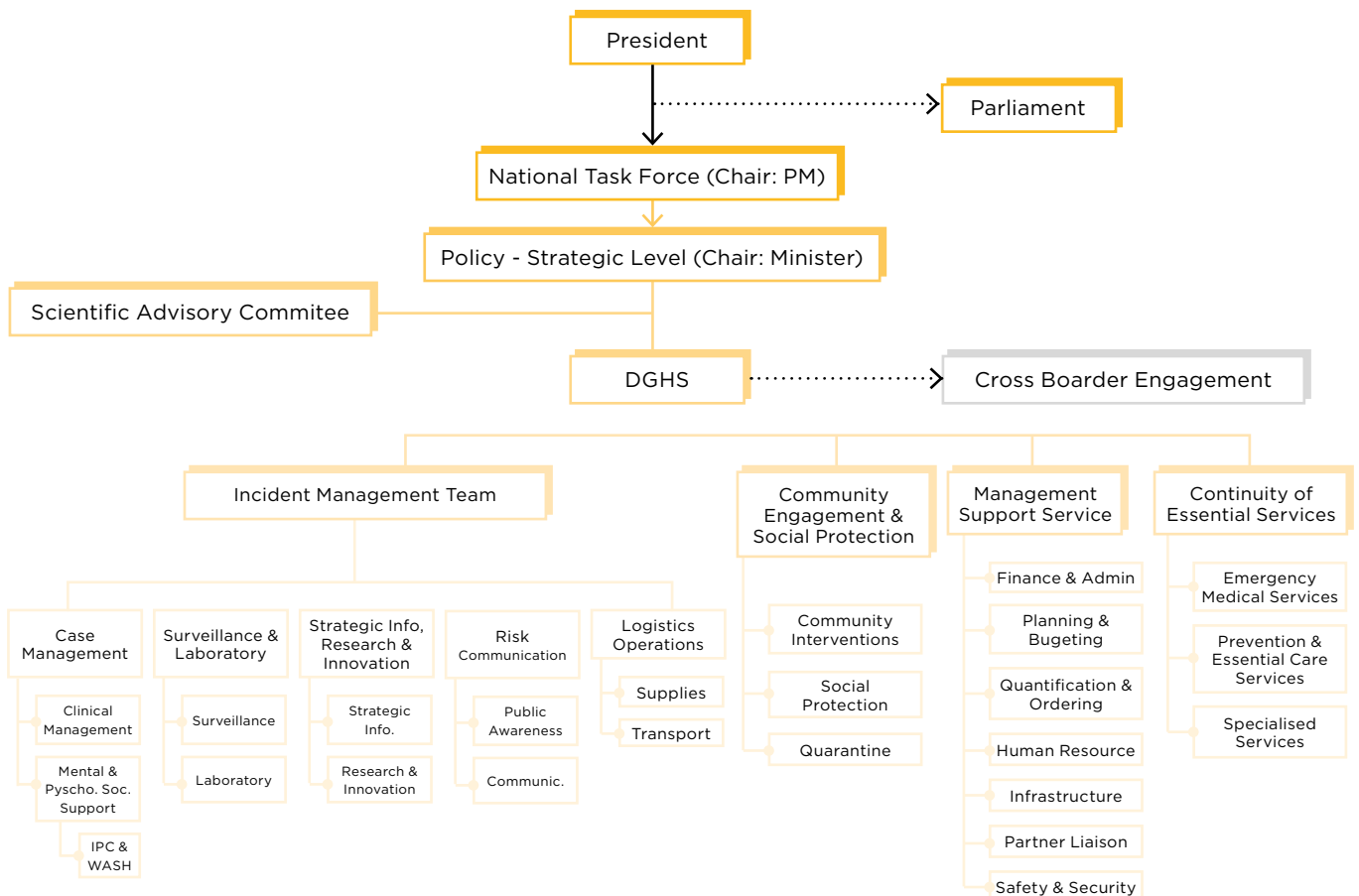
Since the first positive case of Covid-19 was announced in Uganda on 22 March 2020, the number of confirmed cases and associated deaths had continued to rise, obliging the country to enact strict containment measures in order to control the spread of the virus. As of 17 January 2023, the WHO has reported 170,184 confirmed cases of Covid-19 in Uganda and 3,630 deaths. As of 18 December 2022, a total of 26,299,538 vaccine doses have been administered in the country<sup>51</sup>. The Ugandan government quickly took action to address Covid-19 in early March, using their experience with previous outbreaks such as Ebola. The government's response included the creation of new institutional arrangements, the allocation of funds, and the development of guidance for health system stakeholders on how to respond.

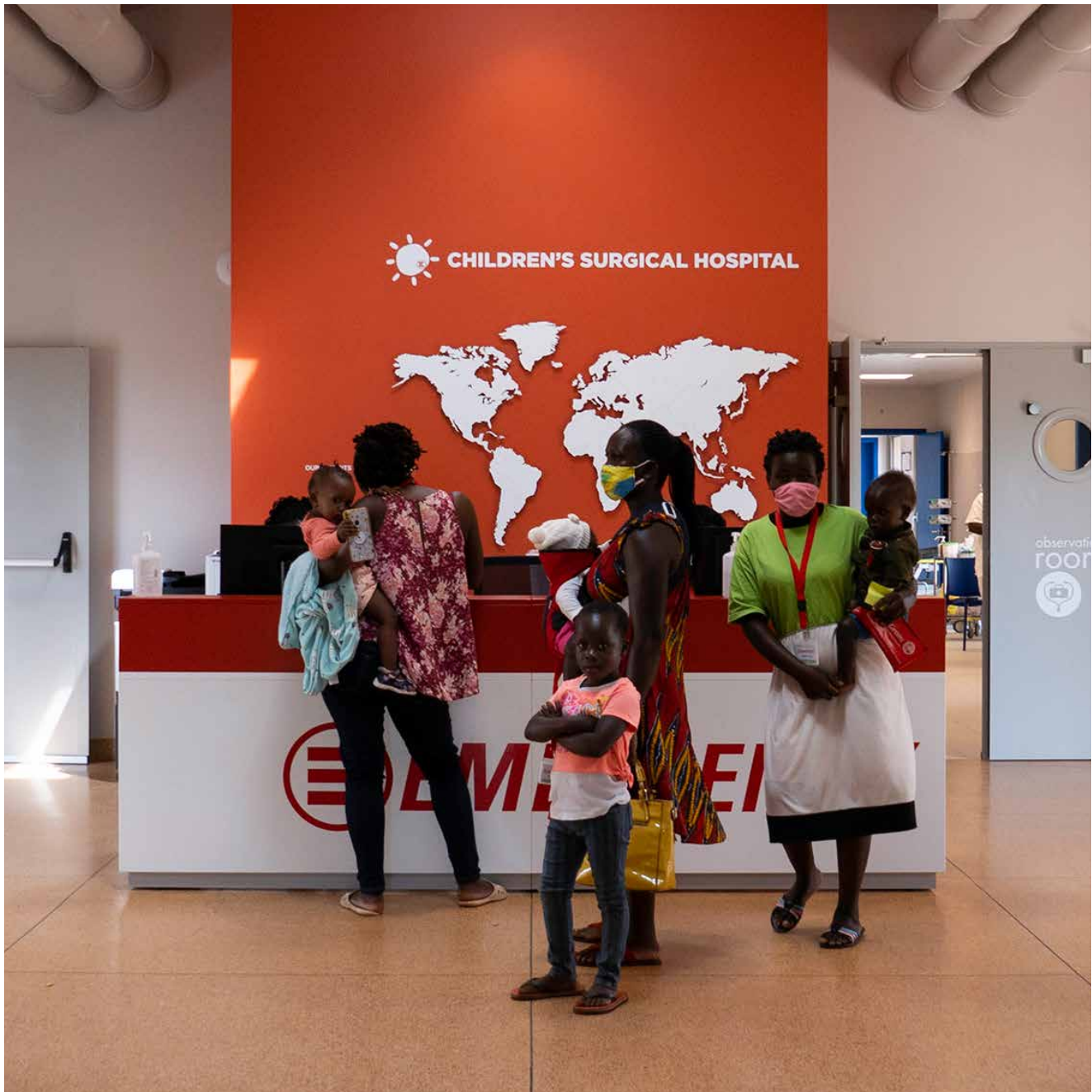
The health sector was allocated a smaller proportion of funding for the Covid-19 response than expected, hindering the full implementation of preparedness and response activities. Of the funds allocated to health, the majority were used to increase the capacity of referral hospitals for treatment, rather than for testing by primary care providers. The Ugandan Ministry of Finance, Planning and Economic Development requested an additional 284 billion Ugandan shillings (75 million US dollars) from Parliament to finance the country's response to Covid-19. This funding was primarily used for recurrent and development spending at the referral hospital level, including on ambulances, personal protective equipment, ICU beds, ventilators and oxygen<sup>52</sup>.

Funding for contact tracing was channelled through local government, but only amounted to 45,000 US dollars. Due to the limited domestic funds for testing and tracing, challenges have arisen in effectively testing and tracing cases and contacts as they are identified. It appears that fewer operational guide lines and resources have been dedicated to testing due to the low number of cases in Uganda to date. The MOH published a list of the procurement prices for the test kits used by public providers. It should be noted that the unit price of a rapid diagnostic test combined with the price of antigen test kits (5 and 25 US dollars respectively) are incredibly expensive for the average citizen, who has a yearly out-of-pocket health expenditure of 12.40 US dollars (such payments make up 38.3% of current health expenditure)<sup>53,54</sup>.

As a response to the pandemic, Uganda activated a National Task Force (NTF), led by the President and supported by the Prime Minister. An Incident Management Team (IMT), District Task Forces (DTFs) and related sub-committees were set up to implement and oversee the response, with a particular focus on the six pillars of case management, surveillance and laboratory, strategic information, research and innovation, risk communication and logistics operation. District surveillance teams and DTFs were immediately set up to respond to the virus in their areas. The Ministry of Health plays a key role in the response, working closely with the Uganda People's Defence Forces on the operational command of the response through the IMT. At the community level, local council chairmen are responsible for managing populations and ensuring compliance with national regulations. The Ministry has developed a Covid-19 Preparedness and Response Plan structured around eight pillars: 1. Leadership, stewardship, coordination, and oversight; 2. Surveillance and laboratory; 3. Case management; 4.

**UGANDA'S COVID-19 RESPONSE STRUCTURE**





Strategic information, research and innovation; 5. Risk communication and social mobilisation; 6. Community engagement and social protection; 7. Logistics and operations; 8. Continuity of essential services<sup>52</sup>.

The Ministry of Health has emphasised the importance of communication for Covid-19 and has disseminated information through presidential speeches, television and radio broadcasts, posters and social media (establishing a special Covid-19 communication resources page). Specific guidelines on the use of masks and social distancing have been published by the Ministry.

It has been observed that lockdown measures, while effective in slowing the spread of Covid-19 and allowing for a more robust response, have raised concerns about their impact on routine services and economic well-being. Furthermore, evidence suggests that there have been negative secondary health effects resulting from the pandemic, which require monitoring. A decrease in the use of key health services has been observed, likely due to people's reluctance to access facilities where Covid-19 patients may be being treated. A retrospective analysis by UNICEF of the District Health Information System (DHIS)

revealed declines in testing for HIV (16%), linkage to HIV care (20%), antenatal care visits (14%) and facility-based deliveries (6%), as well as increases in caesarean section deliveries (4%), neonatal deaths (7%), perinatal deaths (9%), maternal deaths (43%) and cases of gender-based violence (6%) between February and March 2020<sup>55</sup>.

The response measures have also significantly affected people's ability to work and earn an income, particularly as a large portion of the population works in the informal sector and over 40% were already living below the poverty line of 1.90 US dollars a day.

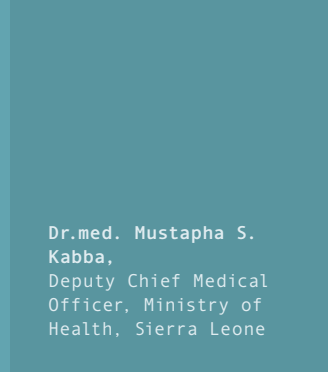
The Ministry of Health has acknowledged that its focus on Covid-19 response may have led to a reduction in the delivery of other routine essential services. To address this issue, a coordination mechanism chaired by the director of clinical services was established to ensure the continuation of essential services. Additionally, guidelines were developed to support the work of district health officers, hospital directors and healthcare facility managers in maintaining the provision of essential services during the pandemic<sup>52</sup>.



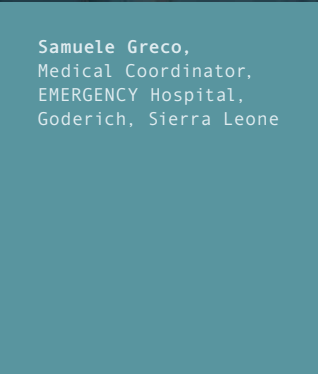
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National Professional  
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**Col. Dr. Stephen  
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Case Management Pillar  
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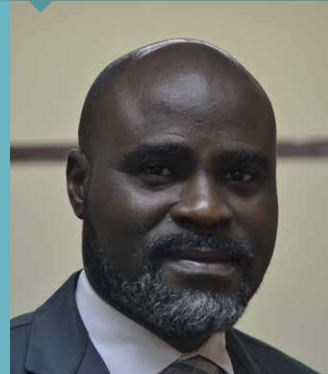
**Dr.med. Mustapha S.  
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**Samuele Greco,**  
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**Dr. Babiker Magbouc,**  
General Director for  
Epidemic and Disease  
Control, Sudan



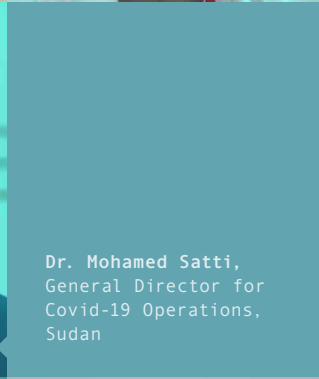
**Jehan Hamed,**  
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**Dr. Dalya Eltayeb,**  
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Federal Ministry of  
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Chairperson, Ministry  
of Health, Sudan



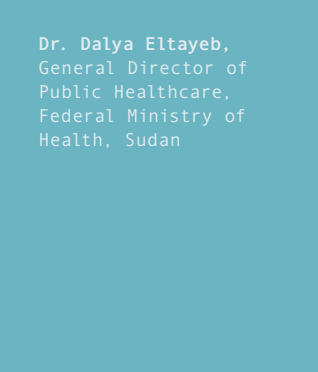
**Dr. Mohamed Satti,**  
General Director for  
Covid-19 Operations,  
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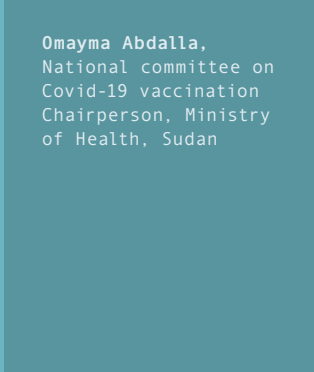
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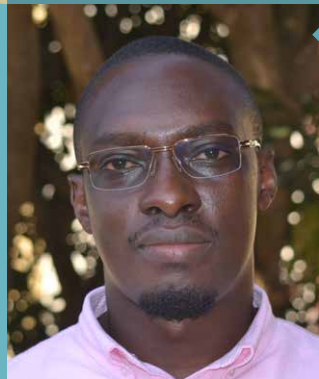
**John Mathew,**  
Vaccination Activities  
Coordinator, Entebbe  
Municipality, Uganda



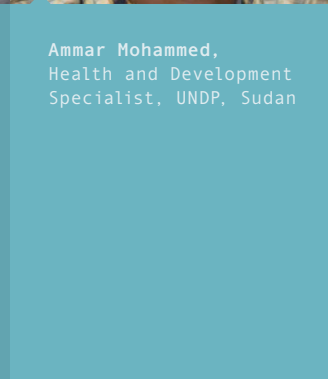
**Ammar Mohammed,**  
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**Dr. Paul Mbaka,**  
Assistant Commissioner  
at the Ministry of  
Health, Uganda



**John Mathew,**  
Vaccination Activities  
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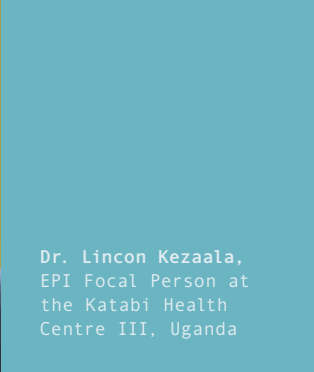
**Ammar Mohammed,**  
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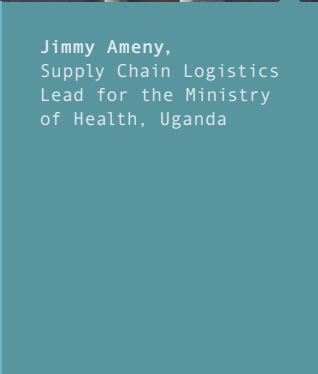
**Dr. Lincon Kezaala,**  
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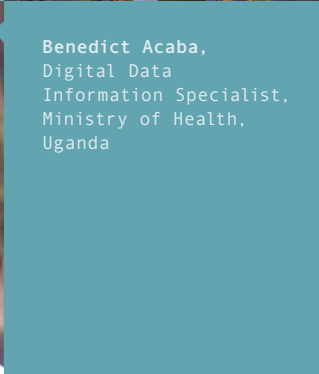
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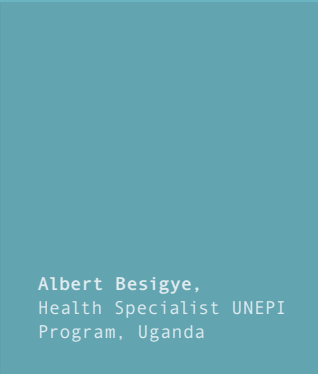
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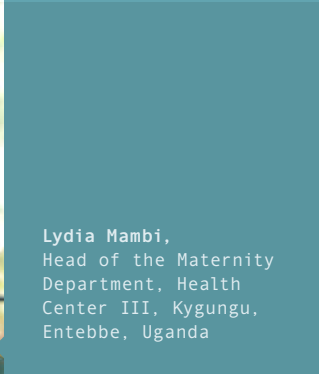
**Manahel Badr Saad,**  
Deputy Head Nurse,  
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Khartoum, Sudan



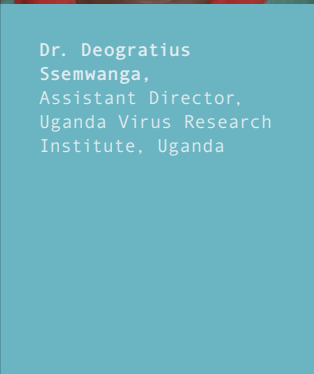
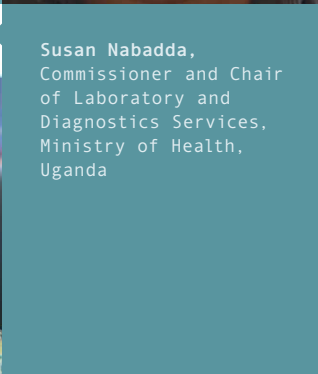
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**Robert Mugaba,**  
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# CHAPTER II: FIELD INVESTIGATION OUTCOMES

## PREPAREDNESS AND INITIAL RESPONSE TO THE COVID-19 PANDEMIC

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**1 THE RELEVANCE OF THE LOCAL CONTEXT.** Mitigation measures are highly context-specific and differ significantly from country to country. Africa presents several settings characterized by multiple fragilities, where political, social and economic instabilities combine to weaken countries' health systems. Within these different and strained local frameworks, implementing adequate response policies is very demanding.

**2 THE CENTRAL ROLE OF THE HEALTH WORKFORCE.** The health system bears the majority of the burden during pandemics or epidemics. This is especially troublesome in Africa, where certain structural weaknesses affect the healthcare sector. During Covid-19 in particular, health systems showed significant vulnerabilities such as:

- an inadequate number of healthcare workers to respond to the emergency and to keep guaranteeing routine services;
- neglect of health workers' safety, due to very limited provision of PPE, of clear, tailored guidelines and of specific, constant training;
- insufficient allocation of funding to systems.

**3 THE NEED FOR ADEQUATE FUNDS.** Health systems in Africa are often underfunded by their own governments. Therefore, they lack resilience and are unable to absorb shocks. Even when funds are given to countries in support by the international community, the timing and means of providing this aid do not always sufficiently take into account local contexts, leading to inefficiencies and waste.

**4 THE IMPORTANCE OF COMMUNICATION AS A TRANSVERSAL FACTOR IN A GLOBAL CRISIS.** From the delivery of simple messages on a global scale through social media to the creation of a shared awareness at the local level through institutional channels, communication is extremely relevant and difficult to control.

**SUMMARY OF THE MAIN COMMUNICATION FLOWS**

<b>COMMUNICATION</b>		<b>LEVELS</b>	
		<b>INTERNATIONAL</b>	<b>NATIONAL</b>
<b>TARGETS</b>	<b>GENERAL PUBLIC</b>	BEHAVIOURS AND EFFECTS IN THE WESTERN WORLD <b>VS</b> BEHAVIOURS AND EFFECTS IN AFRICA	INSTITUTIONAL <b>VS</b> INFORMAL
	<b>COUNTRIES' INSTITUTIONS</b>	VERTICAL COMMUNICATION <b>VS</b> HORIZONTAL ENGAGEMENT	CORE <b>VS</b> PERIPHERY

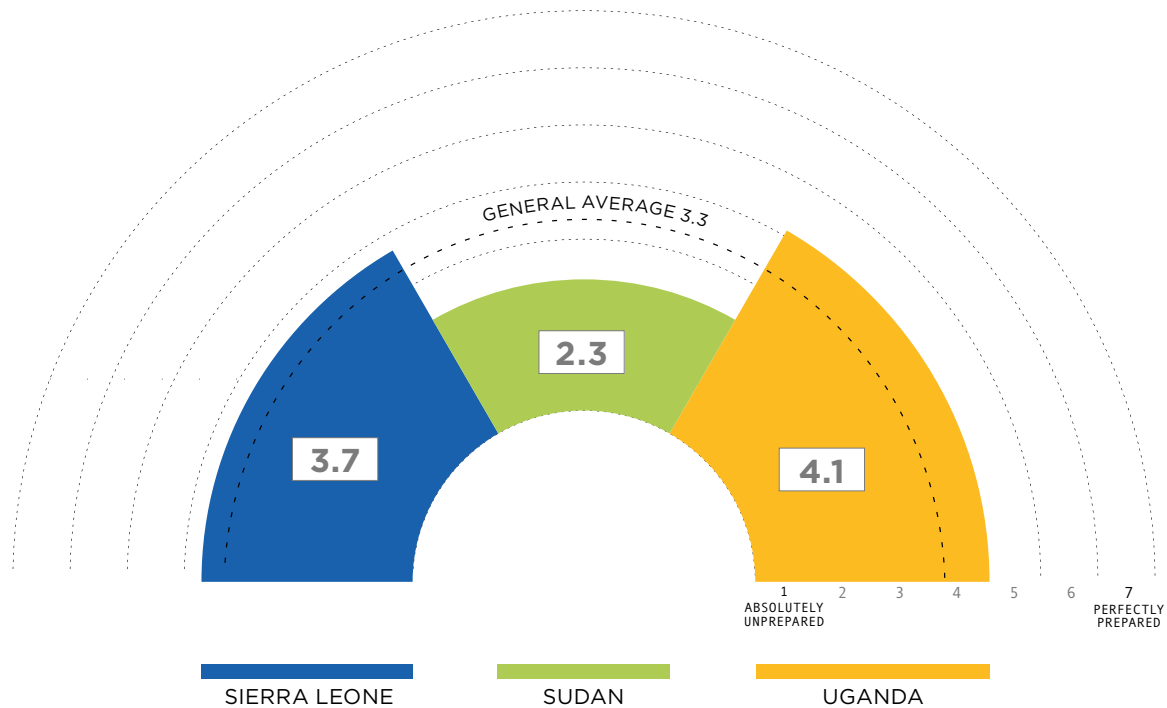
**ANALYSIS**

Africa is constantly burdened with **political, economic and social instability, in forms that are highly country-specific and significantly influence how each country implements its crisis response.** These structural weaknesses, together with frailties in the health system and unavailability of resources, have contributed to hindering the capacity of the countries on this continent to develop and implement response policies. For large and politically unstable countries like Sudan, with newly established governments and a general lack of trust in institutions, it is extremely difficult to quickly formulate appropriate policies from scratch and to spread the response throughout the entire country, including its peripheries. Even in situations where emergency plans have already been available, large-scale roll-out to the whole country has proved very challenging. In some countries, like Uganda, response policies had been designed to deal with local outbreaks of disease and had to be significantly adapted to suit a large-scale response. Other countries, like Sierra Leone, benefited from the legacy left by previous large-scale epidemics to develop an adequate, quick, organised response. **However, even in these nations, the lack of country-specific funding and of the technical means to implement the strategy significantly undermined the results.** For this reason, the average mark given for each country's readiness to face a pandemic is very low, especially in Sudan.

*“To be able to utilise it [the vaccine] there were a whole lot of challenges, especially for Sierra Leone. For example, the readiness of different populations is not the same. What is the level of literacy? In this country, the level of literacy is not the same as in the United States. [...] So the kind of challenges you have, our own peculiarities that translate into those barriers, are really not the same from population to population. You have to be aware of the context.”*

Col. Dr. Stephen Sevalie  
Case Management Pillar Lead, NaCOVERC, Sierra Leone

## HOW READY WAS YOUR COUNTRY TO FACE A PANDEMIC?



African health systems **suffer from structural and chronic underfunding**, which leads to under-staffing and under-equipping. Lack of funds means an inability to pay healthcare workers properly (or to pay a sufficient number of health workers) and to correctly equip hospitals. This results in inadequate settings both for the staff themselves, who cannot work in a proper environment, and for the patients, who cannot access adequate care. **During the Covid-19 crisis, the lack of healthcare workers was exacerbated** by the high rate of contagion and death among the already limited workforce. This led to a stigmatisation of health workers and to a further decrease in the number of healthcare staff as many got infected, and many others refused to go to work for fear of contamination. Other than the high contagiousness of the virus, infections were also due to the scarcity of PPE and to the capacity gap generated by the lack of specific training on how to deal with a pandemic crisis.

On the one hand, the concentration of funds and resources on fighting Covid-19 certainly brought about some interruption of services, but on the other, it eventually allowed countries to scale up emergency training for health workers. Indeed, when asked about the impact of the pandemic on the health workforce, many respondents underlined the positive effects of the huge training campaign carried out to update and prepare healthcare workers to face the crisis. During emergencies, the ability to engage and coordinate different countries, their population and the different stakeholders within each nation is crucial for the policies to be successful. From the interviews it indeed emerged that being able to share precise information and deliver punctual messages is fundamental when facing a crisis. Two levels of communication have characterized the Covid-19 pandemic: the international level and the national one. These levels impacted on two targets of recipients: the general public and the countries' institutions. The communication between the global level and the general public was particularly problematic as the situation

***“Because of the lockdown, [...] there was service disruption. So we had deaths that were not due to Covid, but due to the lockdown. Furthermore, people didn’t want to go to work because they didn’t want to have contact with patients, as they did not have information and PPE. People were not trained [to respond], they were gambling. There was a big capacity gap.”***

Albert Besigye  
Health Specialist, UNEPI programme, Uganda

portrayed by international media was very different from the circumstances that African people were experiencing. From Western countries came dramatic scenes of deaths and collapsed health systems, foretelling a tragedy when the virus reached Africa. By contrast, the virus had mild physical effects on African people, due in part to the young age of the population, and the very low testing capacities further contributed to underestimating its spread. This has led to very different and sometimes contrasting perceptions among the public. Moreover, Western countries' decisions about vaccines contributed to discrepancies between the behaviour encouraged by African governments and that encouraged by the international community. **Dissemination of information through media is nowadays global, and it can reach any person in the world.** This universality must be kept in mind when sharing information with the global



public. Even when the use of specific vaccines was banned within developed countries, African countries had to keep distributing them, both because of a lack of alternatives and

*“The majority of them, after seeing what was happening out there, they really thought it was a serious issue. But then the propaganda that came in, the videos on YouTube, the social media [...] So, at the initial stages it was looked on as a threat, but as time went on, the people got confused about what to take as serious information and what to take as maybe propaganda. So, there was no clear line between what was true and what was false.”*

Dr. Lincon Kezaala,  
EPI Focal Person, Katabi Health Centre III, Uganda

because developed countries were sending some of these to them. This led to further mismatches between national and global policies, thus increasing the difficulties of overcoming vaccine hesitancy in these areas. On the other hand, formal communication between the international community and the central institutions of the various countries worked well. Almost everyone asked said that engagement procedures were very clear and communication with COVAX was constant over time.

At the national level, an important fault of communication campaigns lay in the misalignment between state and informal media. Because of the general lack of trust in the government and in governmental institutions, especially in politically unstable countries like Sudan, interviewees underlined how difficult it was to assert the truth of government information over informal information based on rumours, fake news and folk beliefs. **The lack of a clear communication hierarchy hindered governments' capacity to deliver straightforward and uniform messages to the general public, allowing conspiracy theories to take root within the population.** Finally, the core-periphery flow of information revealed some pitfalls. Within this context, the term “core-periphery” is used to indicate both communication between central institutions and local ones, and the interaction between higher-level institutions and lower ones. Even in countries like Sierra Leone and Uganda, where communication and coordination within the high levels and with the international community worked quite smoothly, the farther one moved from the central institutions, the more blurred the information became. These difficulties are perhaps due to the limited accountability of the people in charge of applying the policies and to the practical difficulties in reaching these areas.



# COVID-19 VACCINATION CAMPAIGNS

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## 1 INCREASING SATISFACTION WITH THE VACCINATION CAMPAIGN.

Besides the low-resource settings of all the countries, the beginning of the vaccination campaigns was heavily influenced by the arrival of vaccines when the peak of the pandemic was already over. Nevertheless, as time passed, governments were able to set up a satisfactory vaccination campaign, achieving a reasonable number of people vaccinated with at least one dose. However, some crucial bottlenecks persisted, like scarce data collection capacities and difficulties in reaching individuals for follow-up vaccinations.

## 2 PROBLEMS WITH THE ROUTINISATION OF VACCINES.

The sudden need for a new vaccine caught both health systems and citizens off-guard. This is due to the fact that there were doubts as to whether to treat Covid-19 vaccines as routine, paralysing facilities when the number of infected cases was at a peak. There were also issues within the adult population thanks to the preponderance of routinised vaccines reserved for children, making it hard for adults to clearly understand the need for immunisation.

## 3 COVID-19 PANDEMIC EXACERBATED THE DIFFERENCES WITHIN THE CORE-PERIPHERY RELATIONSHIPS.

These discrepancies can be found both geographically and institutionally, leading to overwhelming coordination problems. This fundamental issue, perhaps fostered by a widespread lack of accountability, was particularly salient in three different areas: the access to diagnostics, treatments and vaccines; the access to proper and reliable information; and the adequacy in funding distribution.

## 4 COUNTRIES' RELIANCE ON EXTERNAL AID.

The Covid-19 pandemic underlined the high dependency of African countries on external assistance for providing healthcare services, paired with an almost complete lack of vaccine production capacity. It was seen that this dependency led to inequality in vaccine distribution on the part of the international community. To a certain extent, this was justified and accepted given that the international community was experiencing the pandemic as well.

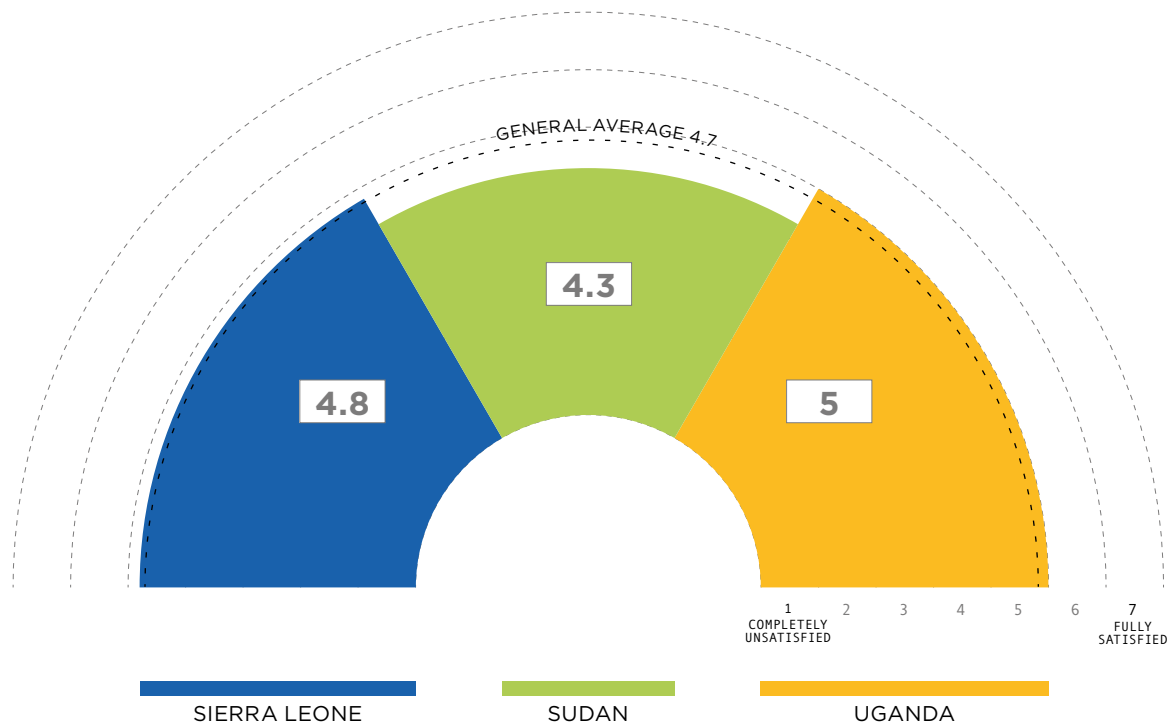
# ANALYSIS

The second section of our research concerned the interviewees' perception of the countermeasures and vaccination campaigns enacted in each country analysed. It must be pointed out that although our study enabled us to define four shared key findings, crucial differences between the three countries still play a major role in the analysis of contexts. The peculiarities of each context in relation to the findings will therefore be highlighted here.

*“At the beginning, not very satisfied because access to vaccines was very poor. Support with vaccine introduction was very weak. [...] Now it is a very good example of how vaccine introduction should be done.”*

Sarah Cundy  
National Health Coordinator, Concern Worldwide, Sierra Leone

## HOW SATISFIED WERE YOU WITH YOUR COUNTRY'S VACCINATION CAMPAIGN?



As can be seen, Uganda had the highest score while Sudan had the lowest. However, it should be noted that the values do not differ much between them, and their average is above the mean for the scale. This, combined with the interviewees' opinions, gives us the insight needed to conclude that **there was general satisfaction with the vaccination campaigns**, a sentiment that was certainly not widespread in the beginning but that **grew over time**. The reasoning behind this different approach over time is to be found in the lack of resources in each country at the beginning of the pandemic. These countries faced several obstacles in terms of timely arrival and distribution of vaccines; one such difficulty was the late arrival of vaccinations, which delayed the start of immunisation campaigns. This delay was worsened by the limited information about delivery times given by foreign countries.

**This asymmetry of communication not only caused public confusion and dissatisfaction, but also hampered the successful planning and execution of vaccination efforts.** Furthermore, another important factor was the limited quantity of vaccines provided at the beginning of the vaccination campaigns, a problem that was overcome only during the peak of the autumn 2021 Covid-19 wave. The

unfortunate first stages of the response were exacerbated by the increased demand for vaccines, which resulted in extended wait times and overcrowding at vaccination clinics: all these elements help us explain why the satisfaction with the vaccination campaign grew over time. Nevertheless, as the time passed by and with external help, governments were able to set up a satisfactory vaccination campaign, giving a reasonable number of people at least one dose. However, some drawbacks persisted, like scarce data collection capacities (data was rarely even computerised) and difficulties in reaching individuals for follow-up vaccinations. The latter point leads us to another crucial issue: **the problems of treating Covid-19 as a routine disease**. The sudden need for a new vaccine caught both health systems and citizens off-guard in every single one of the three countries studied. Besides the unpreparedness of the systems, which can be justified by low internal capacity exacerbated by the sheer scale of the pandemic, routinisation and people's behaviour played a major role in harming the response to Covid-19. Treating the pandemic as routine instead of creating dedicated channels, quickly overwhelmed the workforce as the new virus became the priority, leading to further neglect of already existing illnesses.

To make matters worse, adults were mainly used to bringing children to get routine vaccines without being subject to the injection themselves. This created an unpleasant situation when adults were taught the importance of being vaccinated even as full aged individuals, slowing down the spread of immunisation. Consequently, another critical key finding has been the way the pandemic exacerbated the differences within core-periphery relationships. These differences can be found in two forms, geographic and institutional, both leading to overwhelming coordination problems. Political pressure was applied to begin vaccination campaigns as soon as the vaccines arrived in these countries. However, there were drawbacks in terms of vaccine arrival time and widespread distribution.

To some extent, this was justified and accepted by the rhetoric that the international community was also affected by the pandemic and was trying its best to support Low- and Middle-Income Countries. The campaigns in Sudan were also hampered by a lack of trust in the government, both internally and internationally, which led to a reluctance among some parts of the population to get vaccinated, complicating efforts to contain the virus's spread.

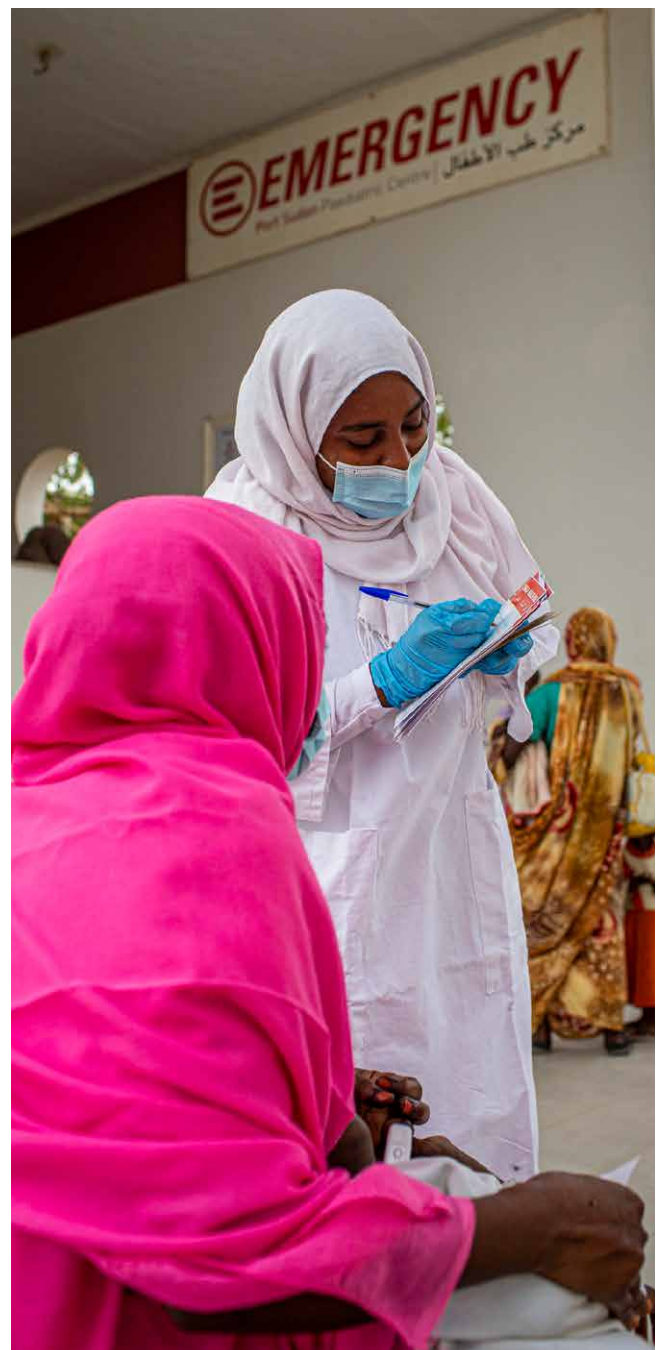
***“They assigned the response to the EPI, which already had big issues dealing with normal vaccinations through routinisation. They tried to distribute the vaccines using the same implementation as for a routine vaccine and this was not suitable for an emergency. During the dissemination they were not considering cultural and environmental aspects that affect the public’s access to vaccines.”***

Dr. Nader Makki,  
Country Emergency Operations Team Leader, WHO, Sudan

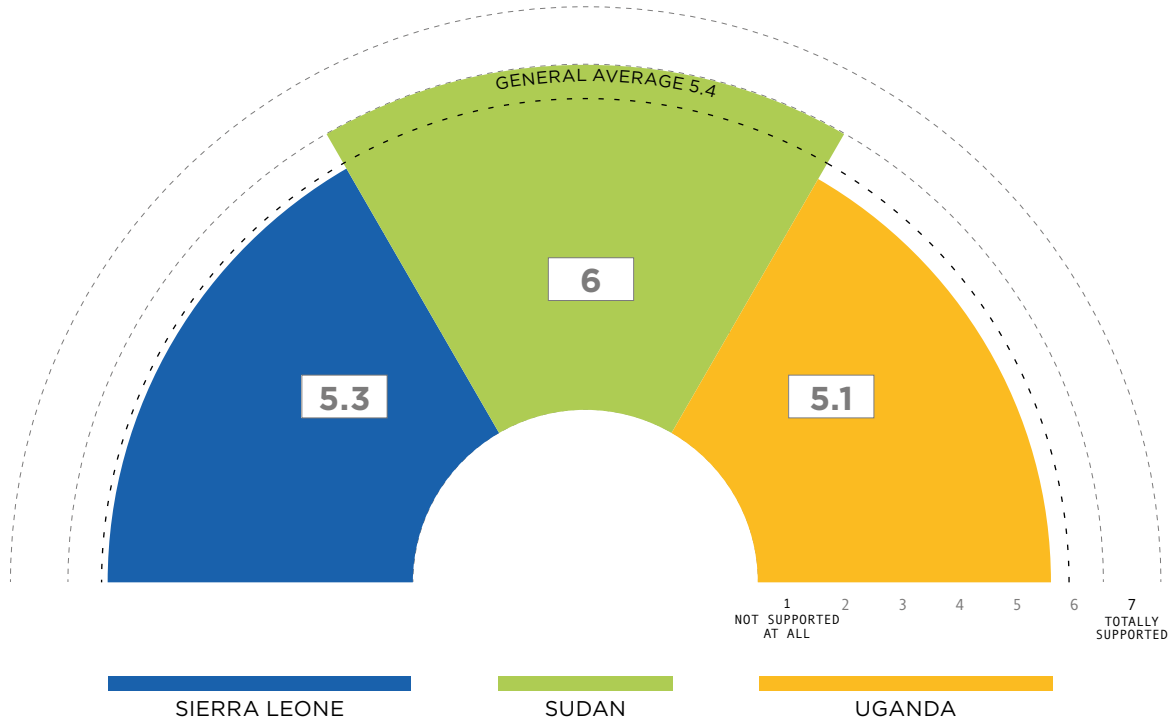
**Furthermore, although there were widespread awareness campaigns, they often failed to address the decrease in vaccine demand triggered by the marginal effects of the virus on the population.** This was a recurring theme in all the key findings; a lack of targeted messaging and a failure to address the specific concerns of different segments of the population was compounded with the preponderance of informal messaging over official communications. Such a combination of elements highlighted asymmetries in information between government officials and people who were basing their knowledge on the word of village leaders. To conclude this section, the focus shifted towards **the reliance of African countries on external aid.** As pointed out above, since vaccines did not arrive promptly and in adequate quantities, people perceived that other countries were being prioritised.

***“We focused only on the centre, where the bulk of the cases were reported, within the urban areas like Khartoum. Most of the outskirts of the big city were totally neglected because, in my opinion, it was easier for us officials even if it was not good for the population. [...] People in the countryside were neglected and they had a hard time accessing facilities.”***

Dr. Nader Makki  
Country Emergency Operations Team Leader, WHO, Sudan



# HOW MUCH DID YOU FEEL SUPPORTED BY THE INTERNATIONAL COMMUNITY?



Sudan’s interviewees gave the highest score, followed by Sierra Leone. This could be due to the fact that both countries are usually prioritised within Africa by the international community, thanks to their dramatically low living standards. Even in normal times, Sierra Leone depends on external aid, a condition that was exponentially exacerbated during Covid-19. Nonetheless, there is general agreement that external aid was fundamental regardless

of its size and scope with almost all interviewees agreeing that the main mechanism to secure vaccines was COVAX, followed by bilateral agreements. **Crucially, respondents from all the countries agreed on the need for vaccines to be produced locally instead of being imported. This aspect was the kernel of their dependency on third parties and its consequences were felt throughout the entire the pandemic, up to this day.**



## KEY FINDINGS

**1 THE FUNDAMENTAL ROLE OF THE COVAX MECHANISM IN PROVIDING VACCINES TO AFRICAN COUNTRIES.** The COVAX mechanism has proven to be the biggest Covid-19 vaccine provider in Africa. Despite initial drawbacks, the quantity of vaccines delivered through the mechanism, its institutional communication platforms, and the large funds invested helped recipient countries to set up and deploy satisfactory vaccination campaigns. These results would have never been achieved so quickly without it.

**2 COVAX'S LIMITATIONS.** Although the COVAX mechanism has been fundamental for guaranteeing countries' access to vaccines, there is big room for improvement. The main shortcuts of the platform have been:

- Lack of timeliness
- Abrupt scheduling
- Vaccines' short shelf-life
- Western-based policies

**3 COVAX'S EFFORT TO SUPPORT IN VACCINATION CAMPAIGNS' LOGISTICS AND ROLL-OUT.** The impact of this was, however, limited due to the difficulties in tailoring the policies to local contexts.

# ANALYSIS

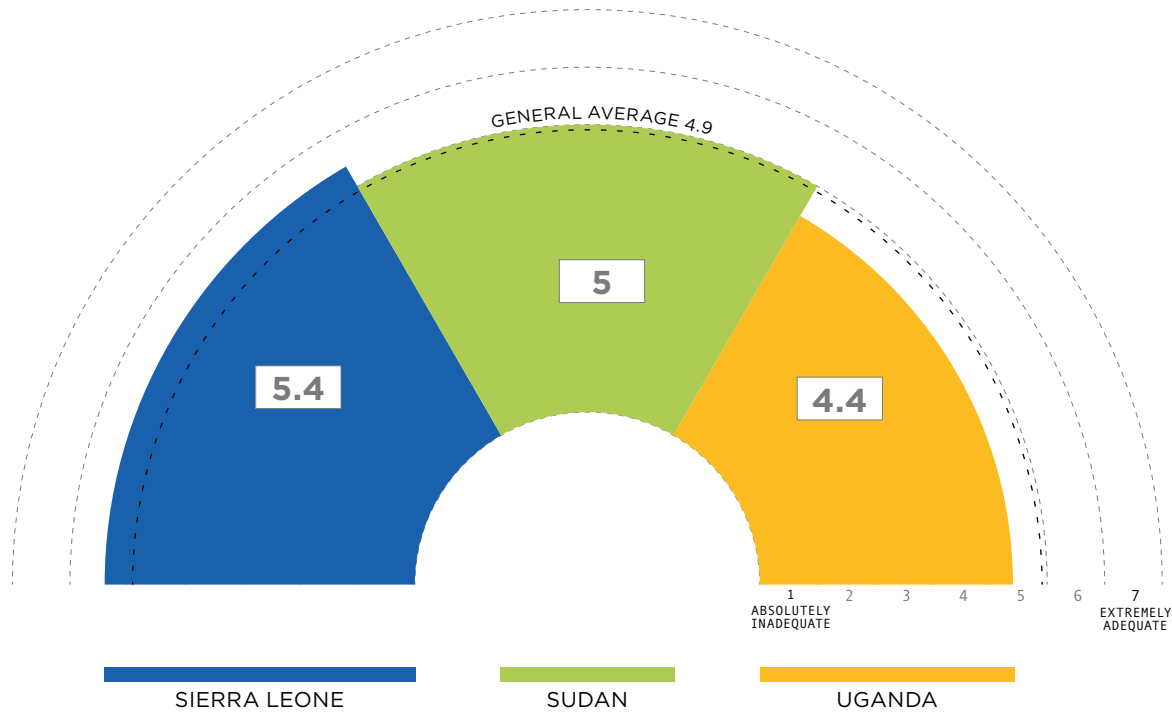
Overall, the interviews confirmed that **COVAX was a significant opportunity for Low- and Middle-income countries to secure a safe amount of vaccine doses.**

Despite the initial delays and low availability, the quantity of vaccines delivered by this mechanism was perceived as very adequate overall, especially considering recipient countries' vaccination uptakes. In fact, the suitability of COVAX's quantities was on average graded 4.9 out of 7.

*“I will interpret the quantity [of vaccines delivered] in terms of our ability to utilise them. Given the rate at which we are absorbing the vaccines, I think the quantities were good. The reality is that if we really had the resources to ramp up vaccination, those quantities would not have been sufficient.”*

Col. Dr. Stephen Sevalie  
Case Management Pillar Lead, NaCOVERC, Sierra Leone

## HOW WOULD YOU DESCRIBE THE QUANTITY OF VACCINES SECURED TO FACE THE CRISIS?



The communication between COVAX and countries' representatives was also considered very effective, as it was characterised by very clear engagement procedures and constant meetings on the platform.

Furthermore, there is common agreement that being recipients of the COVAX mechanism brought huge investments to these countries, which enabled them to work on some of the structural limitations of their health systems. These vast funds have led to increased training and significant cold chain investments that have helped improve internal capacities to face the crisis.

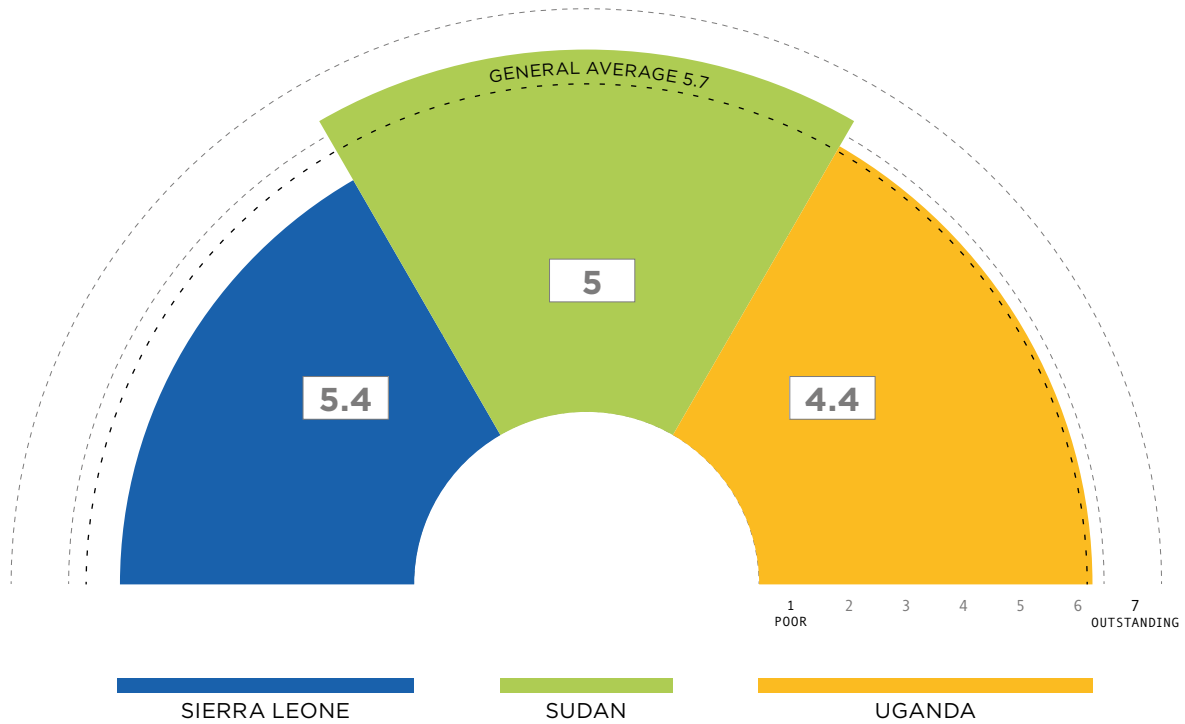
Generally speaking, interviewees concurred that the international coping mechanism was a crucial solution for obtaining an adequate number of vaccine doses to sustain acceptable vaccination campaigns, which would never otherwise have been possible so rapidly.

*“Very good model of engagement. There were weekly meetings at the beginning, then fortnightly and now, because of the situation with the pandemic, monthly.”*

Dr. Dalya Eltayeb  
General Director of Public Healthcare, Federal Ministry of Health, Sudan

It is not surprising, then, that the question about COVAX's contribution was generally answered very positively, with an average score of 5.7.

HOW WOULD YOU DESCRIBE THE CONTRIBUTION OF COVAX IN SECURING DOSES?



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Even if the **COVAX** mechanism has certainly achieved significant results, its **contribution** to vaccination campaigns in the region was **characterised by some limitations**, especially in the early stages of implementation. The most noticeable drawback of vaccine delivery to this region is the late arrival of doses compared to the Western world. All interviewees expressed dissatisfaction with COVAX’s failure to act promptly as this delay posed significant threats to their health systems. **In countries that only relied on the international coping mechanism to obtain vaccine doses, the postponement was highly disruptive, since it temporarily left them without any doses.** In countries where other options were readily available, as was the case for Sierra Leone with Sinopharm, though it did not result in a belated start to the vaccination campaign, it significantly contributed to damaging COVAX’s image in the eyes of the general public. The lack of timeliness also led to higher vaccine hesitancy. Since the first doses arrived when the peak of the pandemic was already over, people had started to feel that they had survived Covid-19, and other health priorities had already been set by the government.

**“Without COVAX I think we would not have the same level of efficiency and coordination in the country.”**

Risk Communication and Community Engagement Lead,  
UNICEF, Sierra Leone

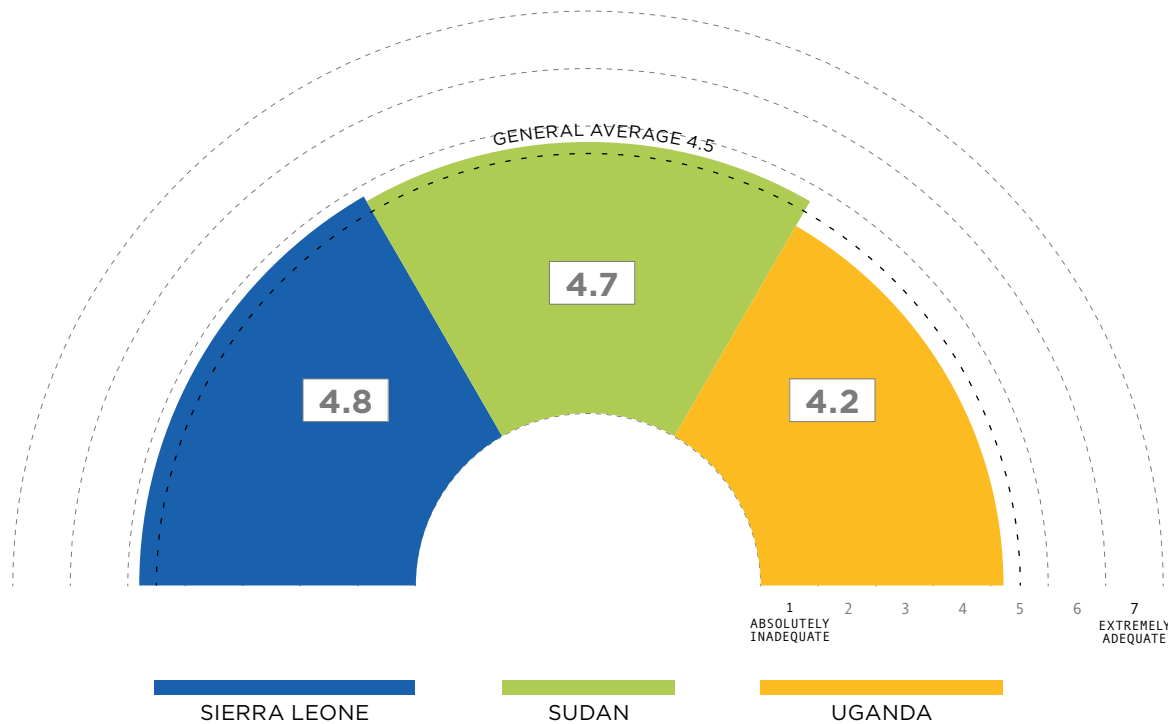
Another important limitation of COVAX concerned its scheduling capacities. Despite the average mark being 4.5, **many interviewees highlighted the mechanism’s lack of tailoring deliveries to the needs of the recipient countries.**

**“Having access after the peak of the pandemic means that we have really suffered. We are struggling to get people vaccinated. We lost the big time, the critical time. If we had had vaccines available during 2021 and during the restrictions, when there was the real panic over the pandemic, the people would more likely take it. When they were seeing people dying, the demand was really high. But since vaccines arrived late, this created big challenges for the country in convincing people to get vaccinated. The feeling was that after the pandemic was over, everything was available for LMICs: more vaccines, more money. They were using Western leftovers. The international community is even pushing us to take vaccines now.”**

Dr. Hanan Mukhtar,  
Immunisation and COVID Focal Person, WHO, Sudan



HOW WOULD YOU DESCRIBE THE SCHEDULING OF DOSES DELIVERED BY THE COVAX MECHANISM?



Even though the platform included a forecast tool that allowed recipient countries to express their needs, requests were not always respected. Sometimes there were delays in delivery, other times doses came abruptly, without any announcement. This was also due to the lack of accountability within the COVAX mechanism, which made it impossible to compel donor countries to maintain their promises with respect to dose donations.

policies that can account for and encompass all the different aspects of a society, and continuously regulate to meet its demands. Interviewees were also widely concerned about the low number of production sites, and called for more widespread manufacture around the world, which was not enacted by policy-makers, decision-makers and pharmaceutical companies.

Going back to scheduling, even when the planned distribution was respected, delivered vaccines often had a very short shelf-life that hindered countries' capacities to roll them out, meaning many doses went to waste.

***“At that time COVAX was adopting standard policies for all countries; that was the main problem. Furthermore, timing was not following the needs of the country. There was also very little flexibility in determining target groups. In brief, the policy should not be one scale, one form, applicable to all countries.”***

Dr. Babiker Magbouc,  
General Director, Epidemic and Disease Control, Sudan

***“Even COVAX itself did not have already available doses. It depended on donors. Vaccine scheduling was changing constantly.”***

Jimmy Ameny  
Supply Chain Logistics Lead for the Ministry of Health, Uganda

**Another reason for the missed schedules was the international unavailability of doses, which were hoarded by developed countries, the ones producing them.** The significant discrepancies between what COVAX promised and what it was effectively able to enforce and obtain from its donors are clear indicators of its short-term nature, which needs to be complemented by long-term efficacy. In fact, it is very important to set long-term and adjustable

**These issues are clear indicators that the COVAX platform was built to Western standards.** Developing a tool that relies on data-based projections in countries with notoriously limited data-collection capacities can be short sighted, as it can end up providing them with vaccines with very short expiry windows, despite limited roll-out capacity.

However, it is worth mentioning that the **COVAX platform tried to address recipient countries' limited storage and delivery capacities.** In general, there was widespread recognition of this effort among the interviewees.

Nevertheless, when asked what could be improved in the mechanism, many mentioned the need for higher support in operational aspects. Interviewees usually underline that there was a lack of tailoring to the different contexts, and this eventually led to difficulties in properly helping with logistics, as each country had its own peculiarities and limitations. In Sudan, this lack was particularly felt, especially in last-mile delivery and communication. In Uganda and Sierra Leone, they were more concerned about the lack of sufficient funding for delivery.

***“They decided to save themselves at the expense of everyone. A lot of the donations that we received had very short shelf life. And for a while, shockingly, we were receiving vaccines donated to us by countries that did not recognise them when we tried to enter.”***

Dr. Paul Mbaka  
Assistant Commissioner at the Ministry of Health, Uganda

***“We have a lot of land with little population and without a road infrastructure. So it’s hard to reach everyone everywhere. It’s hard to reach most of the areas. [...] Furthermore, we don’t have statistical population counting. The last one was in 2008 before the separation with South Sudan. So the population now is an estimated number. They had just started to collect data after the revolution.”***

Dr. Mohamed Satti  
General Director for Covid-19 Operations, Sudan



# LESSONS LEARNED

- 1 FRAGILE COUNTRIES MOVE FAST.** In contexts where several layers of fragility are present, priorities change very rapidly. The population tends to focus on the issues that represent immediate and concrete epidemiological, social and economic threats, rather than on global and longer-term issues.
- 2 BUILD STRENGTH THROUGH INDEPENDENCE.** To improve the resilience of health systems in Africa, it is important to reduce their dependence on external support. To overcome this, countries should develop regional production of vaccines, diagnostics and therapeutics as well as response capacities. This means developing the infrastructure, workforce and technology needed to detect, prevent and respond to health emergencies, including epidemics and pandemics.
- 3 EQUITY REQUIRES MORE THAN JUST AVAILABILITY.** When vaccines became available the distribution was unequal and market-driven. Once the peak of the pandemic was over the supply of vaccines to LMICs increased. Still the overall support to vaccination campaigns as a whole was often lacking.
- 4 WE LIVE IN A GLOBAL VILLAGE.** In the case of global health threats, such as pandemics, it is critical that countries work together and coordinate their responses. This “global readiness” can include the sharing of information, resources and best practices, as well as coordinating the distribution of vaccines and other medical supplies. Its efficacy will be proportional to countries’ willingness to overcome the obstacles to the spread of knowledge. Another crucial aspect is to recognise that diseases know no borders and consequently even countries with strong health systems can be impacted by outbreaks in other parts of the world.

## ANALYSIS

The final section of the report focused more on global reflections: the interviewees were free to elaborate on their personal thoughts about broader arguments. One of the first elements that came up is the reduced concern among the general public due to the mild physical effects of Covid-19, combined with current low testing rates. However, it was pointed out numerous times that although the population might not be distressed, **policy-makers are aware of the potential for mutations of the virus and are still suggesting continued monitoring and updated preparedness plans.** From these things we can infer that **fragile countries move fast.** The meaning of this statement is that the rapid prioritization of immediate and concrete issues in fragile countries can be seen as a survival mechanism in the face of multiple challenges and limited

***“For the Government it is still a primary concern but there are upcoming diseases that are far more concerning, like Ebola. Among the public there is a lot of complacency because they think that they have become immune.”***

Godfrey Biroma  
Data Manager for Immunisation, Surveillance and Vaccines,  
Ministry of Health, Uganda

resources. While this behaviour can surely limit the ability to address long-term and global issues, it reflects the need to focus on the most pressing concerns in order to maintain basic health and economic stability.

Stemming from this point, interviewees have highlighted another centrepiece of our research: **the importance of building strong, independent and resilient health systems**, particularly in Africa, which has historically been heavily reliant on external support. This can be achieved by strengthening existing health systems through a higher volume of investments in the health sector. One of the possible ways to address this issue would be

***“At the time everyone was looking out for themselves. [...] The issue was not about LMICs, the problem was with availability in the first place. [...] Even if you had the capacity to deploy vaccines, there were no vaccines produced. It is important to improve production [in Africa].”***

Jimmy Ameny  
Supply Chain Logistics Lead for the Ministry of Health, Uganda

developing regional production of vaccines, diagnostics and therapeutics as well as combining response capacities, investing in the necessary infrastructure, workforce and technology needed to detect, prevent and respond to health emergencies.

***“We should develop resilience to pandemics, especially in Africa. We should also promote laboratories and pharmaceutical manufacturing. Pushing for equitable and rapid access. Even if the Western countries prioritised their own people, others should have the possibility of taking other choices – for example, ensuring vaccine production by local businesses. Promotion of diagnostics would create economic opportunities and even though right now we have improved literacy, we still have shortages of jobs because opportunities are being exported, as there is too much imported diagnostics.”***

Dr. Isaac Ssewanyana  
Laboratory Director at Central Public Health Laboratories,  
Uganda

**The Covid-19 pandemic has indeed exacerbated inequalities between developed countries and LMICs, exposing barriers that are in place, and undermined the access to vaccines, diagnostics and therapeutics.** These challenges have been compounded by the disproportionately high prices of vaccine doses and the market-driven nature of vaccine access, which has favoured developed countries.

***“Equity will involve a lot more than availability. Equity should go beyond country-level quantitative analysis since numbers do not tell the big picture. [...] It should analyse how people can get access to these doses without being provided with them.”***

Col. Dr. Stephen Sevalie  
Case Management Pillar Lead at NaCOVERC, Sierra Leone

Furthermore, the political uncertainty in some of the countries analysed did not help; in Sudan, for example, people stressed how the limited trust of the international community in their national government hindered the likelihood of the West giving them vaccines. The interviewees highlighted that although equity in access to vaccines was finally improving, several other areas needed to guarantee meaningful access to the vaccination campaigns kept lagging behind. Countries have experienced challenges regarding the logistics and capillarity of distribution, as well as cold chain capacity and the short shelf life of doses.

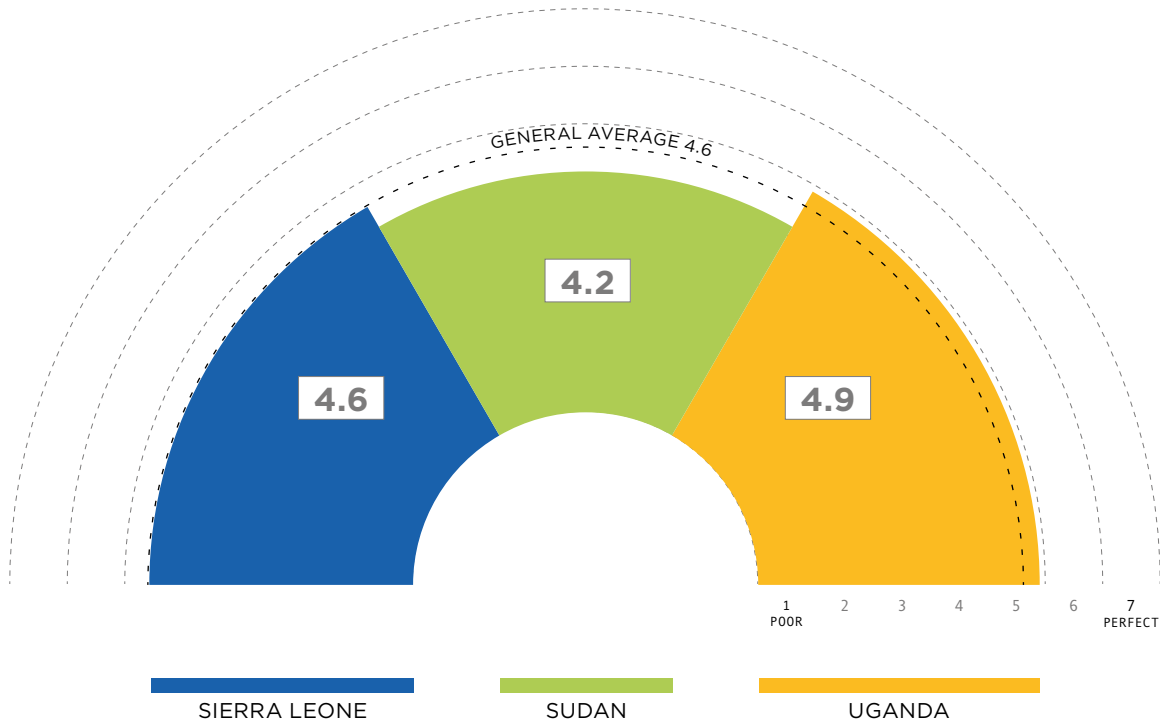
Interviewees therefore felt that their countries faced unfair access to vaccines with respect to the rest of the world but still believed their own countries to have had satisfactory vaccination campaigns when compared with the rest of Africa.

As shown in the graph below, all three countries received a considerably modest score, ranging from 4.2/7 for Sudan to 4.9/7 for Uganda.

***“Despite COVAX’s efforts, the number of doses we received at the beginning was very low. In other countries, the number of people vaccinated was very high before we even got 1% of our population covered. [...] Our access to vaccines is low compared to the rest of the world but significant if we look only at the African continent. [...] I don’t think that a lot of research has been done in Africa concerning the accessibility and availability of vaccines.”***

Mousab Elhag  
Health Project Specialist at UNDP, Sudan

### WHAT IS YOUR PERCEPTION OF YOUR COUNTRY’S ACCESS TO VACCINES COMPARED TO THE REST OF THE WORLD?



Additionally, it is crucial to recognise that **we live in a global village** and, once again, that diseases know no borders. In the case of global health threats, such as pandemics, it is critical that countries work together and coordinate their responses while keeping in mind their own intrinsic characteristics. **Nobody should be left behind, since the repercussions will be felt by everyone else.**

Moreover, global readiness can be structured around the sharing of information, resources and best practices, as well as the coordination of the distribution of vaccines

and other medical supplies that, as we have seen, are lacking in the majority of LMICs. That is why the sharing of scientific data and research findings, as well as the pooling of resources to develop vaccines and distribute them fairly around the world, are still major components of the coordinated responses to health outbreaks inside the international arena.

People generally expressed concern about the slow arrival and low quantities of vaccines compared to developed, countries although they appreciated the possibility of

***“We learned a lot. Access and equity must be worked on because it is a global threat now that people are travelling. Covid-19 has been a wake-up call, we should not go back to business as usual. We must be prepared, since pandemics are going to reoccur. We should be proactive in our decisions, for example financing more training. [...] In the future it will be crucial to have a one health approach.”***

Jonathan Greene

National Professional Officer, Laboratory, Health Security and  
Emergency Cluster, WHO, Sierra Leone

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having some kind of access to vaccines, something that is anything but easy to achieve without external aid. In Sierra Leone, for example, they also pointed out how a lack of support in logistics, a weak cold chain and the lack of purchase capabilities were the main drivers of inefficiency in a country that is widely known to be dependent on international aid. The interviewees felt that the international help could have been faster, with better addressed logistics and roll-out, supported by information-sharing and communication with the public. **Although it was imperfect, they were generally satisfied by its contribution, while highlighting nevertheless how solidarity, rather than profit, should have been prioritised.**

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***“Pandemics can happen at any time. We must build on the structures that we already have while focusing on the secondary effects on the population. We should look at trends in diseases, analysing how we can respond promptly by strengthening epidemic preparedness at a global level.”***

Dr. Desmond Kangbai

Programme Manager, EPI, Sierra Leone



# CHAPTER III: EMERGENCY'S APPROACH

In January 2020, the World Health Organization (WHO) declared Covid-19 a public health emergency of international concern. In the months that followed, due to the high contagiousness of Covid-19, its spread caused unprecedented global distress. All over the world, healthcare facilities had to take important precautions in order to go on providing basic care while limiting the spread of the virus. The issue was even more pronounced in LMICs like Sierra Leone, Sudan and Uganda, where the pandemic put an overwhelming burden on governments that have to constantly deal with multi-layered fragilities and already weak healthcare systems. Critical gaps in the overall Covid-19 response threatened health systems in these countries and risked leaving their most vulnerable communities without access to basic medicines and healthcare. Direct causes of the uncontrollable spread of the epidemic are largely due to the malfunctioning of the health system, scarce access to healthcare services, lack of skilled medical staff and insufficient awareness on hygiene and health issues within communities. Beyond the direct effects of the disease, indirect effects on health services can cause havoc of their own: patients suffering from complicated diseases, injuries and other conditions cannot access the care they acutely need.

***“We are missing a lot of things inside hospitals, inside a lot of facilities. There is a lack of prevention control, even simple masks. [...] Unfortunately a lot of people have died because of the collapse of the system. It collapsed in many areas – staff, consumables and medical equipment.”***

Manahel Badr Saad  
Deputy Head Nurse, EMERGENCY's Salam Centre for Cardiac Surgery, Khartoum, Sudan

For this reason, it is crucial to ensure the continuity of work, at least at the most important facilities, which should be equipped to prevent positive cases entering the hospital without being identified and isolated. **EMERGENCY'S**

**hospitals In Sierra Leone, Sudan and Uganda had to promptly develop and implement specific procedures to ensure the continuity of healthcare services in pandemic times, avoiding infection within the facilities and maintaining a Covid-19-free working environment for healthcare workers and patients.** In order to do so, EMERGENCY has capitalised on a number of the best practices and lessons it learnt while responding to the 2013–16 Ebola virus outbreak in Sierra Leone and to the 2017 outbreak of acute watery diarrhoea in Sudan. In Sierra Leone, EMERGENCY was a major contributor to the Ebola response (between 2014 and 2015), leading interventions based on several pillars: prevention, diagnosis, treatment and isolation. Specifically, it set up specific Ebola Virus Disease (EVD) protocols and trained all its staff on Infection Prevention Control (IPC). EMERGENCY had therefore developed considerable expertise in the matter of IPC procedures and managing isolation areas, which served as the starting point for its response to the Covid-19 pandemic in all its hospitals.

***“We started to plan a compartmentalisation of the hospital straight away, even before March and before the first case was registered in the country, based in part on our experience of Ebola. We wanted to avoid somebody getting Covid and infections inside the facility spreading and forcing us to stop activity.”***

Samuele Greco  
Medical Coordinator, EMERGENCY's hospital, Goderich, Sierra Leone

Based on the experience it had acquired, EMERGENCY provided theoretical and on-the-job training for medical and non-medical staff at its facilities to ensure proper use of PPE and infection control measures. Medical staff were instructed how to identify and isolate suspected and confirmed cases and refer them to dedicated facilities. Training sessions were based on internal protocols as well as guidelines from the WHO and national health ministries. Specifically, they focused

***“We quickly understood the situation in the hospital, because we had to wear PPE. [...] We have to wear it every day. Before you go inside the ward, you put in place measures. If you go into the ward from outside, you have to dress up and wash your hands. And then, if you come out for lunch, you have to undress, and then you go in again and you have to dress up again.”***

Medical worker, EMERGENCY’s hospital, Goderich, Sierra Leone

***“Here we used the masks, we disinfected our hands, everywhere there were sanitisers. You have to wash your hands, whatever you do with patients. And also people were given masks when they came in. As for suspected cases, we used to isolate them from the other patients. When cases were confirmed, we referred them to a specialist centre for Covid-19 isolation.”***

Fadwa Hamuda  
Senior Medical Officer, EMERGENCY’s Salam Centre for Cardiac Surgery, Khartoum, Sudan

on how to manage a positive case once diagnosed and how to properly implement IPC measures to ensure there is no further transmission to workers or patients in a healthcare facility.

The theoretical training was implemented by EMERGENCY’s Medical Coordinators and on-the-job training was performed by International Nurses, who were also put in charge of monitoring compliance with prevention and control measures. The Medical Coordinator was also responsible for keeping the training material updated in line with the latest developments and for adapting it to the most recent guidelines.

Equally crucial to the success of the prevention and control measures were the non-medical staff, which had to ensure the highest hygiene standards at the facility. To guarantee this, cleaners and cooks were given ad hoc training on routine cleaning and disinfection of frequently used surfaces. Moreover, all patients had to wear face masks, and Information, Education and Communication (IEC) actions were implemented to strengthen their knowledge. **This set of activities played a key role in protecting healthcare workers and patients from contagion, and it allowed the timely delivery of the standard healthcare services provided at EMERGENCY’s centres.**







These measures were part of an integrated and comprehensive strategy to limit the spread of the virus within the facilities, which took into account all aspects crucial to the functioning of the system: the supply chain, relationships with partners, internal dispositions and workflows. Everything had to be organised and ready to face major outbreaks. EMERGENCY's Covid-19 response measures included prevention strategies, which were designed to protect the hospital from the virus entering from outside and were therefore mainly used in the triage area, and protection strategies, which were designed to avoid further contamination if a positive case was diagnosed inside the hospital. More specifically, the protection strategies included **early recognition and source control, standard precautions, administrative controls, environmental and engineering controls, and compartmentalisation**. The latter procedure involved sub-dividing the facility into separate independent blocks, in order to reduce as far as possible the spread of infections and protect the safety of staff and patients. In practical terms, dividing the hospital into independent blocks meant that:

- 1 Every department had just one entry and one exit point and these had to remain separate in order to maintain the proper flows of dirty and clean material.
- 2 At the entrance to every department there were hand-washing and PPE points, in order to ensure proper hygiene and dressing.
- 3 At the exit to every department there were hand-washing and PPE disposal points, in order to ensure proper hygiene and undressing.
- 4 At the entrance to every department there was a filter to ensure the flows of dirty and clean material were not contaminated.

Compartmentalisation was done not only in the medical department but also in the ancillary services: the kitchen, canteen and laundry. Implementing a thorough plan that incorporated engineering and administrative controls, in addition to PPE, was necessary to achieve the greatest possible preparedness. The administrative controls included

***“Staff were being sensitised, Covid delayed opening by more than a year and staff were able to get really good prevention training. EMERGENCY’s staff were therefore very reliable. There were no massive infections among the staff.”***

Giulia Pedroni  
Head Nurse, EMERGENCY’s Children’s Surgical Hospital,  
Entebbe, Uganda

***“Well, I wasn't here when Covid started, I was working at a different hospital, so I came when Covid was a bit less aggressive. [...] EMERGENCY’s hospital was compartmentalised, in the sense that if you were in OPD, you stayed in OPD, if you were in the wards, you stayed in the wards, and also in terms of dressing: if you were in OPD, you had to put on PPE, and then obviously there were masks all the time.”***

Medical worker, EMERGENCY’s hospital, Goderich, Sierra Leone

putting in place precise infection prevention and control policies, suitable triage and placement of patients, and ongoing staff training. The spread of diseases and the pollution of surfaces were addressed by environmental and technical controls. Inside EMERGENCY's hospitals, all patients were treated as if they were Covid-19-positive, to maintain a high level of attention and prevention, consequently reducing the possibility of infection. The internal flow of patients was completely reorganised to ensure minimal movement and a new position was created to oversee it, to which a nurse was appointed, to manage the movement of patients to and from wards. It should be mentioned that the number of beds inside each facility had to be reduced in order to ensure social distancing, not only between patients but also between patients and healthcare workers.

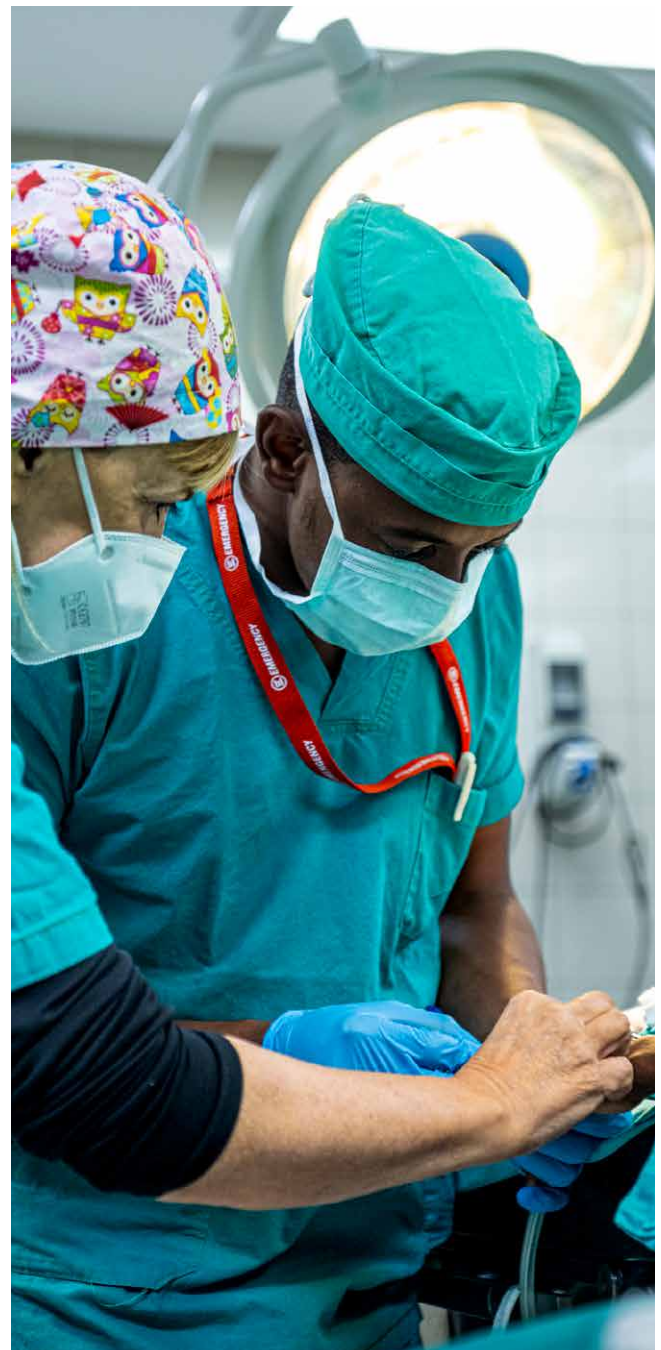
***“People arrived at the gate. They had a checklist for nurses who were in charge of triage at the gate. They tracked contacts, symptoms both in the past and currently, both for the children and for the relatives. If all of those were negative, they could enter, with masks, hand washing and so on. They did check-ups and after that, they went home. Those who were called back or were directly admitted had to undergo rapid tests. If they were positive, they went back home. If, instead, they were ‘red code’, they were immediately admitted to isolation. In OPD they had a room dedicated to Covid-19 where they could also operate.”***

Luisa Napolitano  
Medical Coordinator, EMERGENCY's Children's Surgical Hospital, Entebbe, Uganda

Correct use of PPE and DPI was also crucial. This meant that according to the level of exposure to possible infection, different levels of personal protective equipment were used. Medical staff working inside hospitalisation wards, diagnostic services and OPD wore face masks and shields, gowns, gloves and shoe covers, while staff working inside emergency rooms and operating theatres also wore N95 masks. Staff working in pre-triage areas were also given specific gear to give them a higher level of protection. Following the progression of the pandemic, EMERGENCY is continuing to adapt its protection measures, guaranteeing a safe environment for its staff and patients. Heavy monitoring of the epidemiological situation is crucial in order not to be caught off guard and to promptly react, providing uninterrupted access to healthcare services.

***“The hospital had prevention and control measures to be as safe as possible. Protocols were put in place for both staff and patients, to screen everybody that entered the building. There were flow charts to help us define and manage cases. The bed capacity was reduced with a view to better control of everything and social distancing.”***

Giulia Pedroni  
Head Nurse, EMERGENCY's Children's Surgical Hospital, Entebbe, Uganda



The interviews that constitute the backbone of this report highlight the different factors in determining the success or failure of responses to the Covid-19 pandemic and of the related vaccination campaigns. Reading the interviewees' answers, it is clear that we cannot overlook that each country is different, and this must be considered when designing international policies. On top of this, some general conclusions can be drawn from our analysis.

**Health systems in Africa are often underfunded and, consequently, understaffed and underequipped.** This hinders their capacity to respond to emergencies, especially when crises are nation-wide. **Large-scale crises often disrupt other healthcare services**, as a lack of healthcare workers, funds and general resources mean an adequate response cannot be deployed while ensuring the population still has access to those other services. This is also due to the fact that disease response is usually limited to very narrow regions within these countries. In fact, **the ability to respond to large-scale diseases is higher in countries that have already experienced large-scale epidemics and have ready-to-use policies.** Facing and overcoming crises helps provide awareness of local limitations, to improve the current situation and **be better prepared for the future.** A crucial role in responding to these events is played by the health workforce. Unfortunately, a serious shortage of health workers in Africa is undermining access to and provision of health services, despite efforts by countries to boost their workforces. **Working on the front line of a massive event like Covid-19 exposed healthcare workers to risks due to a lack of protective measures and proper training.** Interviewees reiterated the need to properly safeguard health workforces in order to prevent a worsening of an already severely compromised situation. The unprecedented scale of the Covid-19 pandemic exacerbated the aforementioned problems. While large amounts of funds had been sent to LMICs to support them in their responses, the interviewees underlined how the external aid was absorbed completely in emergency measures, meaning health systems would not really benefit from this support, and their resilience and preparedness for future shocks would not improve.

**Clear and punctual communication between institutions and with the general public is crucial when responding to emergencies.** The Covid-19 pandemic was the first global health event in the era of global communication. Underestimating the reach of information-sharing in an almost totally digitalised world posed additional challenges to countermeasures and vaccination

campaigns. What was happening in the Western world was echoed in LMICs by global media, without taking into consideration the different perceptions and possible effects on the general public in other parts of the world. **In all three countries where the research was conducted, the interviewees remarked how the best mitigation measure for such communication problems was community engagement on a massive scale.** The strategy of relying on peer-to-peer communication helped adapt messages to local sensibilities and was used to correct distorted perceptions and the spread of fake news.

The interviewees also highlighted several communication barriers that emerged during Covid-19. **Governments struggled to impose institutional information over informal information, and very often there was a huge gap between the accuracy of communication given at a central level and at a peripheral level.** The subject of communication served as an ice-breaker for the interviewees to bring up the issue of the **core-periphery relations which are in general very difficult in fragile countries.** This asymmetry posed a big challenge to response coordination and vaccination reach from several points of view, from logistics to the presence of health workers in hard-to-reach areas.

**Interviewees were generally satisfied with their countries' vaccination campaigns, especially when compared to previous ones.** Despite initial delays and drawbacks, governments were finally able to deploy adequate vaccination campaigns. Difficulties related not only to the timely delivery of vaccines but also to the methods of administration. A vast vaccination campaign for the adult population posed several challenges to local administrators, such as the opportunity to routinize it or to create a separate channel. As of today, the three countries in which the research was conducted have managed to reach a satisfactory rate of people vaccinated with at least one dose. This was also due to **significant international support.** In these countries, reliance on external aid is generally relevant, and it was **further exacerbated during the Covid-19 pandemic.** Respondents said that without international coping mechanisms, especially COVAX, vaccine doses would have never arrived so quickly and on such a massive scale on the continent, and the initial delays are to some extent justified because the international community was "fighting this war too." Nevertheless, it was pointed out by almost all the interviewees that **the biggest barrier to equal access to vaccines, diagnostics and therapeutics was the fact the support mechanism was influenced by market logic, which overruled the principle of solidarity.**

Nevertheless, the **COVAX mechanism** was generally considered to be the **main Covid-19 vaccine provider** in each country. Interviewees were satisfied by the quantity of vaccines delivered by the platform, by its engagement procedures, and by the large funds invested, especially in training of healthcare workers. **Still, the lack of timeliness, abrupt scheduling and short shelf-life of vaccines are crucial limitations of the mechanism**, as well as limited support with logistics and roll-out. Broadly speaking, it lacked sufficient adaptation to local situations, due in part to **poor data-collection capacities** which hindered the functioning of the mechanism. In fact, data issues not only made it difficult for the different countries to communicate their needs in terms of vaccines, but also often made tracking of the vaccination campaigns' progress unreliable.

**In fragile countries, different layers of fragility pile up and priorities shift continuously.** Therefore, for effectively and efficiently supporting LMICs, it is crucial to consider these rapid shifts in priorities by constantly updating policies. **COVAX made vaccines available**

**to the different countries, not to their populations.**

Delivering free vaccines to every country in the world is an important step towards global equity, but it is not enough. It is important to improve and ensure access by populations, too.

This must be achieved through **more prominent global attention to Africa's needs as well as through the empowerment of the continent.** Interviewees called for **African production of vaccines, diagnostics and therapeutics to be developed**, which meant developing the infrastructure, workforce, and technology needed to detect, prevent and respond to health emergencies, including epidemics and pandemics. This progress must be included in future global health policies, not only on the grounds of equity, but also for every person's safety. **Diseases know no borders** and consequently even countries with strong health systems can be affected by outbreaks in other parts of the world. Therefore, in view of future global health threats, it is critical that countries work together and coordinate their responses, thus building global resilience through "**global readiness**".



# POLICY RECOMMENDATIONS

**1 EVERY VOICE SHOULD BE HEARD.** In order to have truly inclusive and tailored solutions it is crucial to ensure that, when it comes to global health, the decision-making process is founded on addressing needs and is not dictated by market logic or partisan interests. We call for a more inclusive policy-making process at a global level, in which instances coming from LMICs should duly be taken into consideration and addressed by the international community.

**2 AVOID ONE-SIZE-FITS-ALL POLICIES.** To properly adapt international policies to different contextual situations, context analyses must be further reinforced in policy-making. To ensure and favour this process, each country is encouraged to strengthen its mechanisms for controlling, updating and sharing information and data on its internal situation. Furthermore, a shared standard for data collection mechanisms would be a welcome way to guarantee comparability.

**3 IMPROVE DATA-COLLECTION CAPACITIES IN AFRICA.** African countries' poor data collection capacities should be tackled. Greater national and international investment must be devoted to this effort, to help create adequate tools and databases as well as a higher number of trained workers. An effort towards better accountability would be essential to ensure proper coverage and reliability of the information. These improved data collection capacities would help each country and the international community correctly account for and forecast needs, and to better adapt policies.

**4 FOCUS ON TIMELY DELIVERY OF VACCINES.** In LMICs a lack of timely and structured vaccination delivery can create considerable barriers to operations aimed at controlling the spread of pandemics, leaving huge segments of the population exposed to the virus. EMERGENCY believes that prioritisation of timely vaccine distribution on the part of governments and international organisations must be one of the future kernels of an effective pandemic response. In LMICs, this will help safeguard public health as well as boost a global recovery.

**5 ADEQUATELY SUPPORT LOGISTICS AND DISTRIBUTION IN LOW- AND MIDDLE-INCOME COUNTRIES.** Delays in the supply of crucial products such as vaccines, medicines,

medical equipment and other necessities are bound to escalate in preponderant core-periphery asymmetries, further marginalising hard-to-reach areas. That is why EMERGENCY advocates effective support with logistics and distribution in LMICs, in order to ensure that these essential commodities and services are delivered fairly and on time, contributing to a fast and reliable response and long-term sustainability.

**6 INVEST IN THE LOCAL HEALTH WORKFORCE.** The WHO forecasts a shortfall of 10 million healthcare workers by 2030, mostly in LMICs. In the three countries where the research was conducted, the average number of skilled healthcare workers per 1,000 people is already worryingly below the threshold of 4.45 set by the WHO. Therefore, we call for a higher level of investment in healthcare workers, which will contribute to increasing the number of health workers, to provide better training so as to foster opportunities and growth in the sector overall.

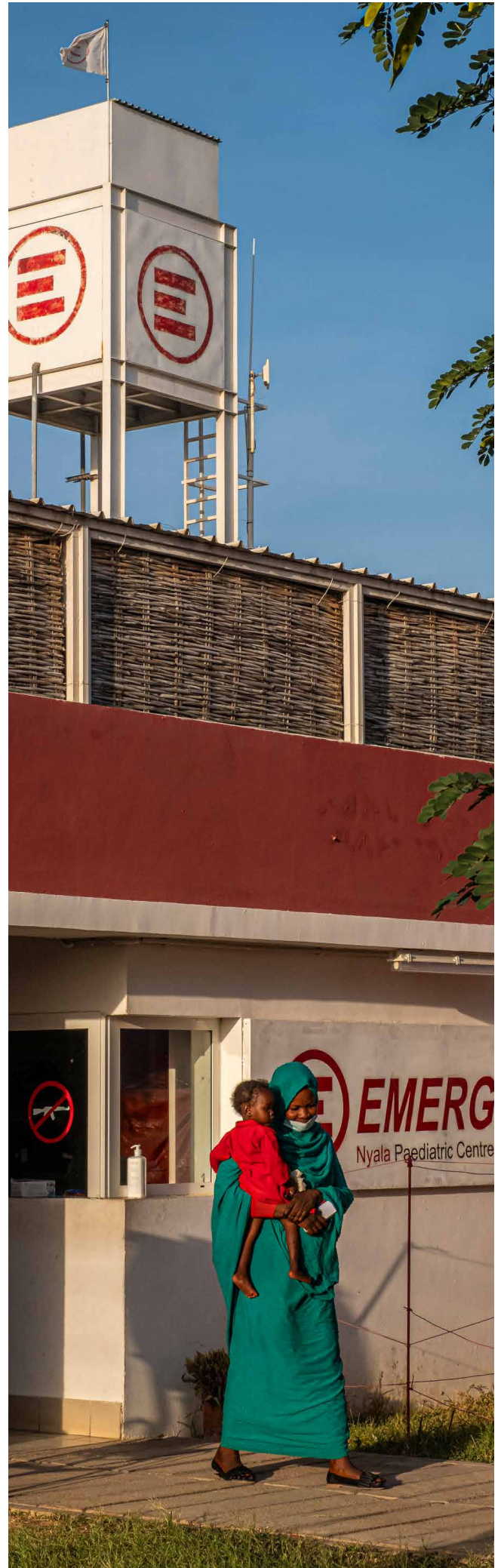
**7 UPDATE LOCAL PREPAREDNESS POLICIES.** The Covid-19 pandemic demonstrated that countries that were familiar with large disease outbreaks and had ready-to-go policies were able to deploy a more effective and timely response. Building on this experience, countries should keep renewing, updating and monitoring the proper functioning of preparedness policies, both at the national and local level, in order to be ready to promptly respond to future health crises.

**8 ENSURE EFFECTIVE COMMUNICATION BOTH AT INSTITUTIONAL AND GROUND LEVEL.** During crises, effective communication is essential, but it is especially so in institutional and grass-roots settings. To guarantee that information is effectively distributed, there should be verification methods in place that allow authorities to validate that formal information is being received and understood by the public. We see Article 17 of the Zero Draft of the WHO CA+ as a starting point for these aims, as it states that all parties should commit to increasing the public's knowledge of science, public health and pandemics. The authorities should enhance openness, accountability, and trust by prioritizing good communication at both the institutional and grass-roots levels, ultimately contributing to more effective responses to crises and emergencies.

**9 LOOK BEYOND MERE ALLOCATION OF RESOURCES.** When providing external aid, it is crucial to respect country-specific requirements and capacities. It is critical to assist with capacity-building in order to manage resources effectively, especially in fields where countries have little or no experience. To complement these efforts, EMERGENCY calls for the creation of post-pandemic strategies to ensure that investments are sustainable and have a lasting impact. In this way countries can build the capacity and infrastructure necessary to respond effectively to future crises and promote their own internal development.

**10 ENCOURAGE PREPAREDNESS THROUGH THE FLOW OF INFORMATION.** To proactively face future health crises, it is fundamental that all countries in the world cooperate to share knowledge and coordinate their responses. To effectively prevent, foresee and address potential crises, EMERGENCY believes that information such as research findings, data, and best practices must be shared. All countries must be prepared to contribute to this effort by collecting and disseminating relevant information about their internal health situations.

**11 REMOVE BARRIERS TO THE CIRCULATION OF KNOWLEDGE.** To achieve global equity in access to vaccines, diagnostics and therapeutics, it is crucial to increase LMICs' manufacturing capacities. To do so, the international community should commit to promoting and incentivising the transfer of technology and know-how. When a health emergency is declared, research results and innovation should be made immediately available to manufacturers all over the world, particularly in the Global South, especially when publicly funded. On these fronts, Article 7 of the Zero Draft of WHO CA+ contains some positive developments. We call for governments to advocate proactively towards a final version of the text, which maintains a commitment to prioritising equity and human rights over profit.



1. World Bank. 2022. 'Measuring Poverty'. Text/HTML. World Bank. 30 November 2022. <https://www.worldbank.org/en/topic/measuringpoverty>
2. Mathieu, E., Ritchie, H., Rodés-Guirao, L., Appel, C., Giattino, C., Hasell, J., Macdonald, B., et al. n.d. 'Sierra Leone: Coronavirus Pandemic Country Profile'. OurWorldinData. Coronavirus Pandemic (COVID-19). Accessed 31st Mar. 2023. <https://ourworldindata.org/coronavirus/country/sierra-leone>
3. Johns Hopkins Coronavirus Research Centre, n.d. 'Understanding Vaccination Progress'. Accessed 31st of March 2023. <https://coronavirus.jhu.edu/vaccines/international>
4. Africa CDC. n.d. 'Africa CDC COVID-19 Vaccine Dashboard'. Africa CDC. Accessed 31st Mar. 2023. <https://africacdc.org/covid-19-vaccination/>
5. Gavi. 2020. 'COVAX Explained'. Gavi, The Vaccine Alliance. Accessed 31st Mar. 2023. <https://www.gavi.org/vaccineswork/covax-explained#:~:text=What%20is%20the%20Gavi%20COVAX,and%20at%20the%20same%20time>
6. WHO. n.d. 'What is the ACT-Accelerator'. World Health Organization. Accessed 31st Mar. 2023. <https://www.who.int/initiatives/act-accelerator/about>
7. European Parliament. 2022. 'Understanding COVAX The EU's Role in Vaccinating the World against Covid-19'. Think Tank European Parliament.
8. UNICEF. n.d. 'Covid-19 Market Dashboard'. Unicef, Covid-19 Market Dashboard. Accessed 31st Mar. 2023. <https://www.unicef.org/supply/covid-19-market-dashboard>
9. WHO. 2022. 'COVID-19 vaccination in the WHO African Region'. WHO. Monthly Bulletin on Covid-19 Vaccination in the WHO African Region.
10. WHO. 2021. 'Achieving 70% COVID-19 Immunization Coverage by Mid-2022'.
11. Centers for Disease Control and Prevention (CDC). 2020. "2014-2016 Ebola Outbreak in West Africa". <https://www.cdc.gov/vhf/ebola/history/2014-2016-outbreak/index.html>.
12. Ministry of Health and Sanitation of Sierra Leone. 2017. 'National Health Sector Strategic Plan, 2017-2021'.
13. UNDP. 2022. "Human Development Report 2021/2022: Uncertain Times, Unsettled Lives: Shaping Our Future in a Transforming World". [https://hdr.undp.org/system/files/documents/global-report-document/hdr2021-22pdf\\_1.pdf](https://hdr.undp.org/system/files/documents/global-report-document/hdr2021-22pdf_1.pdf)
14. African Health Stats. n.d. "African Health Stats: LIVE Site". Accessed 28th Feb. 2023. <https://africanhealthstats.org/?pagename=country>.
15. Global AIDS Monitoring. 2020. "Country Progress Report - Sierra Leone". [https://www.unaids.org/sites/default/files/country/documents/SLE\\_2020\\_countryreport.pdf](https://www.unaids.org/sites/default/files/country/documents/SLE_2020_countryreport.pdf)
16. Robinson, C. 2019. "Primary Health Care and Family Medicine in Sierra Leone". African Journal of Primary Health Care & Family Medicine, vol. 11, no. 1, p. 2051. <https://doi.org/10.4102/phcfm.v11i1.2051>.
17. Commonwealth Network. 2020. 'Find Health and Medical expertise in Sierra Leone'. [https://www.commonwealthofnations.org/sectors-sierra\\_leone/business/health\\_and\\_medical/#:~:text=There%20are%20about%2080%20hospitals,hospital%2C%20Choithram%2C%20in%20Freetown](https://www.commonwealthofnations.org/sectors-sierra_leone/business/health_and_medical/#:~:text=There%20are%20about%2080%20hospitals,hospital%2C%20Choithram%2C%20in%20Freetown)
18. World Bank. 2018. 'Physicians (per 1,000 people) - Sierra Leone'. <https://data.worldbank.org/indicator/SH.MED.PHYS.ZS?locations=SL>
19. World Bank. 2018. 'Nurses and midwives (per 1,000 people) - Sierra Leone'. <https://data.worldbank.org/indicator/SH.MED.NUMW.P3?locations=SL>
20. Government of Sierra Leone. 2018. "National Action Plan for Health Security (NAPHS), 2018-2022: Executive Summary". <https://dhse.gov.sl/wp-content/uploads/2019/09/NAPHS-EXECUTIVE-SUMMARY-2018-2022-3.pdf>.
21. Centre for Public Impact – BCG Foundation. 2016. "Free Mother and Child Healthcare in Sierra Leone". <https://www.centreforpublicimpact.org/case-study/free-healthcare-sierra-leone>.
22. Vandy, J. 2021. "Vice President Hosts Social Health Insurance Scheme Meeting". <https://mic.gov.sl/Media/News/vice-president-hosts-social-health-insurance-scheme-meeting>.
23. Ministry of Health and Sanitation of Sierra Leone. 2022. "Corona Virus Disease (Covid-19) Situational Report". [https://www.afro.who.int/sites/default/files/2022-05/Sierra%20Leone%20COVID-19%20Situation%20Report%20760%20\\_%202029%20April%202022.pdf](https://www.afro.who.int/sites/default/files/2022-05/Sierra%20Leone%20COVID-19%20Situation%20Report%20760%20_%202029%20April%202022.pdf)
24. Prevent Epidemics. n.d. 'Sierra Leone Outbreaks: Prevent Outbreaks and Epidemics in Sierra Leone'. Accessed 31 Mar. 2023. <https://preventepidemics.org/countries/sle/>
25. World Bank. 2022. "Sudan Overview: Development News, Research, Data". <https://www.worldbank.org/en/country/sudan/overview>
26. UNICEF. 2019. "Health - Supporting High Impact Interventions to Save Lives of Mother and Babies". <https://www.unicef.org/sudan/health>.
27. World Bank. n.d. "Cause of Death, by Non-Communicable Diseases (% of Total) - Sudan". Accessed 31st Mar. 2023. <https://data.worldbank.org/indicator/SH.DTH.NCOM.ZS?locations=SD>.
28. Ebrahim, M. A., Ghebrehiwot, L., Abdalgfar, T., Hanafiah Juni, M.. 2017. "Health Care System in Sudan: Review and Analysis of Strength, Weakness, Opportunity, and Threats (SWOT Analysis)". Sudan Journal of Medical Sciences (SJMS), vol. 12, no. 3, pp. 133-50. <https://doi.org/10.18502/sjms.v12i3.924>.
29. Federal Ministry of Health of Sudan. 2022. "Together We Build Our Health". [http://sho.gov.sd/controller/knowledge\\_hub.php?sm\\_id=132&mid=110&lid=1#](http://sho.gov.sd/controller/knowledge_hub.php?sm_id=132&mid=110&lid=1#).
30. World Bank. 2018. 'Physicians (per 1,000 people) - Sudan'. <https://data.worldbank.org/indicator/SH.MED.PHYS.ZS?locations=SD>
31. World Bank. 2018. 'Nurses and midwives (per 1,000 people) - Sudan'. <https://data.worldbank.org/indicator/SH.MED.NUMW.P3?locations=SD>

32. The Borgen Project. 2020. "Improving Access to Healthcare in Sudan".  
<https://borgenproject.org/healthcare-in-sudan/>.
33. World Bank. n.d. 'GDP growth (annual %) - Uganda'. Accessed 31 Mar. 2023  
<https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=UG>
34. USAID. 2018. "Uganda One Health Strategic Plan 2018-2022". Uganda AIDS Commission.  
<https://www.health.go.ug/cause/uganda-one-health-strategic-plan-2018-2022/>
35. Demographic Dividend. n.d. 'Uganda: Demographic Dividend'. Accessed 31 Mar. 2023.  
<https://demographicdividend.org/uganda/#:~:text=As%20of%20midyear%202020%2C%20Uganda,population%20was%20under%20age%2015.>
36. Okwero, P., Tandon, A., Sparkes, S., McLaughlin, J., Hoogeveen, J., G.. 2010. Fiscal Space for Health in Uganda. World Bank.  
[https://doi.org/10.1596/978-0-8213-8290-5.](https://doi.org/10.1596/978-0-8213-8290-5)
37. World Bank. 2018. 'Physicians (per 1,000 people) - Uganda'.  
<https://data.worldbank.org/indicator/SH.MED.PHYS.ZS?locations=UG>
38. World Bank. 2018. 'Nurses and midwives (per 1,000 people) - Uganda'.  
<https://data.worldbank.org/indicator/SH.MED.NUMW.P3?locations=UG>
39. WHO. n.d. 'Sierra Leone: WHO Coronavirus Disease (COVID-19) Dashboard With Vaccination Data'.  
<https://covid19.who.int/region/afro/country/sl>
40. OurWorldInData. n.d. 'Total COVID-19 Vaccine Doses Administered'. Accessed 31st of March 2023.  
<https://ourworldindata.org/covid-vaccinations>
41. Sevalie, S., Youkee, D., van Duinen, A.J., Bailey, E., Bangura, T., Mangipudi, S., Mansaray, E., et al. 2021. "The Impact of the COVID-19 Pandemic on Hospital Utilisation in Sierra Leone". BMJ Global Health, vol. 6, no. 10.  
[https://doi.org/10.1136/bmjgh-2021-005988.](https://doi.org/10.1136/bmjgh-2021-005988)
42. Haider, N., Osman, A.Y., Gadzekpo, A., O Akipede, G., Asogun, D., Ansumana, R., Lessells, R. J., et al. 2020. "Lockdown Measures in Response to COVID-19 in Nine Sub-Saharan African Countries". BMJ Global Health, vol. 5, no. 10.  
[https://doi.org/10.1136/bmjgh-2020-003319.](https://doi.org/10.1136/bmjgh-2020-003319)
43. Concern Worldwide. 2020. "The Impact of Covid-19 on the Poorest".
44. WHO. n.d. "Sudan: WHO Coronavirus Disease (COVID-19) Dashboard With Vaccination Data".  
<https://covid19.who.int>.
45. UNICEF Sudan. 2021. 'COVID-19 RESPONSE 2020'.  
<https://www.unicef.org/sudan/media/6096/file/COVID%2019%20Response.pdf>
46. Afrobarometer. 2022. 'Sudanese approve of COVID-19 lockdown but critical of government's pandemic performance'.  
[https://www.afrobarometer.org/wp-content/uploads/2022/02/ad506-sudanese\\_approve\\_of\\_covid-19\\_lockdown\\_but\\_critical\\_of\\_government\\_performance-afrobarometer\\_dispatch-6feb22.pdf](https://www.afrobarometer.org/wp-content/uploads/2022/02/ad506-sudanese_approve_of_covid-19_lockdown_but_critical_of_government_performance-afrobarometer_dispatch-6feb22.pdf)
47. UNOCHA. 2020. 'SUDAN Impact of COVID-19 on continuity of health services'.  
<https://reports.unocha.org/en/country/sudan/card/49cURoYa8t/>
48. Ro, C. 2020. 'Why Health Workers In Sudan Have Been Leaving Their Posts Amid Covid-19,' Forbes. Accessed 31 Mar. 2023  
<https://www.forbes.com/sites/christinero/2020/06/25/why-health-workers-in-sudan-have-been-leaving-their-posts-amid-covid-19/>
49. Ipsos. 2020. "Responding to Covid-19: Highlights of a Survey in Sudan".  
[https://www.ipsos.com/sites/default/files/ct/publication/documents/2020-05/sudan\\_report\\_0.pdf.](https://www.ipsos.com/sites/default/files/ct/publication/documents/2020-05/sudan_report_0.pdf)
50. World Bank. 2020. "Socioeconomic Impact of COVID-19 on Sudanese Households".  
[https://documents1.worldbank.org/curated/en/394981620725892919/pdf/Socioeconomic-Impact-of-COVID-19-on-Sudanese-Households.pdf.](https://documents1.worldbank.org/curated/en/394981620725892919/pdf/Socioeconomic-Impact-of-COVID-19-on-Sudanese-Households.pdf)
51. WHO. n.d. 'Uganda: WHO Coronavirus Disease (COVID-19) Dashboard With Vaccination Data'.  
<https://covid19.who.int/region/afro/country/ug>
52. Think Well. 2020. 'Uganda's Emergency Response to the COVID-19 Pandemic: A Case Study'.
53. World Bank. n.d.b "Out-of-pocket expenditure per capita (current US\$) - Uganda".  
<https://data.worldbank.org/indicator/SH.XPD.OOPC.PC.CD?locations=UG>
54. World Bank. n.d.c "Out-of-pocket expenditure per capita (% of current expenditure) - Uganda".  
<https://data.worldbank.org/indicator/SH.XPD.OOPC.CH.ZS?locations=UG>
55. UNICEF. 2020. 'Retrospective Analysis of DHIS 2 Non-COVID Services, February-March 2020'.
56. Planning\_cycle\_repository/sierra\_leone  
[https://extranet.who.int/countryplanningcycles/sites/default/files/planning\\_cycle\\_repository/sierra\\_leone/sierra\\_leone\\_nhssp\\_2017-21\\_final\\_sept2017.pdf.](https://extranet.who.int/countryplanningcycles/sites/default/files/planning_cycle_repository/sierra_leone/sierra_leone_nhssp_2017-21_final_sept2017.pdf)