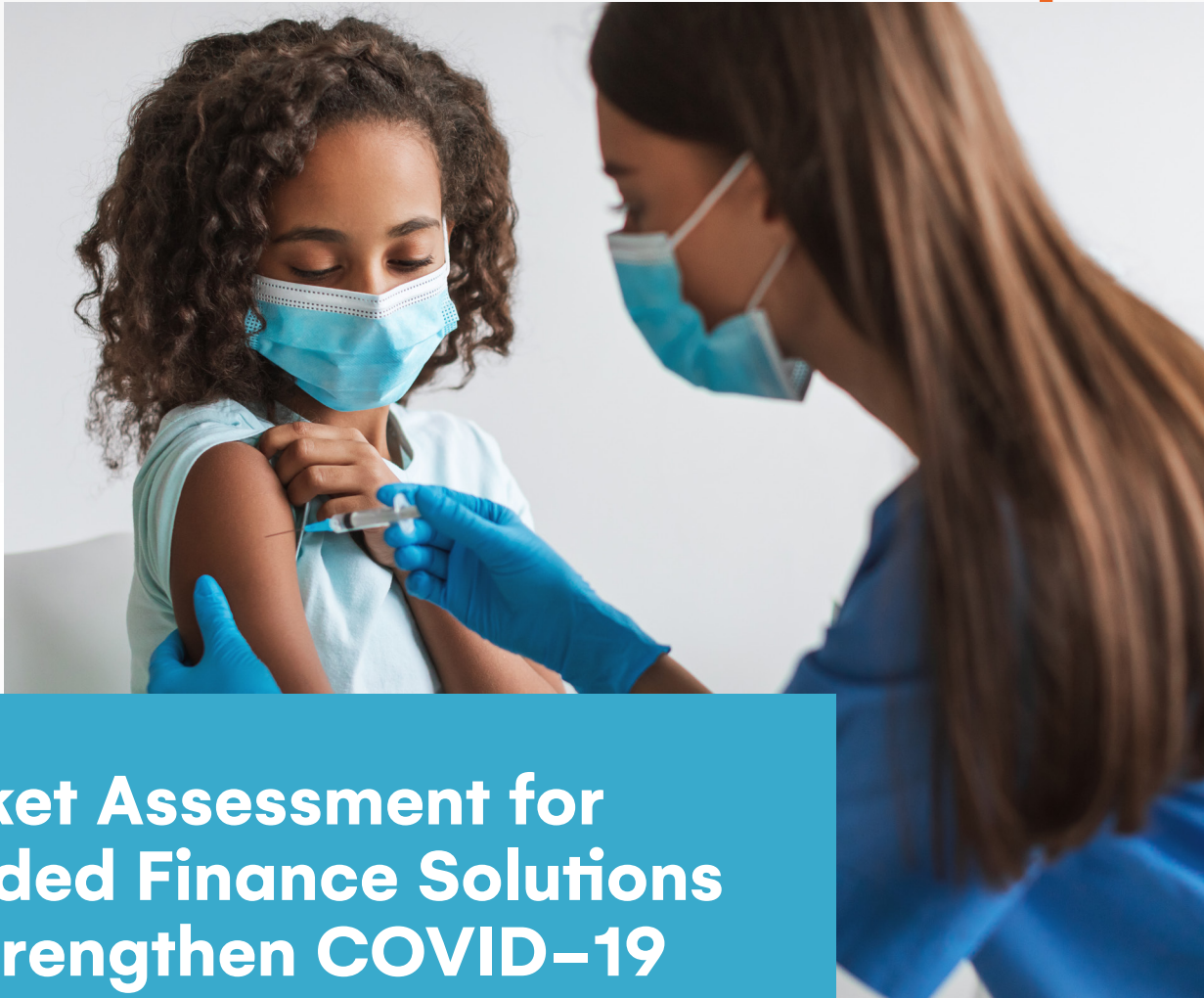




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# Market Assessment for Blended Finance Solutions to Strengthen COVID-19 Vaccine Supply Chain Management in Africa

Report written by

**HEALTH FINANCE**  
INSTITUTE

December 2022

# List of Abbreviations

ACT	Access to COVID-19 Tools	MCF	Medical Credit Fund
AMCs	Advanced market commitments	MoHCDGE&C	Ministry of Health, Community Development, Gender, Elderly and Children
AU	African Union	MoH	Ministry of Health
AVATT	African Unions African Vaccine Acquisition Task Team	NHIF	National Health Insurance Fund
BMGF	The Bill & Melinda Gates Foundation	NHIS	National Health Insurance Scheme
CHAI	Clinton Health Access Initiative	NCDs	Non-communicable diseases
CCEOP	Cold Chain Equipment Optimization Platform	OECD	Organization for Economic Co-operation and Development
COVAX	COVID-19 Vaccines Global Access	OOP	Out-of-Pocket
DAH	Developmental Assistance for Health	PHC	Primary Health care Expenditure
DFH	Ministry of Health and Department of Family Health	PPD	Public Private Dialogue
DFIs	Development Finance Institutions	PPEs	Personal Protective Equipment
EA	East Africa	PPPs	Public-Private Partnerships
GAHFs	Government-Assisted Health Facilities	SAMRIDH	Sustainable Access to Markets and Resources for Innovative Delivery of Healthcare
GDP	Gross Domestic Product	SDGs	Sustainable Development Goals
GHED	Global Health Expenditure Database	SEZs	special economic zones
IFC	International Finance Corporation	SIBs	Social Impact Bonds
IFHA	Investment Funds for Health in Africa	SNHIF	Single National Health Insurance Fund
IMF	International Monetary Fund	THE	Total Health Expenditure
KEMSA	Kenya Medical Supplies Agency	UHC	Universal Health Coverage
KEPSA	Kenya Private Sector Alliance	UNICEF	United Nations International Children's Emergency Fund
KHF	Kenya Healthcare Federation	WHO	World Health Organization
KIDDP	Kenya-Italy Debt for Development Program		
LMIC	Lower Middle-Income Country		

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# Executive Summary

Prior to the COVID-19 pandemic, many countries already had existing childhood vaccination programs. However, large-scale vaccination campaigns for adolescents and adults were not yet fully implemented in many low- and middle-income economics. To increase COVID-19 vaccination coverage with prioritization of full vaccination for high-risk populations, national healthcare system capacities still require strengthening to continue the journey towards tackling the COVID-19 pandemic and overall strengthening of existing health systems.

Africa lags significantly behind the rest of the world in access to COVID-19 vaccines. By January 2022, only 10% of Africa's 1.2 billion population had been fully vaccinated, widely missing the World Health Organization's (WHO's) target of 70% for this date. High-income countries have administered over 48 times more doses of COVID-19 vaccines per person than low-income countries.<sup>1</sup>

In this presented body of work, the Health Finance Institute (HFI) identified the key vaccine supply chain challenges in Africa, drawing on published WHO guidance and a review of the existing peer-reviewed and gray literature. The most pertinent challenges identified include: 1) inefficient last-mile transportation and distribution logistics,<sup>2</sup> 2) limited capacity in cold-chain storage,<sup>3</sup> 3) lack of reliable grid electricity infrastructure,<sup>4</sup> 4) low operational efficiency,<sup>5</sup> 5) limited intercontinental transportation capacities<sup>6</sup> and 6) a lack of donation standards.<sup>7</sup>

To elucidate these challenges and to assess the feasibility of blended finance in addressing these, HFI conducted an in-depth assessment via means of virtual and in-person interviews, as well as analyses

of the insights and findings, applying several blended finance feasibility frameworks. The goal was to identify opportunities that aim to both meet the immediate COVID-19-vaccine distribution needs and provide long-term benefit to the continent's healthcare systems post-pandemic.

As part of the results of these analyses, **Sections 1, 2 and 3** highlight the roadblocks that local entrepreneurs in Africa experience to access private capital in the market and the existing mismatch between investors and investees. **Section 4** highlights the respective levels of interest in investing in the African healthcare sector gleaned from dialogues with Development Finance Institutions (DFIs), impact investors, international organizations, civil society, implementers, government, and foundations. Lastly, **Section 5** provides recommendations to address financing impasses in the vaccine supply for COVID-19 vaccines and beyond.

This report brings to the forefront the possibility of creating new and innovative financing mechanisms to unlock more private investment to support the health sector in Africa. However, to pave the way for larger scale blended finance transactions in the vaccine space in East Africa, more time and targeted efforts are needed toward aligning the growing interest from the impact investors, the needs of the local African healthcare systems, and the Sustainable Development Goals (SDGs) with a focus on ensuring patients everywhere have access to high-quality vaccines, diagnostics, and medicines.

1 "Africa faces 470 million COVID-19 vaccine shortfall this year". United Nations. Available at: <https://news.un.org/en/story/2021/09/1100102>

2 "Improving Sub-Saharan Africa's Logistics could be the key to successful vaccine delivery." International Monetary Fund. Going the Last Mile.

3 McKinsey & Company. Port to patient: Improving country cold chains for COVID-19 vaccines.

4 Oximio. Africa's last mile: Building viable vaccine supply chains.

5 McKinsey & Company. Is the world up to the challenge of mass COVID-19 vaccination?

6 UNICEF. Delivering COVAX supplies during supply chain crisis, the HOPE Consortium steps up support to UNICEF.

7 VOA News. Logistics of COVID Vaccine Donations to Africa Must Improve, Say Distribution Coordinator.

## 1

# Understanding the COVID-19 Vaccine Supply Chain Gap in Africa: A Brief Overview and Background of Vaccine Delivery in Africa in Four Focus Countries

## 1.1 Background

The Health Finance Institute (HFI) partnered with the Partnerships for Affordable Healthcare Access and Longevity (PAHAL) program to better understand the challenges facing the vaccine supply chain in Africa. PAHAL is the United States Agency for International Development (USAID) and IPE Global's flagship project to catalyze innovative financing mechanisms to improve access to affordable and quality healthcare for India's most vulnerable populations. Under this initiative, USAID and IPE Global have established a healthcare blended financing facility, Sustainable Access to Market and Resources for Innovative Delivery of Healthcare (SAMRIDH), to maximize the efforts of innovators and entrepreneurs towards constructing an inclusive healthcare system, by assisting them through crucial growth stages. SAMRIDH works in technical collaboration with apex government entities, premier academic institutions, leading banks and NBFCs, philanthropies, incubators, entrepreneurs and industry associations.

Four African countries (Kenya, Tanzania, Rwanda, and Nigeria) were selected to deeply explore the state of COVID-19 vaccine delivery in Africa. These countries were included in our research to identify potential blended finance investment opportunities that will both meet immediate COVID-19-vaccine distribution needs and provide long-term benefits to countries' healthcare systems. Kenya, Tanzania, Rwanda, and Nigeria were chosen as target countries as they are members of the African Union (AU), which focuses on increasing cooperation and integration of African states to drive Africa's growth and economic development. In the wake of the COVID-19 pandemic, the AU has focused its efforts on increasing local vaccine manufacturing capacities. In addition, Kenya, Tanzania, Rwanda, and Nigeria display relative market readiness for blended finance, Kenya and Nigeria already have ongoing blended finance deals and show upward trends in meeting recommended total health expenditure goals and SDG-related UHC (Universal Health Coverage) goals.

## 1.2 Approach

In order to assess the state of vaccine supply chains in the four selected African countries, HFI reached out to local and global stakeholders from the public, private, and philanthropic sectors to participate in an informational interview process. The HFI team sent a total of 53 interview invitations between May 25, 2022, and July 15, 2022. Initial invitations were sent to WHO regional offices, government agencies, and funders within HFI's network. HFI also asked for introductions to other stakeholders through our partners and advisory network. An additional round of invitations "snowballed" as new contacts were recommended by key informants.

A total of 29 interviews were conducted between June-July 2022. Interviews of stakeholders located in Kenya were conducted during HFI's country visit from September 5th-9th, 2022. All stakeholders listed below were made aware that interview participation was voluntary and that responses would be shared with IPE Global and USAID for analysis and reporting. Due to the complexity of the supply-chain and specific expertise, some of the interviews, both virtual and in-person, were attended by multiple key people from the same organization to provide in-depth and personal experiences and insights.

### Stakeholders included in interview process:

- African Business Coalition for Health (ABC Health)
- Amref Health Africa
- AfricInvest
- BCP Group, Africa
- Center for Global Development
- Global Convergence
- Health Alliance of Nigeria
- International Finance Corporation (IFC)
- Investment Project Financing, World Bank Group
- Kenya Healthcare Federation

- Ministry of Health, Rwanda
- Ministry of Health, Tanzania
- PharmAccess
- United Nations Children’s Fund (UNICEF), Tanzania Country Office
- United Nations Children’s Fund (UNICEF), Headquarters
- United States Agency for International Development, Headquarters
- World Health Organization, Kenya Country Office
- Yako Medical
- Zaka
- Zipline

**During the interview process, HFI aimed to gather insights on the following:**

- Obstacles and barriers in the vaccine supply chain
- Factors influencing private investments in the healthcare supply chain
- Regulatory and political environment that could serve as potential channeling of blended finance investment from the private sector

The interview guide is included in **Appendix 1: Interview Guide** and the responses to specific interview questions are provided in **Appendix 2: Onsite Interview Response Summary** and **Appendix 3: Stakeholder Interview Report**. Included stakeholders were mapped to categories based on the Organization for Economic Co-operation and Development (OECD) principles and guidance for blended finance. Insights from the interviews and onsite visits provided key takeaways which informed the obstacles within the vaccine supply chain including cold chain storage and logistics. Subsequently, specific strategies were derived for each of the key players based on the type of organization, role, and potential financial instrument.

## 1.3 Focus on Kenya

### 1.3.1 Health Financing in Kenya

Kenya boasts a population of 53 million, 28% percent of which reside in urban areas.<sup>8</sup> The economy is mainly a market-based economy with a few state enterprises and by 2020, the Gross Domestic Product (GDP) stood at approximately USD 101.1 billion with a growth rate of -3.2%.<sup>8</sup> The Kenyan economy has been adversely impacted by COVID-19 pandemic; however, it is projected to grow by 5.9% by the end of 2022.<sup>8</sup>

The provision of health services in Kenya is shared between the public sector (the largest, which includes all government health facilities, medical schools, and pharmaceutical suppliers), faith-based organizations, and the private sector. The public health system is organized into 6 levels (I-VI) flowing from community health services to dispensaries, health centers, sub-county hospitals, county referral hospitals, and national-level referral hospitals. The Kenyan health system is funded by government revenue streams (e.g., the National Health Insurance Fund (NHIF) contributions), private health plans, and donor funding. In 2018, the total health expenditure (THE) was 5.2% of the national GDP.<sup>8</sup> Out-of-pocket (OOP) spending constitutes approximately 32% of the THE, while government constitutes approximately 31%, donor contributions constitute approximately 26% and the NHIF constitutes approximately 13%.<sup>9</sup>

### 1.3.2 Evaluation of the Vaccine Supply Chain in Kenya

With regard to the vaccine component of Kenya’s pharmaceutical market, until recently, Kenya did not have the infrastructure and technology to manufacture vaccines domestically. However, Moderna announced in March 2022 that it would set up a manufacturing facility in Kenya, its first in Africa, to produce messenger RNA (mRNA) vaccines, including but not limited to COVID-19 specific vaccines.<sup>10</sup> The Kenya Biovax Institute is set to start local packaging of vaccines in a fill-and-finish facility in 2022, and full production of vaccines in 2024.<sup>10</sup>

<sup>8</sup> Kenya Market Landscape: Solutions to Strengthen COVID-19 Vaccines Supply Chain (2020) African Health Business.

<sup>9</sup> National And County Health Budget Analysis FY 2020/21 (2022) Republic of Kenya Ministry of Health <https://www.health.go.ke/wp-content/uploads/2022/06/National-and-County-Budget-Analysis-FY-2021-22.pdf>

<sup>10</sup> Moderna to build mRNA vaccine manufacturing facility in Kenya (2022) Reuters <https://www.reuters.com/business/healthcare-pharmaceuticals/moderna-build-mrna-vaccine-manufacturing-facility-kenya-2022-03-07/>



In addition to the manufacturing capacity, cold chain logistics are key for the delivery of COVID-19 vaccines, yet also represent a financial pain point in Kenya. The Kenyan vaccine cold chain, which includes the technology, strategic processes, and people involved in the delivery of temperature-sensitive health products and technologies remain underdeveloped. Notwithstanding support from multilateral and bilateral donors such as the Vodacom Group and Vodafone Foundation which has led to the upscaling of the Kenyan national vaccine cold chain capacity by donating EUR 4.2 million to the purchase of cold chain equipment and technologies,<sup>10</sup> a funding gap of approximately USD 36 million (USD 0.66 per capita) exists in Kenya to achieve 70% COVID-19 vaccine coverage through public sector service delivery.<sup>11</sup> With existing financing allowing Kenya to vaccinate approximately 18% of the population against COVID-19 as of July 2022, the risk of debt to reach the goal of 70% coverage is high in Kenya.<sup>11</sup> Private sector investors are needed to increase vaccine manufacturing and distribution capabilities in the country which could include biological manufacturers (i.e. Curaphath) pharmaceutical companies (i.e. BioNtech), or private health insurance companies active in the country or region.

## 1.4 Focus on Tanzania

### 1.4.1 Health Financing in Tanzania

Tanzania is an administrative union of Zanzibar and Tanganyika (mainland Tanzania) with a population of 59.73 million as of 2022 (68.4% residing in rural areas).<sup>12</sup> The Tanzanian Health system is decentralized with the Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDCGE&C) at the central government level holding a policy setting and stewardship role. This primarily includes formulating health policies, designing guidelines and strategies, and

determining the essential health care package. The MoHCDCGE&C has adopted a pyramidal structure with primary healthcare services comprising the base of the pyramid.

The lowest level of the Tanzanian healthcare system consists of village health posts, followed by community dispensaries, rural health centers at the divisional level, district hospitals and lastly regional referral hospitals that provide specialist medical care. Primary health care has been the foundation of the National Health Policy since government adoption and the total per capita health spending has increased modestly from USD 23.60 to USD 28.50 between 2010 and 2017.<sup>12</sup> The health sector is largely financed by internal government resources (64%), with 36% from external resources.<sup>13</sup> The Tanzanian government has recently introduced several health financing reforms which include allocating budgets directly to health facilities instead of indirectly through councils and the establishment of a Single National Health Insurance Fund (SNHIF) as a movement towards UHC.

### 1.4.2 Evaluation of the Vaccine Supply Chain in Tanzania

COVID-19 vaccination coverage in Tanzania remains significantly lower than the global and regional targets established for countries. The main reasons for this include the delayed introduction of the COVID-19 vaccine into the country (July 2021); limited vaccine supply received in the country between Q3-Q4 2021; and low demand due to misinformation about COVID-19 disease and vaccination.<sup>14</sup>

UNICEF reports a public financing gap of USD 94.8 million (USD 1.54 per capita) to reach the goal of 70% COVID-19 vaccine coverage in Tanzania.<sup>15</sup> With approximately 10% of the population fully vaccinated against COVID-19 as of July 2022, the risk of national debt is moderate in Tanzania to attempt

11 Bertelsmann Stiftung, BTI 2022 Country Report — Kenya. Gütersloh: Bertelsmann Stiftung, 2022. <https://bti-project.org/en/reports/country-report/KEN>

12 Ally, Mariam. Piatti-Fünfkirchen, Moritz. Tanzania Health Sector Public Expenditure Review 2020. World Bank (2020) <https://documents1.worldbank.org/curated/en/601271602042236487/pdf/Tanzania-Health-Sector-Public-Expenditure-Review-2020.pdf>

13 Assessment of Equity in Healthcare Financing and Benefits Distribution in Tanzania: a cross-sectional Study Protocol. (2021) BMJ Open. <https://bmjopen.bmj.com/content/bmjopen/11/9/e045807.full.pdf>

14 Tanzania concludes its Second Intra Action Review for COVID-19 response. (2022) World Health Organization. <https://www.afro.who.int/countries/ united-republic-of-tanzania/news/tanzania-concludes-its-second-intra-action-review-covid-19-response>

15 Asman, Jennifer. et. al. Costs and Predicted Financing Gap to Deliver COVID-19 Vaccines in 133 Low-and Middle-Income Countries (2022) UNICEF. <https://www.unicef.org/media/114216/file/ Costs-and-Predicted-Financing-Gap-to-Deliver-COVID-19-Vaccines-in-133-Low-and-Middle-Income-Countries.pdf>

to reach the global vaccination goals.<sup>15</sup> Closing the financing gap would require increasing the national health budget by more than 10%, which opens an opportunity for philanthropic and private capital to enter the market including support from the Global Alliance for Vaccines and Immunization and regional pharmaceutical companies (i.e. Moderna).

## 1.5 Focus on Nigeria

### 1.5.1 Health Financing in Nigeria

Located in West Africa, Nigeria is a lower-middle-income country with a population of 206 million people. It also consists of a young population with 31 million children under the age of 5.<sup>16</sup> Before the COVID-19 pandemic, Nigeria's GDP growth rate increased from -1.62% in 2016 to 2.21% in 2019.<sup>17</sup> However, the GDP growth rate slowed to a low of -1.79% in 2020, largely due to the pandemic.<sup>17</sup> According to the WHO's Global Health Expenditure Database (GHED), Nigeria's total health expenditure (THE) was USD 14.36 billion in 2019, equivalent to only 3.03% of its USD 448.12 billion GDP.<sup>17</sup> Nigeria spends a significantly lower proportion of its GDP on health compared to an average of 6.57% spending worldwide and 6.02% across all low- and middle-income countries (LMICs).<sup>17</sup>

The health financing landscape in Nigeria includes low government expenditure, high OOP payments and limited national health insurance coverage. Nigeria implemented the National Health Insurance Scheme (NHIS) in 2005 in attempt to achieve UHC, however this insurance scheme was reported in 2021 to only have reached about 5% coverage of the Nigerian population.<sup>18</sup> This poor performance can be attributed to limited government and pooled health financing with OOP payments comprising 75.2% of THE which is among one of the highest in the world.<sup>17</sup>

Despite having one of the highest OPP expenditures on health, Nigerians have a significantly lower life expectancy (54 years) as compared to the average of 64 years across Africa.<sup>16</sup> The low life expectancy in Nigeria is due to a joint burden of infectious diseases and NCDs. An ever-present risk of outbreaks of Lassa fever, meningitis, and cholera presents challenges in Nigeria. A rising population and inadequate infrastructure have contributed to additional issues over the past 30 years such as increases in deaths from trauma through road injuries and conflicts driven by inequitable distribution of resources.<sup>19</sup>

### 1.5.2 Evaluation of the Vaccine Supply Chain Financing in Nigeria

One of the major challenges interfering with Nigeria's vaccine supply chain is the lack of adequate vaccine storage facilities.<sup>20</sup> Ensuring proper storage for vaccines has proven to be difficult due to the costs associated with managing vaccines, service delivery points, geographical/topographic obstacles, vaccine integrity/potency, and security leading all the way to the last mile delivery. Securing proper vaccine storage facilities is a bottleneck in the supply chain along with the lack of data availability, data surveillance, reliability for forecasting, decision-making, and logistical challenges between vaccine manufacturers.

UNICEF forecasts that there is a public financing gap of USD 37 million in the Nigerian national vaccine supply chain to allow the country to reach the target of 70% COVID-19 vaccine coverage through public sector service delivery.<sup>15</sup> The financing gap, however, only constitutes USD 0.18 per capita in Nigeria and the risk for debt to reach the vaccination target is perceived as low. This provides an opportunity for blended finance with the government as a partner to close the financing gap and offer more equitable access to vaccines for the Nigerian population. vaccines to the population.

16 Hafez, Reem. 2018. Nigeria Health Financing System Assessment. Health, Nutrition and Population Discussion Paper: World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/30174> License: CC BY 3.0 IGO.

17 Odunyemi, Adelakun. "The Implications of Health Financing for Health Access and Equity in Nigeria" In *Healthcare Access*, edited by Amit Agrawal, Srinivas Kosgi. London: IntechOpen, 2021. 10.5772/intechopen.98565

18 Alawode, G.O., Adewole, D.A. Assessment of the design and implementation challenges of the National Health Insurance Scheme in Nigeria: a qualitative study among sub-national level actors, healthcare and insurance providers. *BMC Public Health* 21, 124 (2021). <https://doi.org/10.1186/s12889-020-10133-5>

19 Onyemaechi, S., Ezenwaka, U. Influence of sub-national social health insurance scheme on enrollees' health seeking behavior in Anambra state, Nigeria: a pre and post study. *BMC Public Health* 22, 1171. Available online: <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-022-13606-x>

20 Omole, Timilehin. (2020). The Challenges of Nigeria Vaccine Supply Chain, a Community of Practice Perspective. | Volume VI, Issue III, March 2019 | ISSN 2321–2705. <https://www.rsisinternational.org/journals/ijrsi/digital-library/volume-6-issue-3/151-157.pdf>

## 1.6 Focus on Rwanda

### 1.6.1 Fiscal Context and Health Financing in Rwanda

Rwanda is a landlocked East African country with a population of 13.28 million as of 2021.<sup>21</sup> The country has largely focused on the developmental process of building the economy, with the GDP indicating improvements overtime. The GDP per capita rose from USD 720 in 2016<sup>22</sup> to USD 833.80 per capita in 2022.<sup>23</sup> Even as the GDP has increased, there has been no progress from the government to increase the THE as it declined from 7% of the GDP in 2012 to approximately 6% in 2019.<sup>24</sup>

Health financing in Rwanda has been limited in the past, however, more recently the country has revealed sustainability plans for the health sector. The country publicized its strategy on expanding healthcare by developing the Rwanda Vision 2020 plans, emphasizing the importance of universal access to quality health services in an equitable, efficient, and sustainable manner. Currently, the country's health financing sustainability policy aims to cover a wide-ranging framework for health systems based on best practices in global health care financing.<sup>25</sup>

Intersectoral collaboration in Rwanda has led to quick uptake of the National Health Insurance plan. USAID and other multilateral organizations have worked with Rwanda to design innovative health policies and to support their evaluation once implemented.<sup>26</sup> The international community has highlighted Rwanda as an example of the work that should be done in other LMICs, however the sustainability of the achievements is at the hand of continued efforts from the government and donors.<sup>26</sup>

### 1.6.2 Evaluation of the Vaccine Supply Chain Financing Landscape in Rwanda

Rwanda is putting great efforts and resources towards improving its vaccine supply and delivery. Some of the primary challenges in the vaccine supply chain include vaccine dose shortages, gaps within the distribution process, expiration dates of vaccines, and operational requirements for delivery. Each part of the supply chain constitutes an essential component to ensure vaccines are not hindered in the sub-national planning and distribution. Due to delays in development partner support, Rwanda requires adequate funding for a smooth roll-out process and the expansion of available medical products.<sup>27</sup>

Efforts from the government and donors to reach UHC and scale up access to vaccines has led to greater than 90% COVID-19 vaccination coverage in Rwanda as of July 2022.<sup>15</sup> Even with advances in COVID-19 vaccination coverage, the vaccine supply chain in Rwanda still faces challenges in distribution and delivery. With the government and donors having heavily invested in the healthcare system in the country, an opportunity exists for private capital to blend with existing funds to move the needle towards large-scale impact in the country – albeit at a smaller scale than in the other studied countries.

## 1.7 Summary of Country Analyses

Many African countries, including Kenya, Tanzania, Nigeria, and Rwanda are decentralizing healthcare systems. This process can improve healthcare systems' responsiveness to health crises but can also hinder the delivery of services if the transition is not properly supported.

21 Rwanda: Health spending as percent of GDP. (2019) The World Bank Group. The Global Economy.com. [https://www.theglobaleconomy.com/Rwanda/health\\_spending\\_as\\_percent\\_of\\_gdp/](https://www.theglobaleconomy.com/Rwanda/health_spending_as_percent_of_gdp/)

22 Primary health care systems (PRIMASYS): comprehensive case study from Rwanda. Geneva: World Health Organization; 2017. License: CC BY-NC-SA 3.0 IGO.

23 The World Bank - GDP per capita Rwanda. (2022) World Bank. <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=RW>

24 Rwanda Demographic and Health Survey, 2015. Kigali: Government of Rwanda, Ministry of Health; 2015.

25 Health Financing Sustainability Policy. Kigali: Government of Rwanda, Ministry of Health; 2015.

26 Intersectoral Case Study: Improving Health Through Intersectoral Actions: Lessons from Health Financing in Rwanda. (2013) WHO Regional Office for Africa.

27 Real time assessment (RTA) of UNICEF's ongoing response to COVID19 in eastern and southern Africa December 2021 Photo credit: UNICEF Ethiopia COVID-19 vaccine supply and rollout Key insights from qualitative research in Ethiopia, Rwanda, South Africa and South Sudan. <https://www.unicef.org/esa/media/10306/file/RTA-Phase2-ESA-Vaccine-Supply-Rollout.pdf>

The research conducted by HFI revealed that the African vaccine supply chains are greatly challenged not only due to inadequate access to vaccines on the global stage, but also largely due to broken links from national to sub-national levels and all the way down to the last mile delivery. Limitations of this research include a lack of COVID-19 vaccine coverage statistics in LMICs and different methods in estimating the funding gap to meet global coverage goals. In addition, the availability of government and donor funds is unpredictable during times of economic slowdown.

The challenges facing the vaccine supply chains in Africa and the current funding gaps that exist to reach global vaccination targets present an opportunity for private capital to be blended with existing government and donor funding and build tailor made solutions for every context. The impact metrics built into blended finance models create an opportunity to motivate local implementers and global financiers, alike. In conjunction with ongoing process in UHC coverage across the African context, blended finance models are a compelling opportunity for large-scale, measurable impact within the African vaccine supply chain and beyond.



## 2 Identifying Potential Blended Finance Models

Blended finance is the strategic use of capital from public or philanthropic sources to de-risk investments to attract private investment for achieving Sustainable Development Goals (SDGs). The willingness of the private sector engagement in Blended Finance Mechanisms heavily depends on the transaction's risk-return profile. The risk profile is determined by factors such as the transaction's geographic location and regulatory, market, technical, financial, and foreign currency risks. In Africa, where the political and economic environments are documented to be unstable, the region is often perceived as high risk from the perspective of private investors.<sup>28</sup>

There is an urgent need to look beyond the traditional approaches to health financing and identify ways to attract private capital in Africa to ensure that there is continued and adequate growth in the fiscal space for health. Blended financing mechanisms have the potential to better leverage the private sector's growing capacity, however, the successful implementation of these financing mechanisms particularly in healthcare requires that key partners understand and agree on the risks and potential of each approach.<sup>29</sup>

In order to fully unlock the potential of Blended Finance Mechanisms, the following three key actors are required to participate from the initial design phase: (i) a catalytic capital provider who takes junior positions in the capital structure to incentivize more private investment; (ii) a technical assistance provider to prepare the investee and make them more investable; (iii) a "matchmaker" or intermediary who designs and structures the deals, and who conducts the match-making between investors and local enterprises.

The risk profiles and returns traditionally sought by private sector investors are mismatched in the

African context given the stage of development of many organizations. In addition, there is a mismatch in the type of capital currently available and what African investees are looking for. In Africa, traditional equity deals are more difficult due to entrepreneurs' unwillingness to sell ownership, the lack of potential financial exits, and the time needed to achieve an exit. While equity infusions in Africa are often won by fast growing, highly scalable organizations, the focus must shift to less eye-catching industries such as healthcare that require small amounts of unsecured working capital with the potential to create large-scale social impact.

Based on our research and analysis, we believe that blended finance can help unlock the working capital needed, by lowering the risk for private investors through concessional subordinated instruments or guarantees and stabilizing returns while ensuring minimum concessionality. Blended finance represents a strategy to address the capital issues by identifying areas of investment need, working within local market contexts, incorporating flexibility, and engaging in investment facilitation.

The types of Blended Finance Mechanisms at the forefront of health financing are summarized in Figure 1 and further explained in Appendix 4: Blended Finance Mechanisms at the Forefront of Health Financing. These mechanisms include catalytic first-loss capital, social/development impact bonds (forms of Results-Based Financing (RBF)), market incentives such as Advance Market Commitments (AMC), risk guarantees, or others. The type of mechanisms that may apply in the context of the four countries that were analyzed are AMC, RBF, and potentially, debt swaps – though debt swaps do not (always) involve a private capital component.

28 OECD DAC Blended Finance Principle 2: Design Blended Finance to Increase the Mobilization of Commercial Finance (2020) OECD. [https://www.oecd.org/dac/financing-sustainable-development/blended-finance-principles/documents/Principle\\_2\\_Guidance\\_Note\\_and\\_Background.pdf](https://www.oecd.org/dac/financing-sustainable-development/blended-finance-principles/documents/Principle_2_Guidance_Note_and_Background.pdf)

29 Documenting good practices and lessons learnt (2016) The Global Fund. [https://au.int/sites/default/files/pages/32895-file-lessons\\_learned\\_health\\_financing\\_in\\_africa.pdf](https://au.int/sites/default/files/pages/32895-file-lessons_learned_health_financing_in_africa.pdf)

## Blended Finance Instruments and Approaches

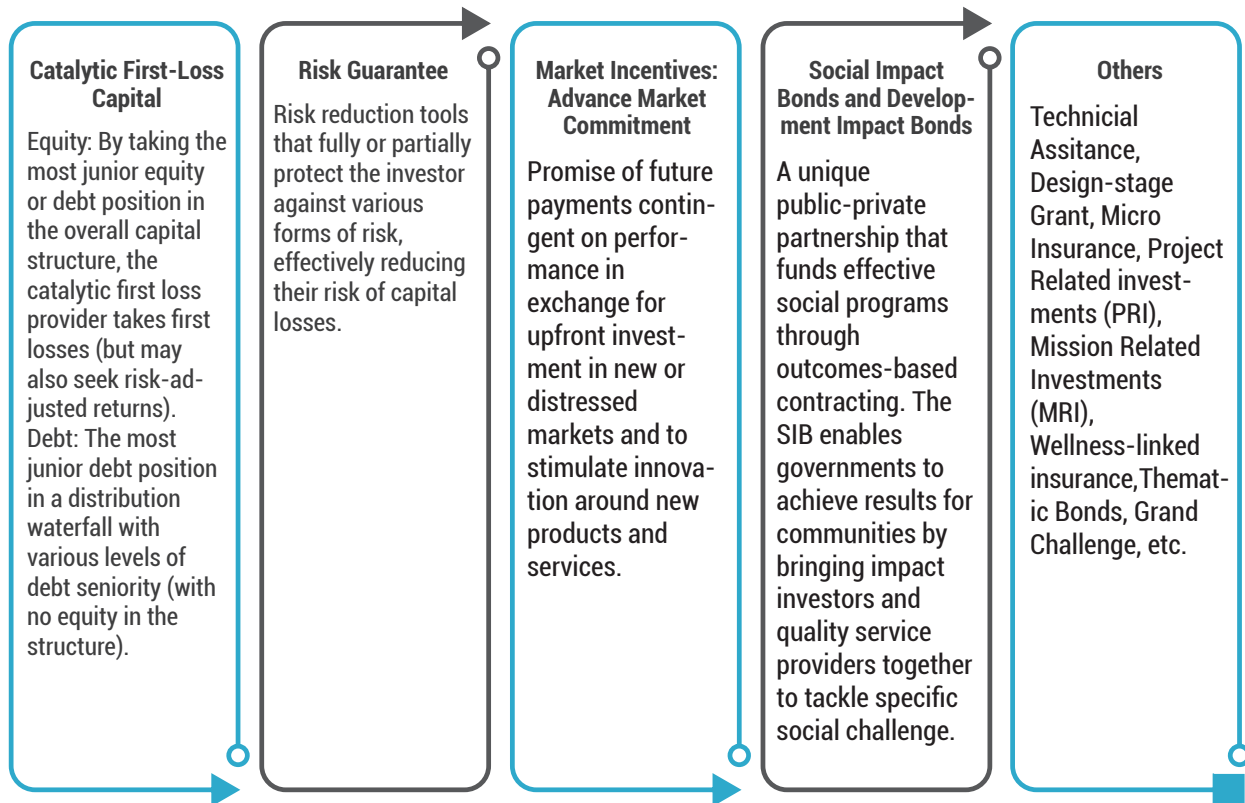


Figure 1: Blended Finance Mechanisms at the forefront of health financing (Source: Health Finance Institute)



## 3 In-Depth Blended Finance Readiness Analysis: The Kenyan Example

During the in-depth review of the four African countries' vaccine supply chain financing landscapes (Kenya, Tanzania, Nigeria, and Rwanda), it was noted that Kenya has demonstrated a high degree of openness to partnerships between the public and non-state sectors in order to achieve inclusive and sustainable economic growth. Through four main stakeholder platforms—the Presidential Roundtable, the Ministerial Stakeholder Fora, the House Speakers' Roundtables, and the Council of Governors Forum—the Kenya Private Sector Alliance (KEPSA) oversees the public-private dialogue (PPD) with the government.

Across the four countries review, Kenya was selected at the country for in-person interviews and further in-depth investigation, owing to factors such as relative market size, developed relationships with key

stakeholders, and market readiness for the potential of blended finance transitions to tackle the financing gap highlighted in Section 1.

### 3.1 USAID's Five-Point Framework

As part of this in-depth research, the USAID Five-Point Framework summarized in Figure 2 was used to explore potential finance and investment constraints within the context of Kenya.<sup>30</sup> The framework analysis further provided a landscape review of a range of potential interventions that can mitigate these constraints and thus enable private sector financing of development. The five points included in the framework are: (i) enabling conditions; (ii) required financing; (iii) providing financing, (iv) financial infrastructure; and (v) intermediaries and facilitators.

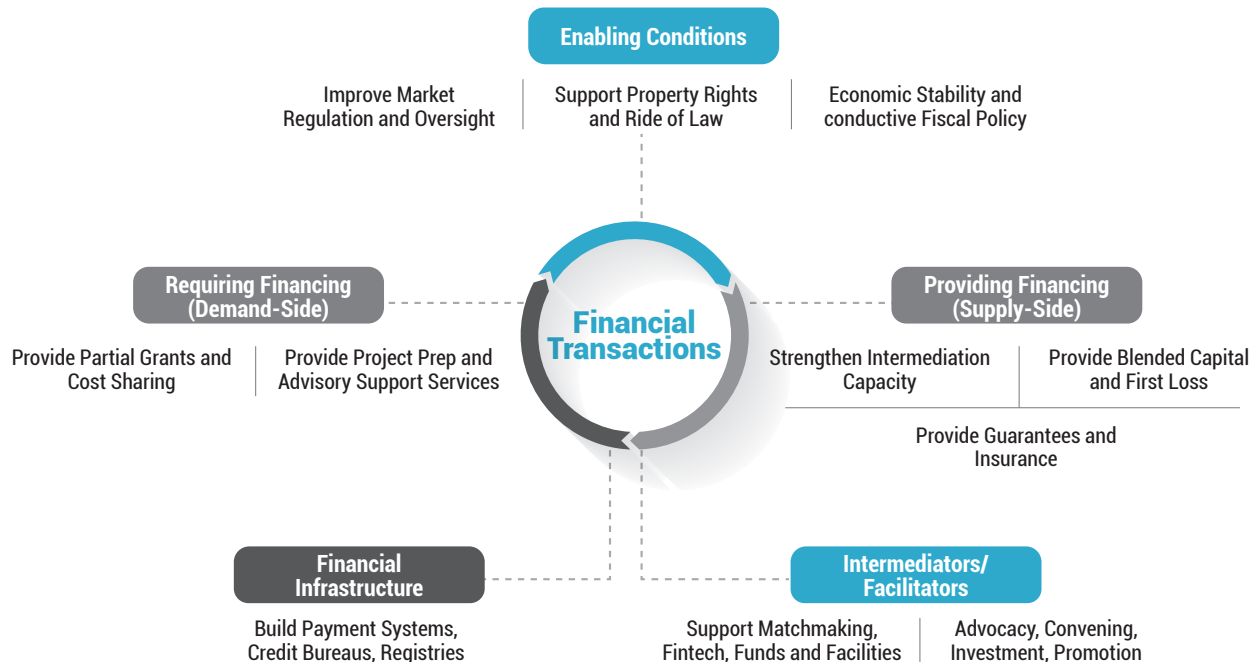


Figure 2: USAID's Five-Point Framework taken directly from 'Enabling Conditions, Financial Infrastructure, Requiring Financing, Providing Financing, and Intermediators/Facilitators'<sup>30</sup>

30 Mobilizing Private Finance for Development: A Comprehensive Introduction (2019) USAID. Available online: [https://www.usaid.gov/sites/default/files/documents/1865/MFD\\_Comprehensive\\_Introduction.pdf](https://www.usaid.gov/sites/default/files/documents/1865/MFD_Comprehensive_Introduction.pdf)

### 3.1.1 Enabling Conditions

Kenya's COVID-19 vaccine deployment plan targets to vaccinate 100% of its adult population by December 2022 while prioritizing those who are at an increased risk of severe disease and infection.<sup>31</sup> The country's primary COVID-19 vaccine procurement source is the COVID-19 Vaccines Global Access (COVAX) Facility. Alternative vaccine supply and procurement options in Kenya include donations from other countries, the African Union's African Vaccine Acquisition Task Team (AVATT) mechanism, as well as direct procurement from vaccine manufacturers. As of July 2022, a total of 18.5 million vaccine doses were given, which translates to approximately 18% of the total population having received two doses of the COVID-19 vaccine.

### 3.1.2 Required Financing

The major gap identified in the Kenyan vaccine supply chain logistics is the need for allocation of higher health budgets to counties. The storage and transportation equipment allocated to counties by the Kenyan Ministry of Health was unable to deliver to the last mile point, forcing counties to invest in low-budget alternatives such as icepacks that compromise the quality of the products. In March 2022, Kenya reported that over 840,000 COVID-19 vaccine doses that the country has received through donations expired due to poor storage and delayed delivery to health facilities.<sup>32</sup>

Infrastructure needs in Kenya are vast, and government resources are insufficient to meet these needs. As per the AICD Country Report titled "Kenya's Infrastructure: A Continental Perspective,

2011, addressing Kenya's infrastructure deficit would require sustained investment of almost USD 4 billion per year in the medium term to meet the gap, which is about 6-7% of Kenya's GDP.<sup>33</sup> Kenya's national budget is under strain with projected growth of -4% of GDP in 2024 and -3.8% of GDP in 2025. Total sovereign debt has been growing fast and stands at 67.8% of GDP.<sup>34</sup>

The delivery costs to reach 70% COVID-19 vaccination coverage in Kenya are estimated to be approximately USD 49.7 million under a scenario of leveraging fixed vaccination sites.<sup>35</sup> In scenarios where Human Resources for essential health services are balanced with speed of COVID-19 vaccination coverage, the delivery costs in Kenya are estimated to be approximately 64.7 million.<sup>35</sup> These delivery costs represent an estimated financing gap of USD 36 million in the Kenyan vaccine supply chain - a need that government and donor funding cannot meet just by themselves, by the end of 2022.

### 3.1.3 Providing Financing

Within the Kenyan health system, there are few funding sources for primary healthcare. Public hospitals rely on out-of-pocket payments (OPPs), government expenditures, and donors. According to research conducted by USAID captured in Figure 3, Kenya currently has a high value health system along with a high level of investment attractiveness. Hence, Kenya falls under the USAID defined transition phase with relevance to four potential blended finance solutions.

31 Orangi, S., Kairu, A., Ngatia, A. et al. Examining the unit costs of COVID-19 vaccine delivery in Kenya. *BMC Health Serv Res* 22, 439 (2022). <https://doi.org/10.1186/s12913-022-07864-z>

32 Africa News Report. March 23, 2022. Available online: <https://www.africanews.com/2022/03/23/donated-COVID-19-vaccines-expire-in-kenya/>

33 Long-term finance for Infrastructure in Kenya (2017) FIRST Initiative the World Bank Group. <https://www.firstinitiative.org/projects/long-term-finance-infrastructure-kenya>

34 "Kenya Government Debt: % of GDP". (2021) CEIC Data. <https://www.ceicdata.com/en/indicator/kenya/government-debt--of-nominal-gdp#:~:text=In%20the%20latest%20reports%2C%20Kenya,USD%20bn%20in%20Mar%202022.>

35 UNICEF. Costs and Predicted Financing Gap to Deliver COVID-19 Vaccines in 133 Low and Middle-Income Countries. 2021. Available online: <https://www.unicef.org/media/114216/file/Costs-and-Predicted-Financing-Gap-to-Deliver-COVID-19-Vaccines-in-133-Low-and-Middle-Income-Countries.pdf>



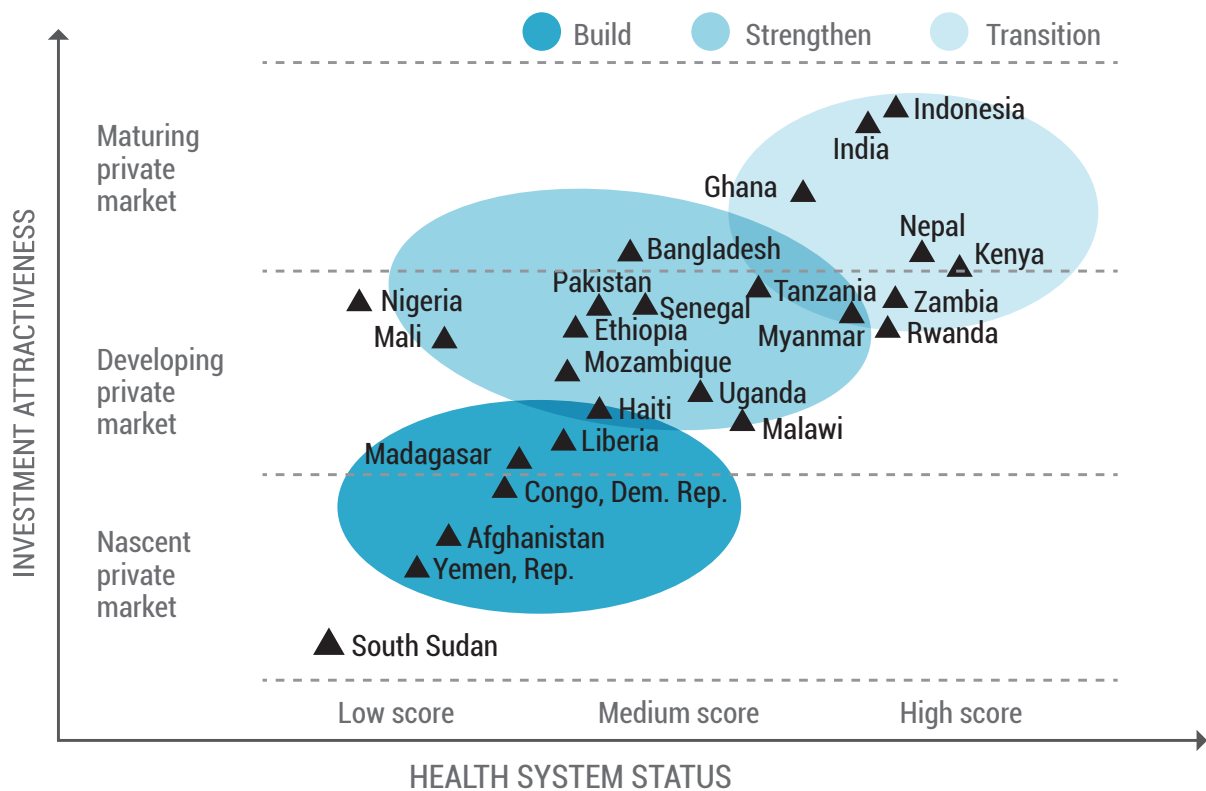


Figure 3: USAID's Roadmap of 25 countries' status on Preventing Child and Maternal Deaths taken directly Greater than the Sum of its Parts: Blended Finance Roadmap for Global Health (2019) USAID<sup>36</sup>

Given Kenya's transition phase, HFI has identified guarantee mechanisms, impact bonds, and debt swaps as Blended Finance Mechanisms with the highest potential of closing the financing gaps in the COVID-19 Vaccine Supply Chain in Kenya.

Guarantee mechanisms under which institutions such as the African Union's COVID-19 Vaccine Acquisition Task Team (AVATT) provide guarantees on behalf of the African Union member states puts Kenya in a strong negotiating position with producers with respect to procuring vaccines. Impact funds provide financial advisory services in structuring a grant such that it would attract institutional and local impact investors (e.g.: KOISinvest), to act as junior equity investors and subordinated debt across the countries COVID-19 Vaccine Supply Chain.

With regards to the role of guaranteed mechanisms, the potential participants in such Blended Finance Mechanisms for the Kenyan vaccine supply chain could include the AVAAT, BMGF, and the Vodacom Group. Thus far, AVATT has provided a USD 2 billion guarantee to secure up to 400 million doses

of the Johnson and Johnson single-shot COVID-19 vaccine across SSA with the support of the African Export-Import Bank. The BMGF acted as a health outcome funder in November 2021 which enabled Revital to increase syringe production volume from approximately 72 million to nearly 265 million annually towards the end of 2022, enough to cover more than half of the routine immunization needs in Africa. Lastly, with support from multilateral and bilateral donors such as the Vodacom Group and Vodafone Foundation, Kenya can upscale the vaccine cold chain capacity using the EUR 4.2 million donations to the purchase of cold chain equipment for ultra-low temperatures and technologies.

Similarly, impact bonds structured with foundations that are willing to act as outcome funders designed around vaccine distribution numbers in Kenya could open financing opportunities for the vaccine supply chain. Likewise, debt buy-downs for local vaccine suppliers and distributors in Kenya could provide grants as partial repayment of loans intended on scaling distribution.

36 USAID. Greater than the Sum of its Parts: Blended Finance Roadmap for Global Health (2019) USAID, 13. Available online: <https://www.usaid.gov/sites/default/files/documents/1864/Blended-Finance-Roadmap-508.pdf>

Debt swaps are also an effective mechanism to be further explored to leverage investment in large-scale infrastructure projects in the backdrop of the rising debt/GDP ratio of Kenya. Italy was the first country having undertaken a debt-for-development-swap program with Kenya. Prominently, The Kenya-Italy Debt for Development Program (KIDDP) was launched in January 2007, aiming at converting part of the Kenyan debt. The program has been extended up to June 2021 involves in four sectors of intervention: Water, Education, Health, Urban development – each under the direct responsibility of its respective Ministry.

### 3.1.4 Financial Infrastructure

Kenya's financial sector is the third largest in sub-Saharan Africa. The financial infrastructure in Kenya is well developed and includes commercial banks, non-banks institutions, and a stock exchange. The insurance industry in Kenya is growing quickly with health insurance representing a part of this growth.<sup>37</sup> Structural issues in the financial sector include the high cost of financial services and limited access to these services. The Kenyan Government's Vision 2030 plan aims to tackle key structural issues by increasing adoption of technology, developing alternative distribution channels, increasing financial inclusion, and creating a more stable regulatory environment.

### 3.1.5 Intermediaries and Facilitators

The intermediaries and facilitators (both private and public) within the vaccine manufacturing and distribution sector of Kenya include the GAVI Alliance, Revital Healthcare, the Ministry of Health, and UNICEF.

- The GAVI Alliance is co-leading COVAX, which serves as the vaccines pillar of the Access to COVID-19 Tools (ACT) Accelerator. This involves coordinating the COVAX Facility, a global risk-sharing mechanism for pooled procurement, and equitable distribution of COVID-19 vaccines

- Revital Healthcare (EPZ) Limited, a Kenyan medical supply manufacturer, announced at the end of 2021 that it had received nearly USD \$4 million from the Bill & Melinda Gates Foundation to expand the production of auto-disable vaccine syringes.<sup>38</sup>
- The Kenyan Ministry of Health has the majority of its public-private partnerships pointed towards capital intensive infrastructure projects. Further efforts will be required to steer these efforts towards the vaccine supply chain.
- Through its partnership with the COVAX facility, UNICEF has committed to offering syringes at an affordable price to UNICEF, which in turn supplies most of the vaccine syringes for LMICs.<sup>39</sup>

### 3.1.6 Conclusions from the USAID Five-Point Framework

Based on the USAID Five Point Framework analysis, an appropriate blended finance instrument would aim to address the key funding requirements of providing storage infrastructure and increasing the health budget allocation within Kenya's vaccine supply chain. Guarantee mechanisms have the potential to work well in the process of acquiring vaccine supplies which is an accumulation of small-scale transactions. Larger transaction sizes could be better addressed through impact bonds as these bonds provide an ability to leverage the Ministry of Health (MoH) as an outcome funder. When designing and developing a bond agreement, the government and local non-profits may commission potential construction loans for the private sector to build affordable infrastructure projects. The government's roles include assessing the merits or value of potential partnership projects, examining technical feasibility, financial sustainability and affordability for the contracting authority, and overall project attractiveness for potential private and institutional investors.

37 United Nations. Economic and Social Council; United Nations. Economic Commission for Africa (1997-03). Kenya's financial sector: institutional structure, evolution and resource mobilization, mobilization of development. UN. ECA Conference of African Ministers of Finance

38 Press Release: Kenyan auto-disable syringe manufacturer Revital Healthcare receives grant funding to ramp up syringe manufacturing to address looming shortfall in low- and middle-income countries". (2021) Revital Healthcare (EPZ) Ltd. [http://revitalhcare.com/downloads/Press\\_release.pdf](http://revitalhcare.com/downloads/Press_release.pdf)

39 Rajaram, Surabhi. (2021) "Amid surging demand for syringes, a new investment supports long-term supply on the African continent". Bill & Melinda Gates Foundation. <https://www.gatesfoundation.org/ideas/articles/syringe-vaccine-distribution-in-africa>

The mechanism provides an opportunity to cover the foundational costs to build a robust vaccine supply chain. Given the budget proposed by the MoH, there needs to be a tailored design of the appropriate concessional capital to attract additional institutional and impact investors into the agreement. In these types of impact bond structures, it is important to ensure appropriate transfer of risk as building infrastructure projects have a long development timeline from construction to end use (i.e., storage and distribution facility for vaccine supplies). During the implementation process, the government would be responsible for tracking performance against agreed-upon metrics, such as storage space, vaccine supply, energy consumption, and centralized transportation channels, thereby ensuring both mechanisms deliver maximum impact.

In addition, looking at the increase in debt/GDP ratio from 59.8% debt/GDP (pre-COVID) to now 67%, the implementation of debt-swap instruments has the potential to increase Kenya's public expenditure in healthcare.<sup>40</sup> Kenya may facilitate further mutually interested international partnerships in designing debt-for-development-swap programs like the Kenya Italy Debt for Development Program (KIDDP).

Traditional bilateral debt swaps for African sovereigns combine the cancellation of debt obligations with new bilateral agreements between debtor governments and creditors that provide revised terms of repayment (including in some instances partial debt relief). These creditors can be public (e.g., governments) or private (e.g., private funds focused on sovereign credit investments).

With the recent combination of hard currency-denominated sovereign borrowing and increased public spending due to the COVID-19 pandemic, many African nations find themselves struggling with the weight of servicing their complex debt requirements. Twenty years ago, one solution rested with a coordinated debt relief initiative, which saved the world's poorest countries (overwhelmingly in Africa) over USD \$100 billion in principal and interest obligations. Back then, however, the sovereign creditor

mix was more uniform (overwhelmingly in favor of bilateral governments and multilateral institutions) than today. In 2021, the creditor landscape for developing countries continues to evolve in increasing complexity, where external sovereign credit stock is held in one-third equal parts between China, Paris Club creditors, and private investors. Although debt suspension efforts (e.g., the Debt Service Suspension Initiative) provide a temporary pathway to ease financing constraints for the world's poorest countries, it does not provide a sustainable model for African governments to continually access the capital markets to improve resource flows for social sectors, including in the health arena.

Innovative financing mechanisms launched Global Fund's Debt2Health program (which effectively converts partial debt relief as a meaningful funding mechanism for health system resilience) are powerful tools to incentivize domestic financing in health services delivery. Considering the continuing domestic resourcing challenges faced in sub-Saharan African health arena (as evidenced by low health spending as a percentage of GDP and high patient out-of-pocket health expenditures), there is a need to continue to develop innovative ways to leverage debt-health swap interventions to expand the local fiscal space for health.

### 3.2 Market Assessment using HFI's Framework

In addition to the analysis of Kenya under the USAID Five-Point Framework, HFI applied its four key determinants of Blended Finance Mechanisms developed through analysis of Convergence's ten-year database of blended finance deals. The four determinants displayed in Figure 4 include a stable political and economic environment, robust health systems, existing capacity for technical assistance, and justifiable transaction sizes. Most importantly, HFI's research identifies that there is no 'one size fits all' approach to blended finance and there is a need to build tailor made solutions for every context.

40 "Kenya Government Debt: % of GDP". (2021) CEIC Data. <https://www.ceicdata.com/en/indicator/kenya/government-debt--of-nominal-gdp#:~:text=In%20the%20latest%20reports%2C%20Kenya,USD%20bn%20in%20Mar%202022.>

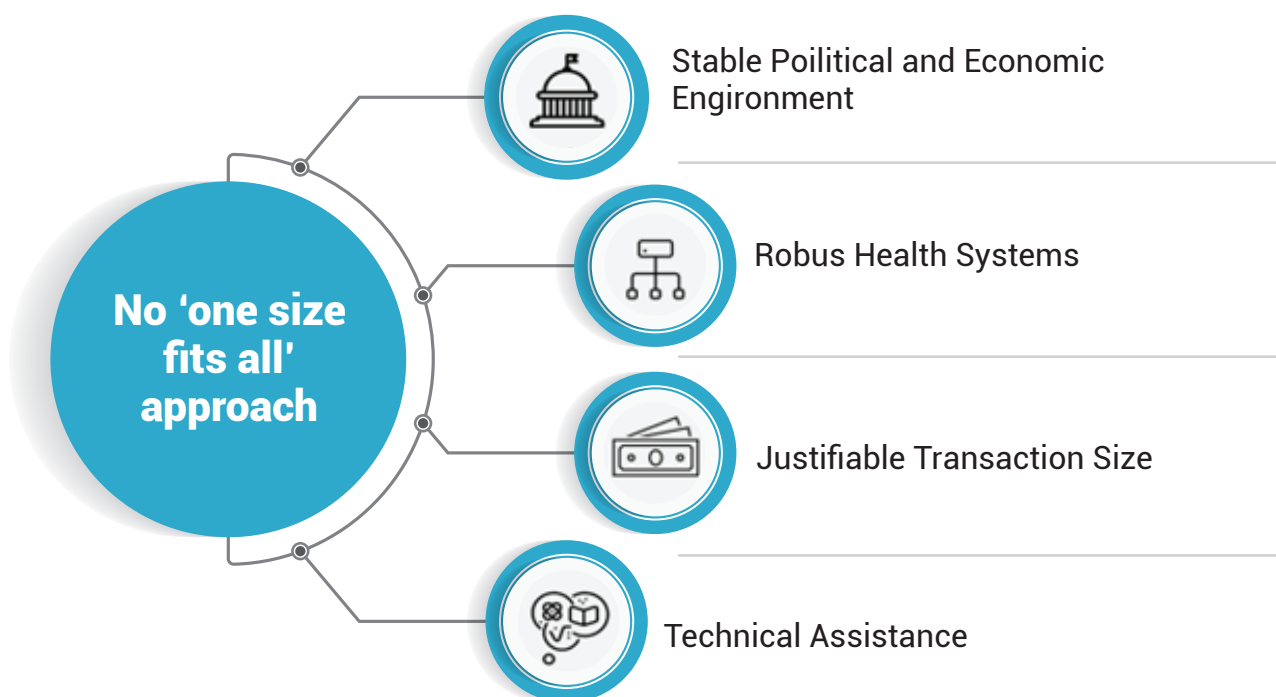


Figure 4: HFI's four successful determinants of health framework

### 3.2.1 Stable Political and Economic Environment

The COVID-19 pandemic has devastated Kenya during a sensitive political period as it prepares to hold a general election in 2022 and a constitutional review referendum to approve reforms proposed under the Building Bridges Initiative. The progress made in the fight against poverty over the last few decades is being steadily eroded by the effects of the pandemic, at a time when the country is dealing with a large debt burden and spiraling corruption, both of which divert public funds away from consolidating progress in poverty reduction.

Kenya is among the top 10 largest economies by GDP in sub-Saharan Africa. With an annual GDP of USD \$109 billion, the country is the largest economy in eastern Africa, equal to the economies of Tanzania and Uganda combined.<sup>41</sup> The country rose from low to middle-income status in 2014 and according to World Bank figures, poverty decreased between 2005 and 2019 from 46.8% to 33.4%, with 4.5 million

people considered to live below the national poverty line. Despite the economic downturn attributed to the COVID-19 pandemic and the projected lack of development assistance and debt relief support from the international community, Kenya's poverty rate is projected to remain largely stable, with a minimal decline from 33.8% in 2020 to 33.2% in 2021.<sup>37</sup>

The pandemic has exposed the internal challenges in the country's health sector, weakened by years of neglect and corruption. The strict lockdown measures implemented between March and June 2020 and again in March 2021, which helped to contain the spread of the virus, demonstrated a high level of state responsiveness and pointed to how much could be achieved if all the country's challenges would be met with the same level of resolve and political will.

The onset of the second wave of COVID, however, demonstrated the nonchalant and business-as-usual approach typical of the country, which explains poor policy implementation and weak responses to other

41 Bertelsmann Stiftung, BTI 2022 Country Report — Kenya. Gütersloh: Bertelsmann Stiftung, 2022. <https://bti-project.org/en/reports/country-report/KEN>

national epidemics like corruption and the abuse of public office.<sup>37</sup> This relapse saw a resurgence of the COVID-19 pandemic in Kenya in early 2021.

The adverse impacts of the lockdown measures included human rights abuses, rising domestic violence, unprecedented disruption to education, and an economic crisis that was particularly acute for the urban population due to massive job losses. With weak safety nets and reduced access for vulnerable families to special government programs, the impact of the pandemic is far-reaching. This is partly due to fiscal constraints. The country implemented a COVID-19 response plan worth 0.8% of Gross Domestic Product (GDP) in 2020, including substantially reducing revenue by more than 1.4% of GDP in 2020, off-setting expenditure cuts by 1% of GDP, and taking on more public debt.<sup>37</sup> Kenya obtained USD \$788 million in loans from the International Monetary Fund (IMF) and the World Bank, and sought a second loan from the IMF in late 2020.<sup>37</sup> This multilateral debt adds to Kenya's existing debt burden from domestic and international financial markets, and from bilateral players like China. Together this increases the prospects of a credit risk downgrade that would make it more difficult for the country to refinance its debts in the future.

### 3.2.2 Robust Health Systems

The inefficiency of the public healthcare system of Kenya has increased due to infrastructural and resource challenges, weak institutional arrangements, and unaffordable alternative options to those at the bottom of the pyramid. The lack of Personal Protective Equipment (PPEs) for the health workers and the poor monetary compensation were significant grievances in the most recent 70-day health worker's strike. Quality healthcare systems are available in the top private healthcare providers, however the availability of these services comes at a premium cost that the common citizen cannot afford.

The healthcare system needs to be capable of handling the pressure of COVID-19 and future pandemics, amidst other priority diseases such as TB, HIV,

hypertension, and diabetes. The urgent need must be addressed, which includes increased investments in the general healthcare and public health systems. The most critical points to address are understaffing in the healthcare workforce, commodity stock-outs, and lack of equipment.<sup>42</sup> The recently introduced UHC was a step in the right direction where accountability and commitment from all healthcare stakeholders will determine the positive impact of UHC.

### 3.2.3 Justifiable Transaction Size

For blended financial mechanisms to offer capital at a programmatic level and ensure successful distribution of vaccines on the ground, these instruments will need to consist of multiple smaller transactions which allow for management of financial risk. If larger volumes of capital are required, such as in the case of supporting large-scale infrastructure projects, the financial mechanisms would require vastly different risk reduction structures.<sup>43</sup> Thus, benchmarks need to be set to determine the amount of concessional finance required to ensure private capital inflows in the African vaccine supply chain.

### 3.2.4 Technical Assistance

Blended finance interventions utilize technical assistance that revolve around foundational groundwork, such as conducting feasibility studies. Instead, development agencies can use their resources to improve an investment's risk-adjusted returns via other approaches, including the financing of technical assistance such as transaction advisory services and sidecar (also known as incremental equivalent debt) facilities. Sidecar facilities allow the borrower to request that one or more of the existing facilities be increased under an existing loan agreement. The lack of transaction advisors in emerging markets often creates barriers that prevent private capital from entering these markets. By covering the fees of transaction advisors, development agencies can incentivize investors to work on deals in emerging markets that they would otherwise avoid because these markets are deemed riskier and less profitable compared to developed markets. A technical assistance sidecar is a facility through which fund managers can provide portfolio companies with

42 Bertelsmann Stiftung, BTI 2022 Country Report — Kenya. Gütersloh: Bertelsmann Stiftung, 2022. <https://bti-project.org/en/reports/country-report/KEN>

43 USAID Global Health Supply Chain Program-Kenya (2022) GH Supply Chain. <https://www.ghsupplychain.org/country-profile/kenya>

business advisory services, thereby decreasing the risk associated with investing in these companies.<sup>39</sup>

To address the different areas identified above, an overall approach to strengthening and sustaining capacity requires the following guiding principles to be adopted within the supply chain:

- Assess national supply chain capacity and performance in support of vaccine procurement strategies at national, county, and facility levels, and recommend remedial actions and interventions as needed
- Support the Ministry of Health to institutionalize and sustain vaccine procurement activities
- Establish and/or strengthen county-level structures and build capacity to oversee supply chain and commodity security systems and services
- In collaboration with country partners, provide systems strengthening technical assistance to support strategic planning activities related to commodity security
- Coordinate with Kenya Medical Supplies Agency (KEMSA), a warehousing and distribution agency, at national and county levels to improve systems for logistics data-sharing between the current effort and other MoH programs
- Work with the MoH and Department of Family Health (DFH) for vaccine forecasting and supply planning

### 3.3 Assessment of Individual Mechanisms with Political, Economic, Social and Technological Aspects (PEST)

Although Kenya does not have the infrastructure or the technology to manufacture vaccines domestically, Moderna's plans to set up a local manufacturing facility in Kenya is promising. Nevertheless, there are both challenges and opportunities that exist within the current landscape. Understanding how the identified financial instruments can be leveraged

as potential mechanisms requires an environmental scan and analysis of the political, economic, social, technological (PEST) and legal aspects within the context of the country.

#### 3.3.1 Political Impacts

The Kenyan health system is largely funded by government revenues, National Health Insurance Fund (NHIF) contributions, and through private health plans, donations, or external funding, with the out-of-pocket (OOP) expenditure as a percentage of total health expenditure at 23.6% (2018).<sup>44</sup> Revising tax legislation and enabling consumer protection can help build capabilities wherein the government invites private investments that can take advantage of financial subsidies in terms of tax benefits, price subsidies, and developing SEZs (special economic zones). Likewise, mitigating the gaps identified in the vaccine supply chain logistics requires the allocation of a higher health budget to individual counties. Both impact funds and impact bonds allow providing financial advisory services to attract institutions and local investors, as well as foundations willing to act as outcome funders around vaccine distribution facilities setup locally along with promoting research and development activities, locally.

#### 3.3.2 Economic Impacts

Factors such as inflation, interest rates, credit availability, and unemployment can impact how public spending on healthcare costs is addressed. Implementing guarantee mechanisms can enable a strong negotiating position in developing and procuring vaccines. Support from multilateral and bilateral donors such as the Vodacom Group and Vodafone Foundation upscaled the vaccine cold chain capacity by donating EUR 4.2 million to the purchase of cold chain equipment for ultra-low temperatures and technologies.<sup>45</sup> Nevertheless, in the event of currency fluctuations, a debt buydown can provide grants as partial repayment of loans that are given for scaling distribution of vaccines.

44 "Africa Investment Forum 2018: Use of blended finance as a tool for scaling up investment in Africa, on the rise". (2018) African Development Bank Group. <https://www.afdb.org/en/news-and-events/africa-investment-forum-2018-use-of-blended-finance-as-a-tool-for-scaling-up-investment-in-africa-on-the-rise-18701>

45 "Africa Investment Forum 2018: Use of blended finance as a tool for scaling up investment in Africa, on the rise". (2018) African Development Bank Group. <https://www.afdb.org/en/news-and-events/africa-investment-forum-2018-use-of-blended-finance-as-a-tool-for-scaling-up-investment-in-africa-on-the-rise-18701>

### 3.3.3 Social Impacts

A lack of funding, insufficiently trained professionals, and vaccine hesitancy has slowed the rollout of COVID-19 vaccines. It has also led to weak communications and an inability to bolster the vaccine uptake, track, and manage immunization coverage. Improved communication around vaccine safety and efficacy along with ensuring that vaccine facilities are in safe places would aid in better coverage. Similarly, reaching out to vulnerable populations including the elderly who are at greatest risk and individuals who live in remote and rural areas could be done by empowering local counties to manage the distribution of vaccines. A lack of both the infrastructure to properly maintain cold chain vaccines and timely implementation rendered much of the vaccines to be expired and unusable.

After evaluating the social intervention, certain steps are required to assess the feasibility of a Social Impact Bond (SIB) idea.<sup>46</sup> It starts with the identification of a social issue where a SIB might be applicable and examines each factor that must be considered if a SIB

is to be effective. Relevant stakeholders can evaluate what the intervention points should be, based on the gaps in vaccine provision and understand what services will meet the needs of the target population to improve the social outcome.<sup>47</sup>

### 3.3.4 Technological Impacts

Currently, storage and transportation equipment allocated to counties by the ministry is unable to deliver till the last mile point, forcing counties to invest in low-budget alternatives such as icepack that compromise the quality of the products. Similarly, supply chain logistics, the Cold Chain Logistics of Health Products and Technologies, includes the technology, strategic processes, and people involved in the delivery of temperature-sensitive health products. The technological products delivered to the end user, such as blood and its products, vaccines, medicines, and drugs are still underdeveloped. As mentioned earlier, both impact bonds and impact funds can help attract institutions, and foundations to invest in both the overall supply chain infrastructure and technology to deliver vaccines.



46 Data Brief Blended Finance in Sub-Saharan Africa. (2020) Convergence Blending Global Finance. [https://assets.ctfassets.net/4cgqlwde6qy0/38Ozd2NmRiMmyNpbNpq1S3/c3072aade4a928211dad70520fd6a9d2/SSA\\_Data\\_Brief\\_FINAL.pdf](https://assets.ctfassets.net/4cgqlwde6qy0/38Ozd2NmRiMmyNpbNpq1S3/c3072aade4a928211dad70520fd6a9d2/SSA_Data_Brief_FINAL.pdf)

47 Data Brief Blended Finance in Sub-Saharan Africa. (2020) Convergence Blending Global Finance. [https://assets.ctfassets.net/4cgqlwde6qy0/38Ozd2NmRiMmyNpbNpq1S3/c3072aade4a928211dad70520fd6a9d2/SSA\\_Data\\_Brief\\_FINAL.pdf](https://assets.ctfassets.net/4cgqlwde6qy0/38Ozd2NmRiMmyNpbNpq1S3/c3072aade4a928211dad70520fd6a9d2/SSA_Data_Brief_FINAL.pdf)

## 4

# Stakeholder Engagement and Strategy Analysis

## 4.1 Key Stakeholder Interview Takeaways from Four Focus Countries

The interviews uncovered the existence of substantial obstacles in the vaccine supply chain related to the following:

- Cold chain equipment and logistics: Lack of cold chain equipment required for storage and transporting vaccines.
- Health workers and skilled personnel: Lack of trained personnel to unpack, read and record vaccine temperature, and administration and management of vaccines.
- Digital infrastructure: Unavailability of temperature monitoring devices and digital management systems including the ability to track and forecast the number of vaccines needed.
- Electrical and road infrastructure: The instability of electricity and transportation hampered the ability to store and deliver vaccines to rural areas.

### 4.1.1 Cold Chain Equipment for Storage and Logistics

The cold chain equipment requirement for COVID-19 vaccines varies depending on the brand and type of vaccine.<sup>1</sup> Pharmaceutical-grade, hospital-grade, or regular household freezer/refrigerator to store all frozen or thawed vaccines until use. All the interviewees pointed out that the inadequacy of the cold chain equipment for storage, transportation, and distribution of vaccines has a direct impact on the vaccination rate. One interviewee from Rwanda shared how the government managed to overcome the issue. When Rwanda received the first dose of COVID-19 vaccine in March 2020, it lacked ultra-cold chain equipment and had a storage challenge. Rwanda Biomedical Center purchased five freezers that can store 300,000 vaccines at below minus 80 degrees Celsius, which helped Rwanda to accommodate any type of vaccine conditions. Further, the interviewee stated that in Rwanda 78% of health facilities are equipped with cold chain equipment through GAVI's CCEOP (Cold Chain Equipment Optimization Platform).

However, we must point out that Rwanda is one of the smallest countries in Africa and ranked 28th in terms of population among all 54 countries in Africa compared to Nigeria where the total population is 16 times that of Rwanda, and both Tanzania and Nigeria are 35 times bigger than Rwanda in geographical area, while Kenya is around 22 times bigger than Rwanda. Although cold chain equipment is crucial to the vaccination rate, most African countries face financing challenges in purchasing cold chain equipment to accommodate the significantly larger population and geographic areas.

As of July 2022, all the key interviewees in Tanzania and Nigeria confirmed that there is still a shortage of cold chain equipment for storing, transporting, and delivering vaccines. While in Kenya, a fair amount of the equipment, including fridges and freezers, are outdated and need to be replaced to meet the minimum standard. The question is whether the Kenya government has the willingness and capability to procure enough equipment in the near future.

As a few interviewees from Nigeria, Tanzania, and Kenya pointed out, the federal governments usually have competing financial priorities in the annual budget. It would be difficult for the government to allocate additional line items for purchasing the cold chain equipment. Therefore, some of the interviewees believe that there is a need to engage the private sector to support the cold chain. In the sections below, we discuss recommendations on seeking additional funding for the vaccine supply chain.

### 4.1.2 Health Worker and Skilled Personnel

When COVID-19 vaccines are delivered at the port, trained personnel must be at each location to unpack shipments immediately, to read and record vaccine temperature on an ongoing basis, follow protocols when vaccines expire, experience temperature excursions, etc. Medical personnel are also needed for vaccine administration. One of the key interviewees, who managed the in-country vaccine supply chain, stated that the wide variety of vaccine types required that the staff to be trained and taught how to manage the dosage and storage/transportation requirements.



The National Committee oversees the vaccine introduction, approval, and management. But it is hard for the Committee to oversee the proper storage and delivery of vaccines at state, regional, and local levels. One key interviewee also underscored the lack of technical know-how in handling vaccines, and the absence of standard operating procedures to delivery new types of vaccines. Therefore, there is a need to finance the capacity-building activities for medical and logistics personnel to manage the vaccine supply chain better so that vaccines can be appropriately handled from the port to people's arms.

### 4.1.3 Digital Infrastructure

For the purpose of this project, we mainly focus on two types of digital infrastructure in the vaccine supply chain: temperature monitoring devices and digital management systems.

In Tanzania, one of the interviewees claimed that the central government and MoH do not have a strategy to monitor the temperature of the vaccine supply chain. In Kenya, RFID tags and NFC have been used to track the vaccine's storage environment and indicate if the shipment has been exposed to our-of-range temperatures. However, according to the interviewee, the technology hasn't been widely adopted.

A few interviewees also pointed out the lack of a digital system to dynamically manage the supply chain based on demand, supply, and storage. In African countries, there is no customer-facing information technology in the supply chain to know what vaccine is coming, when it is being received, and to whom it will be delivered. There is also a strong need for an immunization registry for adults, a stock-keeping system at the clinic, and a monitoring system that shows real-time vaccine inventory to the clinics and governments.

### 4.1.4 Infrastructure (Electricity and Roads)

As was further confirmed in our interviews, the instability of electricity and transportation hamper the healthcare system's ability to deliver vaccines to people living in rural areas.

## 4.2 COVID-19 Vaccine Supply Chain Financing Landscape

Almost all of the interviewees believe that there should be a role for the private sector to play in the COVID-19 Vaccine Supply Chain in Africa.

While the federal government may not be able to obtain affordable loans from MDBs, one of the interviewees suggested there might be an opportunity to get private sector funding from social impact investors to cover the financing gap. The Ministry of Finance may be open to short-term bridge loans from private investors, but for longer-term loans, there must be a ratification process at the National Assembly. One of the key players in the process is the Debt Management Office. At the state level, the State House of Assembly should be the decision-maker for the private loans. Given the cash flow issues within the state, there are potential opportunities for private investors to come in and provide bridge-financing for the vaccine supply chain. A Social Impact Bond (SIB) or Development Impact Bonds (DIB) might be applicable in this situation, whereby the private investors provide upfront investment in the vaccine supply chain, and the government or donor will pay back the principal and interest after the vaccination targets are achieved. Compared to traditional bridge loans, DIBs provide a longer-term investment opportunity for impact investors and governments bear less risk as they only pay when the results are achieved. The private investors can put in upfront capital and get reimbursed by a mix of local government and international donors if they reach agreed upon targets and coverage levels. An important additional benefit of DIBs is that the structure demands good quality data to be attached to service delivery which increases the implementation of these systems where they may not have existed previously (see more in **Appendix 4: Blended Finance Mechanisms at the Forefront of Health Financing**).

A few interviewees raised concerns that GAVI, UNICEF, and donor countries may "phase out" their support for vaccines and supply chain in the mid-to long-term. Federal, State, and local governments need to figure out new procurement and financing mechanisms for the COVID-19 vaccines. Based on the success of COVAX, there might be grounds for innovative procurement mechanisms, such as advance market commitment (AMC) and volume guarantee for cold chain equipment and transportation vehicles (motorcycles).

There are some opportunities to use blended finance to strengthen national, state, regional, and local vaccine supply chain. The blended finance experts we interviewed suggested a few other risk mitigation

mechanisms that could apply to Africa's vaccine supply chain. For example, some private investors may be concerned about business risk, finance risk, and delayed payment from the government. With a first-loss capital mechanism, the private sector player will be more willing to engage in a blended finance deal with the government and funders.

One government official suggested that blended finance facilities can provide technical assistance to healthcare workers and technicians to overcome the capacity and technical know-how barriers.

In some African countries, large private employers are already funding the vaccination of their employees and families, because they see the benefit of vaccines to their own businesses and to the local economy. So even if they don't make direct donations, they may be willing to make investment in the vaccine supply chain and get paid later. The best candidates are telecom companies (Vodacom, MTN, Tico, etc.) who have made it mandatory for their employees to get vaccinated and have been contributing to local healthcare infrastructure. Others may include financial services firms and large retail franchises.

#### **4.2.1 Barriers to Blended Finance Solutions in Africa**

Countries such as Nigeria already have several public-private partnerships (PPP) in place. Some countries such as Tanzania tested PPPs a few years ago for vaccine distribution and storage at the Center of Excellence. But there remain barriers to private sector investment in the supply chain including political risk, exchange rate risks, and the high cost of capital. In addition, all four countries require that public-private partnerships follow strict guidelines, which deters the engagement of some private players. In Kenya, there have been a lot of discussions about the role of the private sector and other entities in the entire supply chain. One interviewee believes the reason why Kenya government has not been keen on private investment is that they view COVID-19 vaccines as essential commodities that the government should be responsible for. Due to the vaccine fraud in Uganda and some neighboring countries, governments are very cautious about the level of private sector engagement. Another representative from a large non-profit organization also underscored the importance of changing the policy framework to create an enabling environment for blended finance investments.

Addressing political risk in Africa will have long-term impacts on the success of blended finance investments on the continent. Bodies such as the African Union's African Peer Review Mechanism, designed to improve good governance and political reforms, should look to include private sector investors in the conversation. In order to address exchange rate risks, it is important that blended finance structures offer local currency guarantees to unlock institutional capital and to develop local soft money capital. In order to address the high cost of capital, it is important that Blended Finance Mechanisms use and invest in local banks and services to reduce not only the interest charges but also the transaction costs associated with loans.

In addition, interviewees have made many valuable recommendations on how to overcome the aforementioned barriers. One of the key interviewees in Tanzania suggested that additional advocacy at the federal and state government level can convince the government on need to support the vaccine supply chain through private investment. While it may be a little bit of a challenge because government officials usually avoid changes to the system, efforts should be made to justify the necessity of blended finance and prove to the government that the involvement of the private sector in this area can increase efficiency in vaccine delivery.

One of the interviewees pointed out that blended finance may be less applicable to the last-mile delivery because of existing road and electricity infrastructure in rural areas. But innovative partnership may be a potential way to address the last-mile challenge. For example, Coca-Cola signed a partnership agreement to facilitate the distribution of vaccines to the last mile in rural Kenya. Companies have cold chain transportation vehicles, and staff can help to get health commodities to the furthest parts of the country.

Last but not least, when convening private sector investors, one interviewee from a private health provider alliance indicated that intermediaries need to understand their language and develop a solid proof-of-concept to show them what has worked.

### **4.3 Mapping of Potential Investors and Partners in Kenya**

Based on the information gathered during the Interview process and for the eventuality of a

blended finance mechanism in Kenya, HFI identified the top five stakeholders among the list in **Table I** to be included in first discussions of Blended Finance Instruments to address the vaccine supply chain issues. These key stakeholders include the United Nations International Children’s Emergency Fund (UNICEF), the Clinton Health Access Initiative (CHAI), the Kenya Healthcare Federation (KHF), the Kenya Medical Supplies Authority (KEMSA), and Bamboo Capital.

The reasons why these five organizations were chosen are as follows:

- International organizations such as UNICEF play an integral role in the delivery of vaccines to countries and work with the Ministries of Health to oversee the delivery, distribution, and storage of vaccines. UNICEF also financially supports the CCEOP (Cold Chain Equipment Optimization Platform) in Kenya, a critical platform for vaccine delivery.
- CHAI partners with governments on market shaping activities for vaccines and other health products to create demand; CHAI further supports and utilizes manufacturers to get the vaccines to country deployment centers.
- KHF, a local implementing partner, collaborates with the Ministry of Health and local health agencies throughout the vaccine supply chain.
- The Kenya Medical Supplies Authority (KEMSA), another local implementing partner, advocates for transparency around vaccine supply chain related issues. During the time spent with HFI, KEMSA highlighted the importance of greater collaboration between public and private sectors in Kenya.
- Bamboo Capital, an impact investing firm, works to highlight the importance of public-private partnerships (PPPs) to increase impact from Blended Finance Solutions globally.

**Table I: Potential Roles of Stakeholders**

Name of organization	Role in vaccine supply chain	Role in blended finance	Financial instruments provided
<b>KEMSA</b>	Advocate for transparency around vaccine supply chain related issues; advocate for public-private collaboration	Involved in multisectoral participation with government	Loans, Equity, Guarantees, Grants (as trustees)
<b>Bamboo Capital</b>	Focuses on the agriculture finance sector and works on equity and debt	Educates and informs on importance of PPPs to increase impact from Blended Finance Solutions	Loans, Equity
<b>UNICEF</b>	Provides support to Kenya’s vaccination program and policies	Facilitates the movement of vaccines from manufacturer to the port of entry	Grants, Loans, Equity (in some cases), Guarantees, Insurance, Technical Assistance
<b>CHAI</b>	Partners with governments to create demand; utilizes manufacturers to get the product to end users	Supports vaccine procurement	Guarantees
<b>KHF</b>	Assists with capacity building to bridge the gaps between providers and payers	Works with financial institutions for guarantee and capacity building	Loans, Equity

As can be gleaned from Table I, all five partners support public-private sector collaboration, demonstrate know-how, and are able to provide capital and technical support toward blended finance vehicles. However, for PPPs to emerge, there needs to be the right political, data, and legislative environment, including existing first loss capital, for a transaction and contract to crystallize. In addition, for RBF and debt swaps, public financial collateral is a key ingredient for success as well.

As such, to address the financing need of the vaccine supply chain, domestic resource mobilization needs prioritization by the Ministry of Health and local health authorities. As of today, the Kenyan

government plays a key role in the vaccine supply chain – and debt swaps, results-based finance vehicles / impact bonds, or advance market commitments, will be central to the success and speed of progress towards establishing Blended Finance Solutions for vaccine delivery in Kenya.

If there is a willingness of the government and key donor partners to support blended finance training and feasibility work, the above-listed partners would form a great group to nucleate this work. The first commitments needed will be of political, regulatory, and financial nature, before private sector partners are able to join and engage in concrete action.



## 5

## Recommendations and Concluding Remarks

Overall, while there was an array of vaccine financing challenges in the surveyed countries in East Africa, including premature market readiness and low appetite towards increased private sector investments. As next steps to address financing impasses in the vaccine supply for COVID-19 vaccines and beyond, structured finance vehicles and subordinated debt programs hold the greatest promise towards paving the way for greater private sector investments in SSA and East Africa.

Successful blended finance – which at its core de-risks private sector capital that follows the principles of additionality – can only become a reality when outcomes can be close to guaranteed and the market shows readiness in terms of stability and information flow. For Blended Finance Mechanisms to become self-sustainable in the long run, impact investors allude that targets investors need to have patient capital to support it before the business generates cash flow. This would include a business model with the ability to generate stable cash flow in the short run, and an investor exit strategy in

the longer term. Consequently, when designing Blended Finance Mechanisms, it is advisable to have customized mechanisms that can be adapted to the local investment environment and capital market.

To get closer to this state of readiness, debt swaps and outcomes-based finance vehicles such as impact bonds offer a solution as being significant milestones on the journey towards blended finance for vaccine supply. While debt swaps are not blended finance per se, both SIBs/DIBs, RBF structures, and debt swaps rely on strong outcome framework and contracting – key de-risking features for future investor interest and commitment. Further, private sector engagement will also need to find public approval – which in countries like Rwanda may face some resistance. Therefore, building trust and multi stakeholder buy-in will need to precede any financial planning and commitments. Additional advocacy, convening, and education are necessary to justify the importance of blended finance and convey the impact it could have to policy makers.



## 6

## Appendix I: Interview Guide

### 6.1 COVID-19 Vaccine Supply Chain Program Background

Health Finance Institute (HFI) is in collaboration with IPE Global on a United States Agency for an International Development (USAID) project for using Blended Finance Instruments to support the COVID-19 Vaccine Supply Chain in Africa.

Africa lags significantly behind the rest of the world in access to COVID-19 vaccines. By May 2022, only 17% of Africa's 1.2 billion population has been fully vaccinated, compared to 80% in G7 countries—widely missing the WHO's target of achieving 70% COVID-19 immunization coverage by mid-2022.

Therefore, we are conducting this project on **identifying potential Blended Finance Solutions for COVID-19 Vaccine Supply Chain optimization in Africa**. As part of the project, HFI and IPE Global are conducting interviews to elicit your and your organization's information and understanding on the challenges facing the vaccine supply chain.

Based on interview responses, research, and analysis, we are hoping to develop a roadmap for a financially viable and operationally practical blended finance facility and ensure seamless distribution of COVID-19 vaccines. Your responses will be summarized and integrated into final reports for IPE Global, which will be shared with USAID and published in September/October 2022.

**We plan to record this interview.** The responses will be **anonymized and aggregated**. We will ask for specific permission if we intend to quote any of your statements directly.

### 6.2 Conversation Guide

1. Domestic Vaccine Supply Chain: What does the COVID-19 Vaccine Supply Chain in your country or region currently look like? Do the numbers we mentioned about the current vaccination rates in Africa match what you are seeing? What does the vaccination rate in your region/country look like?

2. In your view, what are the biggest obstacles in the vaccine supply chain that causes the low COVID-19 vaccination rate in Africa? Conversely, where did your country/region perform better or delivered better results than others?

3. In the last mile, how are vaccines distributed to the vaccination site?

4. What does the supply chain look like in urban centers versus rural? Are there any differences? If so, what are they and how have they changed over time?

5. Are there any required procedures before a COVID-19 vaccine is given to an individual? E.g., patient online-registration, primary-doctor referral, within the insurance network.

6. Public and Private Sector Involvement: Which government agency/department is managing the COVID-19 vaccination program? Who is allowed to administer the vaccines? Are private companies/pharmacies/organizations involved in the supply chain?

- Do you think the government will increase fiscal space for the vaccine supply chain soon?
- Do you think the government is interested in attracting more private sector engagement in the vaccine supply chain? Can the issues you mentioned earlier be solved with additional investment in health from the private sector?
- To the best of your knowledge, what is the most significant factor that encourages or discourages private investment in the health sector (e.g., business risk, legal/policy restrictions, infrastructure, etc.)

7. In an ideal vaccine supply chain, who else should be involved as key stakeholders?

- Anything we can learn from the financing of other vaccines' supply chains? Are there any public-private partnerships involved? E.g., Influenza (flu) Vaccines, Pneumococcal Vaccines (PCV), and Polio vaccines?

- Do you have suggestions on how the COVID-19 supply chain can be optimized in your region/country? Are there any local success stories that we could learn from for future action?

8. Currently, who is financing the delivery of COVID-19 vaccines?

- How much is the government financing for vaccine delivery?
- Do you happen to know what the financing gap related to the delivery of COVID-19 vaccines to 70% of the population in your country?

- How much is pledged by external financing resources (MDBs, Bilateral donors, GAVI/ UNICEF, European Commission, Foundations/ Private donors) and how much has already been allocated?

9. Is there any additional information you would like to share that our questions have not been touched upon?

10. Moving forward, are there any other officials we should consult with in this process?



# 7 Appendix 2: Onsite Interview Response Summary

## 7.1 Synthesis of Onsite Interviews Responses

In addition to the virtual interviews with key stakeholders, onsite interviews were conducted to get further input and insights into the challenges and barriers faced in the vaccine supply chain in Africa and assess opportunities for a financially viable and operationally practical blended finance facility. A series of interviews were conducted with key stakeholders from organizations that serve across Kenya and the border Sub-Saharan Africa (SSA) region on global health issues.

## 7.2 Supply Chain Challenges

Interviewees highlighted two main obstacles, namely, infrastructure and storage. The budgeting, procurement, and distribution of vaccines were done at the national level, which the government views as a social responsibility, and the vaccines were provided to individual counties. With that in mind, larger non-governmental organizations that are focused on global health initiatives in Kenya are moving towards “influencing more and doing less”, and supporting initiatives by shaping national policies for integration, while having the government take responsibility for funding. Likewise, these organizations also focus on creating demand for the vaccine and provide volume guarantees which are then fulfilled by the manufacturers through government interventions.

It was also noted that the private sector is involved with vaccine distribution and delivery, and it is done through the Ministry of Health (MoH) and external partners, which own 90% of the cold chain and is responsible for the delivery as well, and data integrity is maintained through utilization and stock report. The cold room at the airport is used for storing other products besides vaccines and is owned by 3rd party. The validation, approvals, and quality-check of the vaccine supply are done by a clearing agent, which in the past was done by the government, and faith-based and government-funded outreach activities conduct the last-mile delivery. Similarly, the vaccine storage facility is owned by a non-government organization, and there is not much control of the

supply chain by third-party implementors, except for monitoring, determining the volume, and the shipment schedule. Vaccines are procured on behalf of the government and distributed to the regional depots which are delivered to local healthcare facilities through government channels. Of the 8,500 immunization facilities which are required to report on the number of vaccines administered, around 40% are owned by private owners, and the rest is owned by the government. However, financial challenges and the inability to make payments to third-party caused the service to be stopped.

Consequently, the use of existing national vaccine distribution and supply chain elucidated additional challenges with not being equipped with the cold storage capability that is required for COVID-19 vaccines. Despite the national government facilitating the recruitment of health workers, a high turnover resulted in an inadequate workforce. Besides that, the stigma around the COVID vaccine, and the storage of vaccines near morgues due to the dearth of appropriate storage creating stories around it were also voiced in the interview. Additionally, transportation and delivery issues were reported during the post-procurement of vaccines along with distribution and transportation challenges due to inadequate infrastructure. The directive from the national government to appoint health workers had a negative reception from the counties that preferred to have local healthcare workers' representation. While the immunization program may have been structured well, access to vaccines due to limited resources posed a problem. Although the involvement of the private sector during pre-pandemic was limited, banks and other financial institutions collaborated during the COVID-19 pandemic and are currently working on the different facets of this partnership.

## 7.3 Integration and Collaboration

The importance of such a collaboration between national and regional agencies was highlighted by another organization, such that the limited resources are used in a more streamlined fashion. Potential avenues of integration included looking at regional approach vs country-by-country due to similarities



and synergies between the healthcare sector and developing a roadmap of private-public partnership that focuses on enabling solutions. Similarly, data management is currently done by the government and the visibility is limited, the opportunity to include transparency of contracts and proper utilization and certification of private sector partners was brought up. To that end, an audit report that was put together earlier called for addressing issues not only with procurement but also with wastages and theft; less than half of the vaccines were used on time before they expired and only the government has access to that information. Given that the vaccine supply chain is specific and cannot be integrated with other products, the current approach at the county level does not produce enough volume for the private sector to be engaged. A recommendation to aggregate the market was put forth by the interviewees so that it provides some incentive for the private companies.

In addition to data infrastructure, telemedicine is also very attractive to investors. However, there are some other areas, such as inventory management systems are neglected by the market. These companies can make the health supply chain run more efficiently but do not attract a lot of interest from the capital market. Lastly, the manufacturing of syringes for vaccines is growing during the pandemic.

## 7.4 Opportunities

It was encouraging that the Kenyan government implemented a credit-guaranteed scheme for small and medium enterprises (SMEs) within the private sector, as well as a tax waiver for medical supplies during the pandemic. However, this credit guarantee scheme would be a temporary one and might not continue after the pandemic. With the new government, the private sector is hopeful that a public-private partnership would be established as part of the overall government portfolio. Representatives from development finance institutions also highlighted the need for using first-loss capitals to de-risk the investments in health SMEs and incentivize more private investment into the health value chain. However, they will not be in a position to secure purchasing arrangements such as AMCs or volume guarantees.

Nevertheless, the risk of currency fluctuations and payment delays precludes local suppliers from entering into vaccine procurement and distribution. Given that the GDP-debt ratio is 70% of the GDP, the fiscal deficit is 7.5%, GDP to health expenditure is about 6%, while savings rate/fixed deposit is 7%,

and the borrowing rate is 12-13%. Further, the foreign-currency fluctuation also makes US and Euro-based financing options more expensive and less accessible to local SMEs. Therefore, it was noted that the need to develop the domestic debt market can help mobilize resources.

## 7.5 Potential Blended Finance Instruments

While there are blended financial instruments such as first-loss and debt funds, these models have not yet fully matured in Kenya. Private vaccine suppliers are trying to prove the value proposition of a partnership between the public and private sectors. Besides guarantee schemes and direct subsidies, there is no other concrete source of funding that is prevalent. Existing regulations require that medical professionals run the facilities, wherein these professionals may not have the expertise or know-how to operate a business efficiently through the lenses of sustainability and systems thinking. Many of these professionals also lack the financial management expertise in the local and global financial markets to finance their businesses. Changes to such regulations could provide an opportunity to explore the possibility of running the public healthcare sector efficiently and scaling up. Nevertheless, there has been some interest in investment in strengthening the existing infrastructure, including the healthcare sector. One interviewee has successfully helped build capacity to bridge the gap between providers and payers. However, the space for venture capital in Kenya is yet to be fully understood. In order to bring blended finance to maturity, there needs to be a targeted focus on educating and disseminating through continuous learning, along with a transition plan to obtain funding by the government needs to be looked at once the key players in the region exist.

## 7.6 Preliminary Takeaways

For the Blended Finance Mechanisms to become self-sustainable in the long run, impact investors alluded that the target investees need to have patient capital to support it before the business generates cash flow. This would include a business model with the ability to generate stable cash flow in the short-run, and an investor exit strategy in the longer term. Consequently, when designing Blended Finance Mechanisms, it is advisable to have customized mechanisms that can be adapted to the local investment environment and capital market.



## Appendix 3: Stakeholder Interview Report

### 8.1 Executive Summary

The purpose of the Market Assessment for Blended Finance Solutions to Strengthen COVID-19 Vaccine Supply Chain Management in Africa (“project”) is to conduct an in-depth assessment of technical and physical supply chain challenges and propose potential blended finance investment opportunities that will both meet immediate COVID-19-vaccine distribution needs and provide long-term benefit to the continent’s healthcare systems once the pandemic is over. On this basis, the Health Finance Institute (“HFI”) selected a list of key informants and conducted a total of 14 interviews with local and global stakeholders from the public, private, and philanthropic sectors.

The interviews yielded four main gaps in the COVID-19 Vaccine Supply Chain in Africa, and recommendations on using Blended Finance Solutions to crowd-in private investments.

Final recommendations from the interviews include:

1. There should be a role for the private sector to play in vaccine supply chain
2. Pay-for-result mechanisms could provide upfront capital to support the various vaccine supply chain investments at a lower financial cost.
3. With a first-loss capital mechanism, the private sector player will be more willing to engage in a blended finance deal with the government and funders.
4. Local large private employers may have incentives to invest in blended finance projects if there’s benefits to their businesses and local economy
5. To forge blended finance partnerships, the governments need to make changes to the policy framework so that the private sector can engage more in the health commodities supply chain. Therefore, we need additional advocacy, convening, and education to justify the necessity and convey the impact to policymakers.

### 8.2 Methodology

HFI conducted the interviews between June and July 2022 to acquire first-hand information from global and local stakeholders. The interviewers used a set standard interview guide (“guide”) that was tailored to the interviewee’s position, background, and experience (supply chain, finance, government, and global partners). The guide included the following elements:

1. The overall performance of the COVID-19 Vaccine Supply Chain in the interviewee’s country/region
2. Barriers and opportunities for catalyzing additional private investment in the supply chain
3. Key funders/investors that should partner with when designing and structuring a blended finance deal for the COVID-19 Vaccine Supply Chain

The Zoom interviews lasted approximately 30 minutes in length; however, interviews range from 20 minutes to 45 minutes, depending on the depth and amount of information provided by the interviewees.

Following the interviews, HFI incorporated the inputs from key informants into this report.

### 8.3 Selection of Interviewees

Aiming for a variety of interviewees, we interviewed current and former government officials, representatives from civil society organizations (CSOs), World Health Organization (WHO), and other local stakeholders (“key informants”). HFI team sent a total of 53 interview invitations or connection requests between May 25, 2022, and July 15, 2022. Initial invitations were sent to WHO regional offices, government agencies, and funders within HFI’s network. HFI also asked for introductions through our partners and advisory network. An additional round of invitations “snowballed” as new contacts were recommended by Key Informants. Further, HFI has searched for health supply chain experts and government officials through desktop research and reached out to them via LinkedIn and Twitter.

Of the 38 individuals invited to the interview, a total of 14 key informants participated in a Zoom interview. All informants were made aware that participation was voluntary and that responses would be shared with IPE Global and USAID for analysis and reporting. For public reporting, HFI will ask for the participants' confirmation before disclosing their name, position, and organization.

## 8.4 Financing Landscape of COVID-19 Vaccine Supply Chain

The cost of vaccine procurement, storage, distribution, and delivery is currently mainly borne by the COVAX facility, UNICEF, WHO, and governments. A few interviewees raised concerns that GAVI, UNICEF, and donor countries may "phase out" their support for vaccines and supply chain in the mid- to long-term. Therefore, the local governments must figure out our new procurement and financing mechanisms for the COVID-19 vaccines.

According to an interviewee in Nigeria, the federal government of Nigeria secured loans from African Development Bank (AfDB) to finance the procurement and delivery of vaccines. The government is now discussing with the World Bank to defray the cost. The loan from AfDB is usually short-term and has a slightly higher interest rate (6% to 7%). If the government can secure longer-term debts from World Bank, the interest rate may be only 1% or even less. However, if the government couldn't find affordable loans from Multilateral Development Banks (MDBs), the interviewee is concerned that the government may face financing challenges.

### 8.4.1 Existing Private Sector Investment and Engagement in the Healthcare Supply Chain

- Dutch sovereign wealth fund together with Goldman Sachs in Investment Funds for Health in Africa (IFHA), which invested in distributors in Africa.
- A private company is involved in international clearing and forwarding in Tanzania
- A Dutch private company called Imperial Health invested in buying many distributors across East Africa. It used to be a listed company on the South Africa Stock Exchange but now it's being sold to DP World. Any future investments from Imperial will be DP World monies.

- The US Development Finance Corporation in partnership with Citibank.
- In pharma and other entities, the IFC, the International Finance Corporation invested in one or two of the leading healthcare providers in the region and joint Investment Funds for Health in Africa.
- Investment Fund for Health in Africa which has DFC monies in the past
- CFAO Group (owned by Toyota), the largest private investors in the distribution of health products in East Africa. CFAO just bought out Leapfrog's stake in one retail pharmacy chain and is expanding its distribution investments.
- In-country domestic private providers. For example, Pyramid Pharma, which is one healthcare distributor in Tanzania which had received the investment from IFHA
- The FIT Group is a private company, and they've raised most of their money from private capital sources. So those are the more pure-play private capital investments in the healthcare supply chain, some of which have been used for COVID.
- DrugStock has been involved in the supply chain in Africa

## 8.5 Recommendations

1. Pay-for-result mechanisms could provide upfront capital to support the various vaccine supply chain investments at a lower financial cost.
2. With a first-loss capital mechanism, the private sector player will be more willing to engage in a blended finance deal with the government and funders.
3. Large private employers may also have incentives to invest in the vaccine supply chain to support the local economy and accomplish their Corporate Social Responsibility (CSR) goals. The best candidates are telecom companies (Vodacom, MTN, Tico, etc.) who have made it mandatory for their employees to get vaccinated and have been contributing to local healthcare infrastructure. Others may include financial services firms and large retail franchises.
4. The policy restrictions on private investment in the vaccine supply chain remain the top concern

among all interviewees. Some claimed that there needs to be a change in the policy framework to encourage more private sector engagement and private investment in the vaccine supply chain.

5. There's no one-size-fits-all solution. Each individual contract in Africa has its unique context, health financing mechanisms, and decision-making process. We need to tailor the solutions to fit the local context.

## 8.6 Limitations

The report relies on the opinions and experiences of a limited number of stakeholders and experts

identified as having experience or background in the vaccine supply chain. However, it is possible that the results would have been different if a different set of informants had been interviewed. Moreover, several invited informants were not able to participate in the interviews. Results should be interpreted in conjunction with secondary research (literature, reports, articles, and publicly available database). Lastly, although HFI used a consistent interview process to ask the questions and summarize the answers, it is possible that certain responses may have been misinterpreted.



## 9

## Appendix 4: Blended Finance Mechanisms at the Forefront of Health Financing

### 9.1 Highlighted Blended Finance Mechanisms

There is an urgent need to look beyond the traditional approaches to health financing and identify ways to attract private capital in Africa to ensure that there is continued and adequate growth in the fiscal space for health. Blended financing mechanisms have the potential to better leverage the private sector's growing capacity, however, the successful implementation of these financing mechanisms particularly in healthcare requires that key partners understand and agree on the risks and potential of each approach.<sup>48</sup> Blended financing mechanisms help to develop synergies between key stakeholders and minimize risks, which attracts fresh capital to flow into the system.

#### 9.1.1 Blended Fund With Flexible Repayment Terms

The blend of grant and non-grant (debt) funding provided as debt with flexible repayment options can help social entrepreneurs and other innovators bridge the “missing middle” financing gap and create revolving funds where the same money can be reinvested over the years, thereby increasing capital efficiency and social impact. For example, the Bill & Melinda Gates Foundation (BMGF) utilized a blended fund to invest USD 10 million in Liquidia Technologies, a biotechnology company developing new methods to deliver vaccines. The results of which allowed Liquidia to accelerate two rounds of clinical phase trials and by the conclusion of phase 3 will commence commercialization in the next 2 years.<sup>49</sup>

#### 9.1.2 Results Based Financing

Results based financing in the form of grant funding that is disbursed to recipients when pre-determined outputs or outcomes are achieved has been shown to results in greater accountability, increased efficiency, and to enable movement towards more equitable healthcare over a period of time. In Zambia, studies have been conducted to evaluate the cost-effectiveness of results-based financing and input-based financing to increase use and quality of maternal and child health services in rural areas of Zambia<sup>50</sup>. The results confirmed an increase in coverage of institutional deliveries in districts with performance-based financing compared to districts with input-based financing. Development Impact Bonds (DIBs), like Social Impact Bonds (SIBs), are results-based contracts in which private investors provide pre-financing for social programs and public sector agencies pay back investors their principal plus a return if, and only if, these programs succeed in delivering social outcomes. Since repaarent to investors is contingent upon the achievement of specified social outcomes, DIBs are not “bonds” in the conventional sense. The difference between SIBs and DIBs is who pays for the outcomes. In a SIB, the outcome payer is generally a domestic government, whilst in a DIB the outcome payer may be a donor, such as a government or multilateral aid agency, or philanthropic funding.

#### 9.1.3 Advance Market Commitments

Advance market commitments (AMCs) provide partial protection to lenders willing to extend loans to development sectors. AMCs represent a powerful option for the development of new health technologies. These financing mechanisms are most applicable where private sector investment replace grant funding or development aid by leveraging the

49 Bill & Melinda Gates Foundation. “Liquidia Technologies Receives Investment to Bolster Development of Vaccines”. Press Release. March 2011.

50 Zeng W, Shepard DS, Nguyen H, Chansa C, Das AK, Qamruddin J, Friedman J. Cost-effectiveness of results-based financing, Zambia: a cluster randomized trial. Bull World Health Organ. 2018 Nov 1;96(11):760-771. doi: 10.2471/BLT.17.207100. Epub 2018 Aug 29. PMID: 30455531; PMCID: PMC6239017.

free-market economy while ensuring the desired social outcomes are accomplished. By combining a prize-like structure with a jump-started market, AMCs have the capacity to enable a potential return on investment even before an organic market develops. The Bill and Melinda Gates Foundation provided a guarantee to Clinton Health Access Initiative (CHAI) to structure volume guarantees to reduce the price and increase access to life-saving commodities in the developing world - supporting governments to provide lifesaving medical oxygen care safely and affordably to patients who need it in Cambodia, Ethiopia, India, Kenya, Laos PDR, Liberia, Nigeria, Rwanda, and Uganda. This initiative provides the funding and capacity building for a comprehensive oxygen ecosystem that will likely translate the pandemic response into long-term, quality services working with the public and private sectors.

## 9.2 Additional Blended Finance Solutions

In addition to the highlighted Blended Finance Solutions, there are several other mechanisms that could be combined with private sector capital in one transaction to balance risks and returns. To achieve specific impact goals, key partners in social impact bonds (SIBs) collaborate with government agencies to pay for improved social outcomes that eventually result in public sector savings. Some private sector investors may invest for below-market returns in line with strategic objectives, however many report that SIB performance usually meets or exceeds expectations in terms of impact and financial returns.

Insurance for social impact projects also has the potential to unlock private capital by providing protection to investments against some level of loss in the event the project is unsuccessful, or the borrower is unable to repay the capital. Community led micro-

insurance models are examples of social insurance and protection that enable last mile financing.

Pooled investment funds aggregate funds from multiple parties and have the potential to support market-based solutions that require a more tailored approach to meeting specific objectives. A key example of a pooled investment fund is the Medical Health Fund seeking to provide financing for small- and medium-sized enterprises in the health sector (“health SMEs”) in Africa. Financial Partners such as USAID provided USD 1 million in grant funding deployed as first loss capital.<sup>51</sup> In 2012, Medical Credit Fund (MCF) closed on USD 10.6 million in debt financing from Overseas Private Investment Corporation, BMGF, the Soros Economic Development Fund, the Deutsche Bank Americas Foundation, and Dutch private investors.<sup>52</sup> These primarily impact-oriented funders were keen to support the health sector in Africa.

As pointed out in previous sections of this report SMEs in East and West Africa often face difficulties accessing private capital, especially when trying to access financing for the purchase or lease of equipment. Using asset lease financing mechanisms, the owner of an asset provides the right to use of the asset to another party against periodical payments. An example of this type of structure is the African Medical Equipment Facility which aims to improve private-sector healthcare delivery by enabling hospitals, clinics, pathology labs, and diagnostic imaging centers to acquire the advanced equipment that can improve the quality and reliability of care provided. Under this structure, partner banks provide commercial loans and leases ranging from USD 5,000 to USD 2 million with a tenor ranging from 3 to 7 years including a grace period of 6 months to 2 years.<sup>53</sup> They serve to finance the acquisition or lease of the original manufacturer’s equipment with the aim of improving patient care.

51 Case Study Medical Credit Fund. (2019) Convergence Blending Global Finance. [https://assets.ctfassets.net/4cgqlwde6qy0/77PvZkiv4ec7y7B8GZ7OW9/b7734c5ee7f844a02e1924a9fda3b2d6/Convergence\\_\\_Medical\\_Credit\\_Fund\\_Case\\_Study\\_\\_2019.pdf](https://assets.ctfassets.net/4cgqlwde6qy0/77PvZkiv4ec7y7B8GZ7OW9/b7734c5ee7f844a02e1924a9fda3b2d6/Convergence__Medical_Credit_Fund_Case_Study__2019.pdf)

52 Case Study Medical Credit Fund. (2019) Convergence Blending Global Finance. [https://assets.ctfassets.net/4cgqlwde6qy0/77PvZkiv4ec7y7B8GZ7OW9/b7734c5ee7f844a02e1924a9fda3b2d6/Convergence\\_\\_Medical\\_Credit\\_Fund\\_Case\\_Study\\_\\_2019.pdf](https://assets.ctfassets.net/4cgqlwde6qy0/77PvZkiv4ec7y7B8GZ7OW9/b7734c5ee7f844a02e1924a9fda3b2d6/Convergence__Medical_Credit_Fund_Case_Study__2019.pdf)

53 IFC Financing to Increase Access to Essential Medical Equipment (2020) International Finance Corporation World Bank Group. [https://www.ifc.org/wps/wcm/connect/industry\\_ext\\_content/ifc\\_external\\_corporate\\_site/health/ifc+africa+medical+equipment+facility](https://www.ifc.org/wps/wcm/connect/industry_ext_content/ifc_external_corporate_site/health/ifc+africa+medical+equipment+facility)

The above instances of catalyzing private sector investments have been crucial measures to leverage health spending as governments do not have the necessary budget for large healthcare investments. However, to tackle the core problem of shrinking healthcare budgets and increase ownership by local governments, there need to be mechanisms put into place to expand public expenditure for healthcare systems including debt swaps and taxes.

Summary statements why AMC, debt swaps, and RBF applicable in the vaccine context; caveating also that debt swaps are not a blended finance mechanism, and that SIBs are RBFs and not necessarily blended finance / but that these mechanisms strengthen performance and value based / output centered healthcare. Therefore, establishing these mechanisms to enhance vaccine finance and delivery will be a significant step in the direction of blended finance and towards future de-risking of private sector investments; the market is currently not mature enough yet.

Debt swaps are used as an approach to advancing sustainable development by transforming debt into resources for development work. Debt swaps combine the cancelation of debt by the creditor government where the debtor government agrees to use the funds to support specific impact goals. The Global Fund is a pioneer in debt swaps in health. Pakistan and Côte d'Ivoire have received a further €59 million of debt relief from Germany, generating €29.5 million for Global Fund projects.

Lastly, taxes can be earmarked to finance specific healthcare targets based on national government priorities. This mechanism has the capacity to generate domestic financial resources and it has a relatively low cost of collection since it uses established indirect tax collection channels. Soda Taxes, which are known as a health tax, are examples of how taxes can be leveraged to support developmental interventions.





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