CLUSTER PROGRESS REPORT

Analysis of Selected African Union Member Countries' Progress towards Sustainable Financing of Immunization.

Submitted to: PATH and WACI Health

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Abbreviations

ADI	Addis Declaration on Immunization
AU	African Union
BCG	Bacillus Calmette–Guérin Vaccine
CHE	Current Health Expenditure
D-GGHE	Domestic General Government Health Expenditure
DTP	Diphtheria, tetanus toxoid and pertussis-containing vaccine
DTP 1	First dose of DTP containing vaccine
DTP 3	Third dose of DTP containing vaccine
EPI	Expanded Program on Immunization
GDP	Gross Domestic Product
GGHE	General Government Health Expenditure
GNI	Gross National Income
HCI	Human Capital Index
HDI	Human Development Index
IPV	Inactivated poliovirus
MCV	Measles Vaccine
OOP	Out-of-pocket
OPV	Oral Polio Vaccine
SADC	Southern African Development Community
SCI	UHC Service Coverage Index
UHC	Universal Health Coverage
WUENIC	WHO/UNICEF Estimates of National Immunization Coverage

Definitions

Current Health Expenditure (CHE)	Current health expenditure (CHE) describes the annual share of spending on health in each country relative to the size of its economy. It includes expenditures corresponding to the final consumption of health care goods and services. CHE shows the importance of the health sector in the economy and indicates the priority given to health in monetary terms.
Domestic General Government Health Expenditure (D-GGHE)	Share of general government expenditures on health from domestic sources
General Government Health Expenditure (GGHE)	General government expenditures on health drawn from all sources. It includes not just the resources channeled through government budgets to providers of health services but also the expenditure on health by parastatals, extra budgetary entities and notably the compulsory health insurance payments. It refers to resources collected and pooled by the above public agencies regardless of the source, so includes any donor (external) funding passing through these agencies.
Gross Domestic Product (GDP)	Gross domestic product measures the value of goods and services produced within a country; the measurement includes national output, expenditures, and income. It excludes wages, salaries, and property income of the country's residents earned abroad as well as net taxes and subsidies receivable from abroad.
Gross National Income (GNI)	Gross National Income (GNI) is a measurement of a country's income. It includes all the income earned by a country's residents, businesses, and earnings from foreign sources.
Human Capital Index (HCI)	The Human Capital Index (HCI) is an annual measurement prepared by the World Bank. HCI measures which countries are best in mobilizing their human capital, the economic and professional potential of their citizens. The index measures how much capital each country loses through lack of education and health. The final index score ranges from zero to one and measures the productivity as a future worker of a child born today relative to the benchmark of full health and complete education (a maximum index score of 1).
Human Development Index (HDI)	The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions. The health dimension is assessed by life expectancy at birth, the education dimension is measured by mean of years of schooling for adults aged 25 years and more and expected years of schooling for children of school entering age. The standard of living dimension is measured by gross national income per capita.
Missed communities	Missed communities are home to clusters of zero-dose and under-immunized children. These communities often face multiple deprivations and vulnerabilities, including lack of services, socio-economic inequities and often gender related barriers.
Out-of-pocket	Out-of-pocket (OOP) payments are expenditures borne directly by a patient where neither public nor private insurance cover the full cost of the health good or service. They include cost-sharing and other expenditure paid directly by private households and should also ideally include estimations of informal payments to health providers.

UHC Service Coverage Index	Coverage index for essential health services (based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access). It is presented on a scale of 0 to 100.
Under Immunized Child	An under-immunized child is defined as those missing the third dose of diphtheria, tetanus and pertussis (DTP)-containing vaccine (DTP3).
Zero Dose Children	Zero-dose children are those that have not received any routine vaccine. For operational purposes, Gavi defines zero-dose children as those who lack the first dose of diphtheria-tetanus-pertussis containing vaccine (DTP1).

EXECUTIVE SUMMARY

Background

Immunization stands as a monumental success in global health, saving countless lives annually and contributing to overall health, productivity, and global prosperity. Immunization services play a pivotal role in primary healthcare, offering a foundation for broader health initiatives. However, uneven distribution of immunization benefits exists, with the poorest and most marginalized populations often lacking access to these life-saving interventions.

Methods

A retrospective study was conducted across ten African countries, utilizing a mixed-methods approach that included qualitative and quantitative data. Data sources encompassed EPI reports, budgets, immunization financing reports, and databases from WHO, UNICEF, GAVI, World Bank, and the IMF.

Findings

The cluster analysis of the ten countries revealed critical findings: Infants under 12 months and children under 5 years represented a substantial population constituency, underscoring the importance of targeted investments in child health. These countries exhibited a low Human Capital Index, indicating that children fell far short of their productivity potential due to health and socio-economic challenges. Additionally, low tax revenues and high debt levels jeopardized public resources, particularly for health and immunization services.

The combination of low service coverage, high child mortality, and the failure to meet the Abuja threshold for government health expenditure highlighted the urgent need for targeted investments in maternal and child health, given the threat to health service sustainability amid donor transitions and high donor dependence. Moreover, high out-of-pocket health expenditures posed a financial hardship risk for the population.

Further analysis unveiled disparities in child health outcomes based on income, suggesting an inverse relationship between income and immunization coverage in countries with low coverage and a direct relationship in those with higher coverage.

Routine immunization and vaccine expenditures remained low, comprising a minor portion of health and government health budgets in the cluster. Governments within this cluster funded only 25% of routine immunization and vaccine costs between 2017 and 2019, with vaccine procurement accounting for a significant portion of immunization expenditures. Despite these challenges, there remained a substantial reliance on donor funding for immunization within this cluster, compounding the risk to sustainability.

The study identified challenges across the vaccine supply and demand sides, including fiscal constraints, budgetary prioritization, donor dependence, limited data, weak health systems, staffing issues, vaccine procurement costs, supply chain logistics, inadequate infrastructure, inefficiencies, political instability, and natural disasters.

To overcome challenges, the following emerged as essential: implementing effective debt management, enhancing tax administration, advocating for increased health and immunization budgets, developing costed national plans, promoting prepayment mechanisms, investing in poverty reduction, improving data management, strengthening healthcare infrastructure and human resources, providing capacity-building for immunization financing, leveraging technology for efficient vaccine delivery, fostering strategic collaborations, promoting domestic vaccine manufacturing, and addressing political instability and natural disasters. These actions will result in more equitable access to immunization services, improved health outcomes, and economic development in African countries.

Conclusion

Immunization represents a global health triumph, saving countless lives and fostering well-being, productivity, and prosperity at both individual and population level. However, its benefits are not uniformly distributed, with marginalized populations often denied access to these life-saving interventions. This comprehensive retrospective study across ten African countries highlights the importance of child health, as infants and young children form a significant population demographic. It reveals challenges, including low budgetary prioritization of health and immunization, high donor dependence, fiscal constraints, weak health systems, low Human Capital Index, and inadequate and inequitable immunization coverage.

The findings underscore the urgent need for targeted and predictable investments in immunization and child health, especially in low-income settings. Furthermore, the findings emphasize that though untapped, domestic financing is critical in ensuring sustainability of routine immunization in the context of donor transitions and new vaccine introduction. They also highlight the value of functional health systems, sound public finance management systems, political stability, social determinants of health, innovation and technology, and disaster preparedness in anchoring sustainable immunization services in these countries. Sustained advocacy by Civil Society can help ensure that key stakeholders including country leadership, and partners remain accountable and empowered in the quest for sustainable domestic financing of immunization services.

INTRODUCTION

Background

Immunization is a success story for global health and development, saving millions of lives every year[1]. It benefits individuals, communities, countries and the world. It is an investment in the future, in several ways including:

- Saving lives and protecting the health of populations
- Improving countries' productivity and resilience
- Enabling a safer, healthier, more prosperous world

Additionally, Immunization services are a cornerstone of primary health care and, with their already broad reach, can serve as a foundation for other vital services. This means immunization is one of the best uses of limited public funds for health[2].

An underappreciated virtue of immunization is that its benefits impact the poor to a greater extent than most other health interventions. Poor people bear a disproportionate burden of the diseases addressed by immunization.

Despite this, the benefits of immunization are unevenly shared: coverage varies widely among and within countries. Some populations – often the poorest, the most marginalized and the most vulnerable, in fragile, conflict-torn settings – have poor access to immunization services.

Each year, 20 million infants do not receive a full course of even basic vaccines, and many more miss out on newer vaccines. Of these, over 13 million receive no vaccines through immunization programs – the "zero dose" children[1].

Strong immunization program performance depends not only on adequate financing of immunization-specific activities at the national level, including vaccine procurement and supply chains, but also on financing of the primary care facilities and staff that deliver routine immunization as part of a broader program of health services[2].

Financing Transitions

Gavi-eligible countries, especially those that have introduced many vaccines, must plan to assume responsibility for financing these programs as outlined in the GAVI model[3] in **Figure 1.** This is most urgent for countries that have entered the accelerated phase of transition, when they must rapidly scale up domestic financing for vaccines as Gavi support is withdrawn. But countries whose per capita income has not yet exceeded Gavi's eligibility threshold (USD 1730) must also plan to pay for a growing share of vaccine costs in the form of co-financing. Gavi-supported countries must ensure that secure financing will be available not only to purchase vaccines but also to deliver them and to sustain and extend coverage.

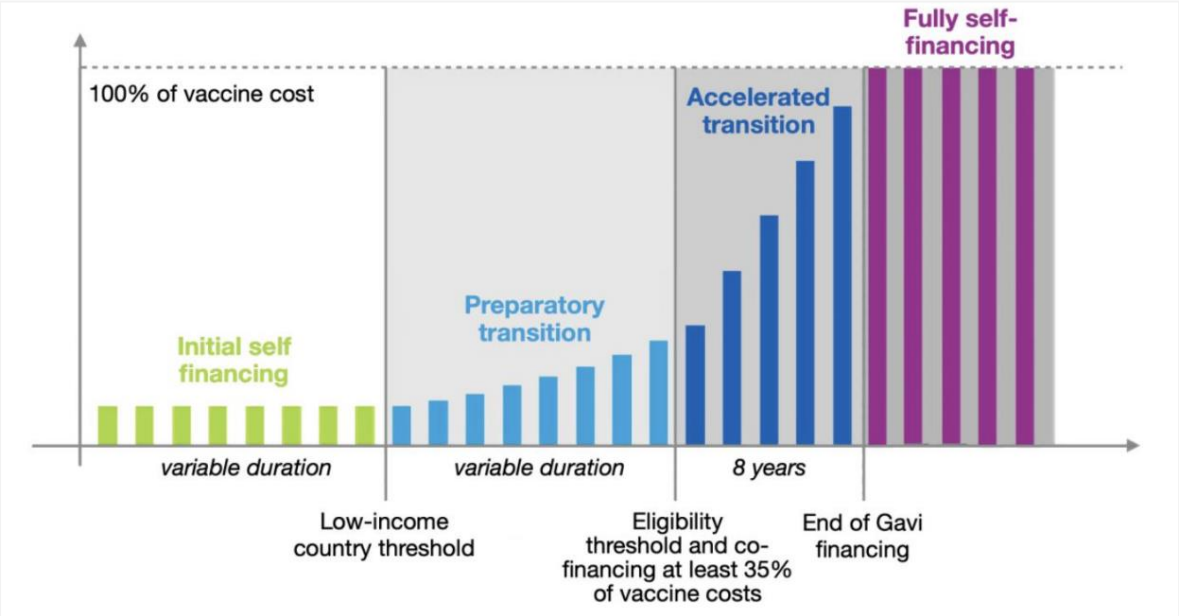

Figure 1: The GAVI Model-Country Contributions to Vaccine Costs (2023)

Some countries also face the withdrawal of donor funding for other health priorities, and all countries must find predictable sources of funding for immunization in an unpredictable global economic environment. The share of health resources devoted to immunization remains small in most countries, however, and with sufficient political will, it should be possible to find the necessary funding to sustain and expand this vital public health service.

The Addis Declaration on Immunization (ADI)

The African continent has made impressive progress in ensuring a better start in life for children. The COVID 19 pandemic, however, caused major disruptions in immunization service delivery leading to a decline in the number of under immunized and zero dose children.

In 2017, African leaders made a historic commitment to immunization by supporting the Addis Declaration on Immunization (ADI)[4]. The goal was to ensure that everyone in Africa, no matter who they are or where they live, receives the full benefits of immunization. In December 2022, African leaders were hosted by the African Union Chairperson in Senegal and had an opportunity to recommit to the implementation of the ADI.

Objectives

To review selected African countries progress in implementation of goal #2 of the Addis Declaration on Immunization (ADI):

Increase and sustain domestic investments and funding allocations to meet the cost of traditional vaccines, fulfill new vaccine financing requirements; and provide financial support for operational implementation of immunization activities by Expanded Program on Immunization programs.

Specific Objectives

1. To conduct an in-depth analysis of Goal #2 of the ADI in 10 countries in the region between 2017/18 and 2022/23.

Country	Justification
Comoros	Current chair of the AU; Franco-phone country; East Africa; Island
DRC	Fragility; Franco-phone country; East Africa
Ethiopia	High number of Zero Dose; Anglophone
Kenya	Transitioning country; East Africa; Anglophone
Malawi	Review WUENIC Data; pilot country for the malaria vaccine; Anglophone; Southern Africa
Mozambique	Fragility; Portuguese
Nigeria	High number of Zero Dose; Anglophone; West Africa
Senegal	Franco-phone country; AU Chair; West Africa
South Sudan	Presents a fragile context; East Africa
Uganda	East Africa; Anglophone

Figure 2: Selected Countries

2. To identify the current key bottlenecks hindering adequate financing for immunization at country level
3. To develop a policy brief with priority actions and recommendations to move the dial on implementation of the ADI.

Analytic Framework

Analysis of the findings was done in keeping with the framework proposed in **figure 3** below. This framework acknowledged that Immunization services happen with a context that is duly influenced by multiple factors such as population, macro-fiscal and economic, health system and financing among others. The expanded framework is outlined in Annex 1.

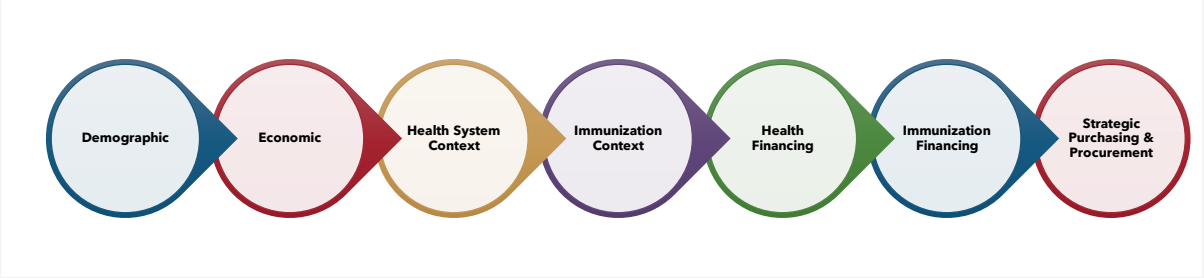

Figure 3: Proposed Analytic Framework

METHODOLOGY

Study Design and Sampling

This was a retrospective study with literature review on 10 purposively selected countries in the region analysis i.e., Senegal, and Nigeria (West Africa); Democratic Republic of Congo, Uganda, Kenya, Ethiopia, and South Sudan (East Africa); and Mozambique, Malawi and Comoros in the Southern Africa Region **(Figure 4).** The country sampling was anchored on the regional representation, language (Anglo/ Francophone/ Portuguese), political stability, Zero Dose among others.

Data Collection

The analysis entailed an in-depth desk review of EPI reports, budgets, annual immunization financing reports, Medium Term Expenditure Frameworks (MTEFs), global immunization and health databases such as the WHO, UNICEF, GAVI, World Bank, Global Health Expenditure Database, the IMF fiscal databases among others.

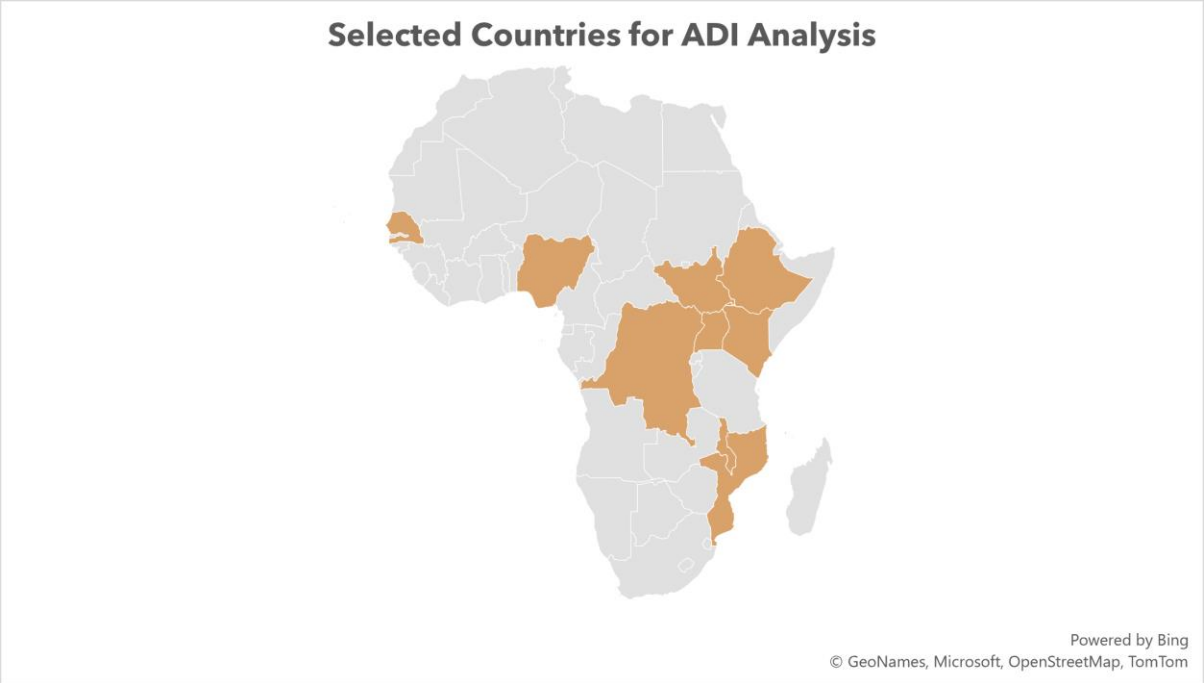

Figure 4: Sampled Countries for ADI Analysis

Data Analysis and Draft Report Compilation

The findings from the data collection phase were analyzed using measures of dispersal (quantitative data) and thematically (qualitative data) then summarized in charts, and tables, as appropriate. These were subsequently woven into a draft report and draft policy brief.

Validation

The draft report was internally reviewed with the PATH/WACI team for immediate updates. Subsequently, the refined version was presented to key stakeholders selected by the client team.

Limitations

Extensive analysis across the proposed themes were limited by paucity of data in some of the countries e.g., Equity analysis of immunization coverage, coverage of MCV2, in-depth breakdown of immunization expenditures etc. Additionally country level data gaps, specifically for South Sudan limited comprehensive contextual analysis.

FINDINGS AND ANALYSIS

Cluster Profile

This section highlights the aggregated findings of all the 10 countries under analysis with a focus on demographic, economic, Health Systems, Health Financing, Immunization coverage and financing contexts.

Demographic Profile

The populations within the cohort of 10 countries were diverse ranging from about 1 million in Comoros to >200 million in Nigeria. Infants below 12 months accounted for below 10% of the populations while children below 5 years of age accounted for just below 20% of the populations as shown in **figure 6.**

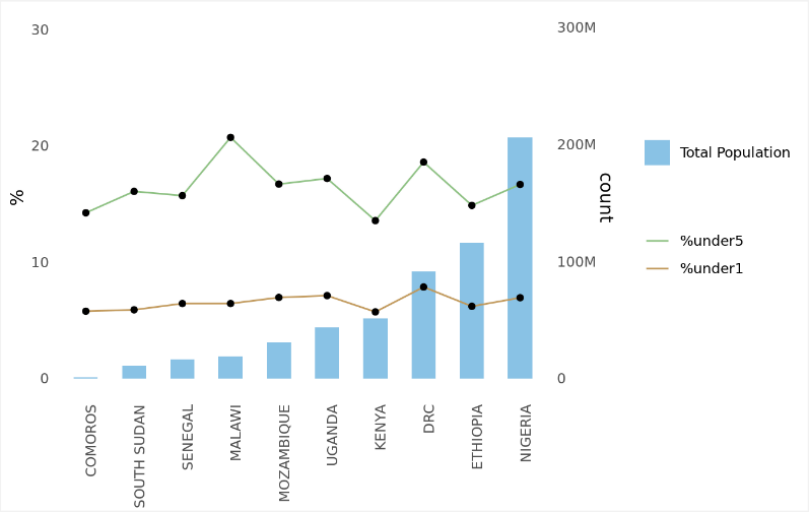

Figure 5: Population Profile

Source: UN and Analysis by Consultant

The life expectancy at birth within this cluster ranged from 53 years in Nigeria to 68 years in Senegal. Except for Kenya whose Human Capital[1] Index was 0.5, all the other countries ranked lower, below 0.4 implying that children born within this cluster would achieve only less than half of their productivity potential as a result of existing health and socio-economic deprivations. The Human Development Index[2] was below 0.6, an average performance on individual longevity, education and income capabilities. Both indices were highest in Kenya and lowest in South Sudan as shown in **figure 7.**

[1] **The Human Capital Index (HCI)** is an annual measurement prepared by the World Bank. HCI measures which countries are best in mobilizing their human capital, the economic and professional potential of their citizens. The index measures how much capital each country loses through lack of education and health. The final index score ranges from zero to one and measures the productivity as a future worker of a child born today relative to the benchmark of full health and complete education (a maximum index score of 1).

[2] **The Human Development Index (HDI)** is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions.

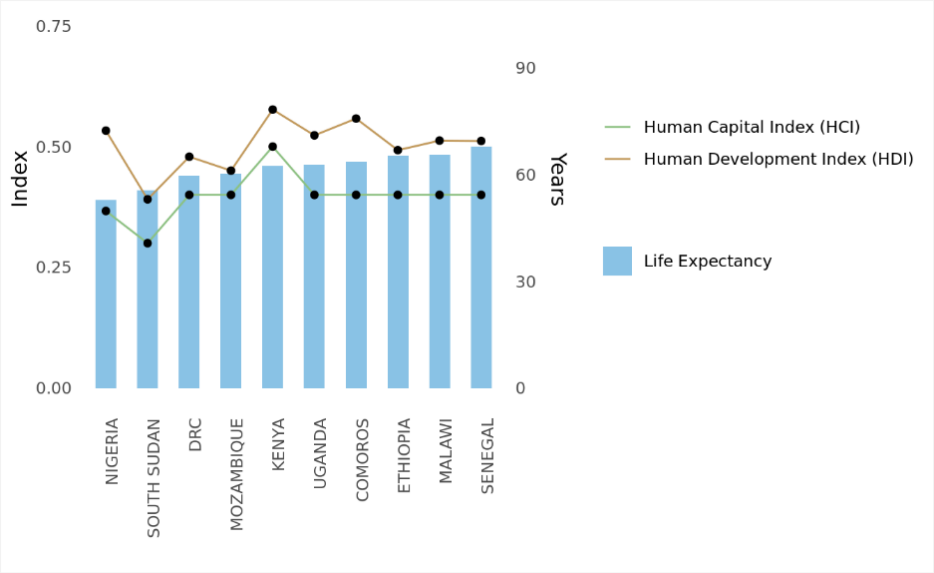

Figure 6: Population Productivity Potential

Source: World Bank Group, UNDP, Analysis by Consultant

Highlight

Sustained multi-sectoral investments (health, economic, education, nutrition, etc,) in strengthening and alleviating the drivers of inequities and ill-health are required so as to ensure that children born in these countries live long, healthy, productive and fulfilled lives.

Economic Profile

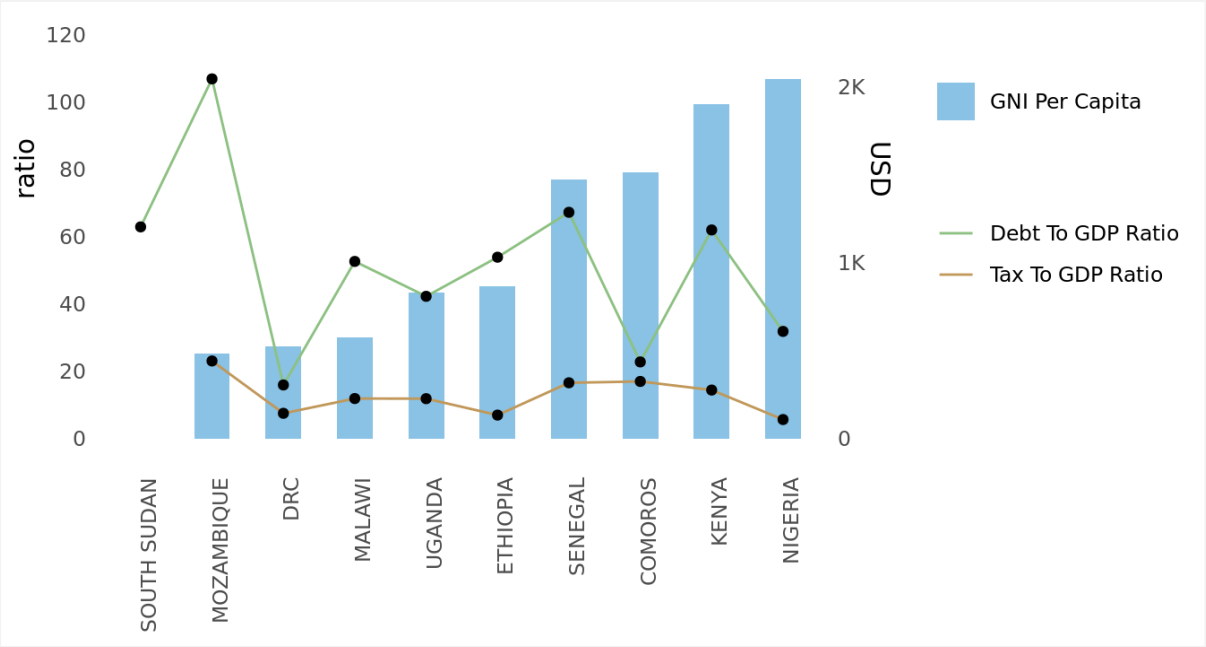

Figure 7: Economic Context

Source: WHO, IMF, Analysis by Consultant

The average Gross National Income per Capita ranged from below USD 750 in Mozambique, DRC, and Malawi to above USD 1500 in Senegal, Comoros, Kenya and Nigeria as shown in **figure 8.** This spread covers countries in the Initial Self-Financing stage, preparatory transition, and accelerated transition phases of GAVI eligibility.

The Tax to GDP ratio ranged from below 10% in Nigeria, DRC and Ethiopia to above 15% in Senegal and Mozambique. Given the 15% recommended threshold for adequacy of financing public services, majority of the countries within this cohort may not be able to sustainably finance public services including immunization from domestic sources.

The Debt to GDP ratio varied from below 30% in DRC and Comoros, to above 60% in Kenya, Senegal, South Sudan and highest in Mozambique (>100%). Given the regional thresholds of 50% for the East African Community, and 60% for the Southern African Development Community (SADC) for debt sustainability, majority of the countries in this cluster are at risk of debt distress and crowding out of other public expenditures by debt repayment.

Highlight

The low tax revenues, and high debt levels reduce the public resource envelope hence pose a threat to the sustainability of financing public services including health and immunization services. Low Tax to GDP ratios imply that the countries did not mobilize enough domestic resources hence have to borrow to meet their respective obligations. The high debt levels imply that much of government revenue was used up in debt repayment hence reducing the fiscal space available for public services, including health and immunization.

Health System Performance

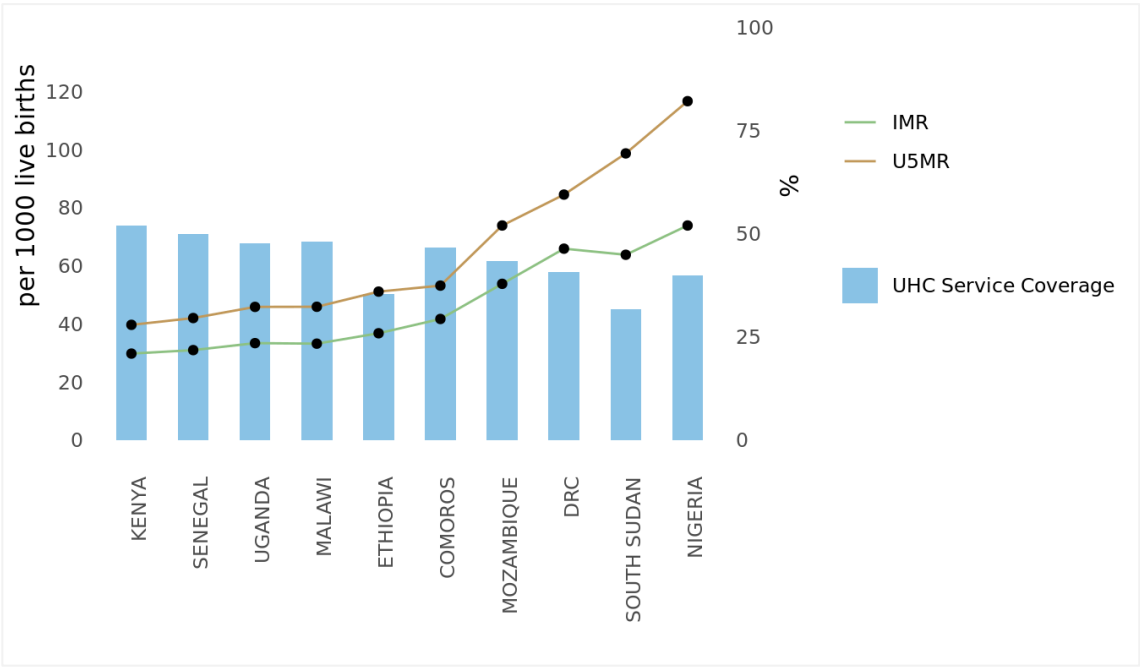

Figure 8: Health System Performance

Source: World Bank, WHO, Analysis by Consultant

Child Mortality (Infant and Under Five) was highest in Nigeria, South Sudan, and DRC, and lowest in Kenya, Senegal and Malawi as in **figure 9.** Notably, the Infant and Under Five Mortality rates in Nigeria almost double the rates in most of the countries within this cohort.

UHC Service Coverage Index[3] was highest in Kenya, Senegal and Uganda, and lowest in South Sudan, Ethiopia and Nigeria.

Highlight

The low Service Coverage index and the high child mortalities herald the need for targeted and increased investments in improving the status and quality of care, particularly maternal and child health, in the respective countries.

Health Financing

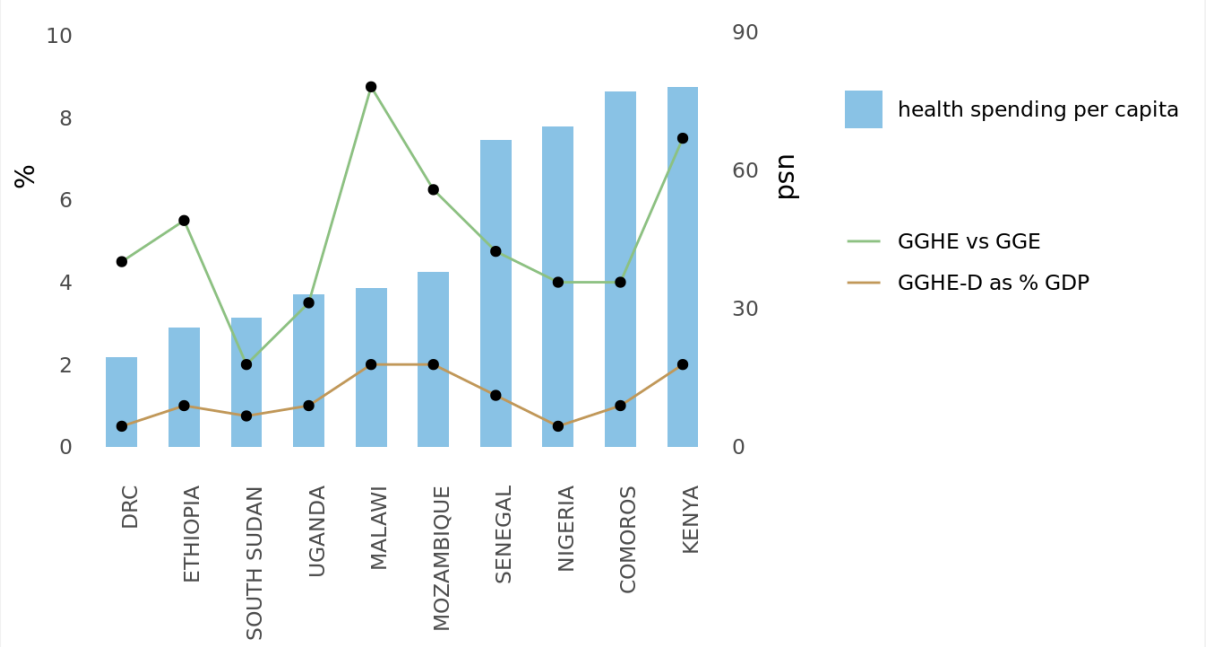

Figure 9: Health Financing Context

Source: WHO Global Health Expenditure Database, Analysis by Consultant

Within this cohort, none of the countries met the USD 86 threshold for per capita spending on health. Kenya, Comoros, Nigeria and Senegal had the highest average health spending per capita above 60 USD. Majority of the countries within this cohort spent below 40 USD per capita on health, with the least being DRC at about 20 USD as shown in **figure 10.**

None of the countries met the Abuja threshold of 15% of government expenditure to health (GGHE)[5]. The highest in this category was Malawi at about 10%, then Kenya at 7.5%. The lowest was South Sudan at below 2.5%.

Additionally, **none of the countries spent more than 5% of their respective GDPs on health**[5]. DRC, Nigeria and South Sudan spent the least at approximately 1% of the respective GDPs.

Highlight

The low budgetary prioritization of health in the ten countries threatens the sustainability of health services, including immunization services, in the wake of donor transitions. This necessitates increased domestic investments in both health and immunization services.

[3] Coverage index for essential health services (based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, noncommunicable diseases and service capacity and access). It is presented on a scale of 0 to 100.

Health Financing Sources

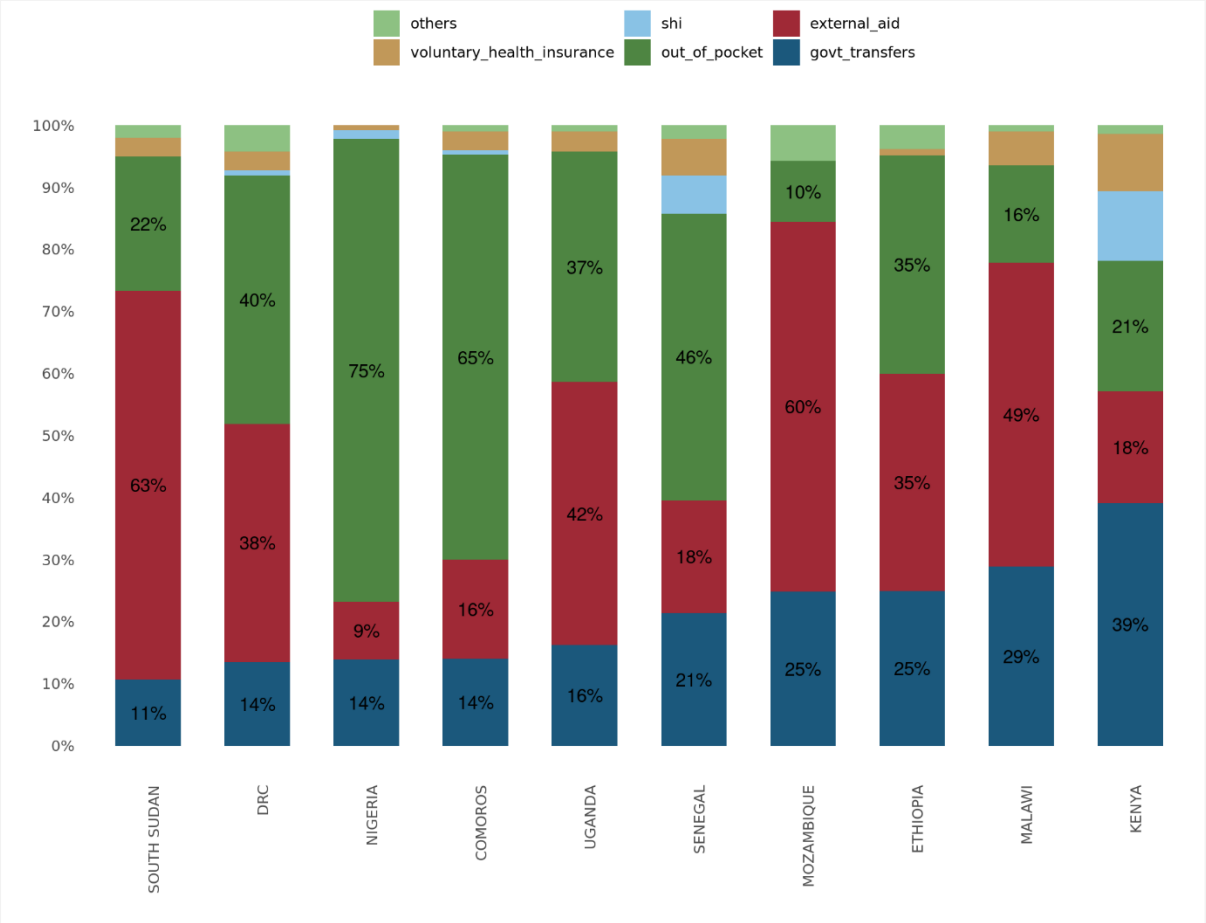

Figure 10: Health Financing Sources

Source: WHO Global Health Expenditure Database, Analysis by Consultant

The countries represented within this cluster had significant donor dependence and high out of pocket payments in financing health. Government financing accounted for between 11% (South Sudan) and 39% (Kenya) while accounting for below 25% in eight (8) of the ten (10) countries sampled **(Figure 11).** Donor financing accounted for below 20% in Nigeria, Comoros, Senegal and Kenya; and more than 45% in Malawi, South Sudan and Mozambique.

Out of Pocket payments for health as a financing source were highest in Nigeria (>70%), Comoros (>60%) and Senegal (>40%), and lowest in Mozambique (10%), Malawi (<20%) and Kenya (<25%). Pooled sources such as Social Health Insurance and Voluntary Health Insurance were the least sources of financing within this cluster.

Highlight

The significant donor dependence threatens the progress towards domestically funded health and immunization services within this cluster.

High Out of Pocket payments for health herald a high risk of financial hardship (catastrophic and impoverishing expenditures) among the populations as they seek for health services including immunization services.

Increased government investments in pre-paid pooling financing mechanisms bears potential in mitigating against impoverishing healthcare expenditures.

Immunization Context

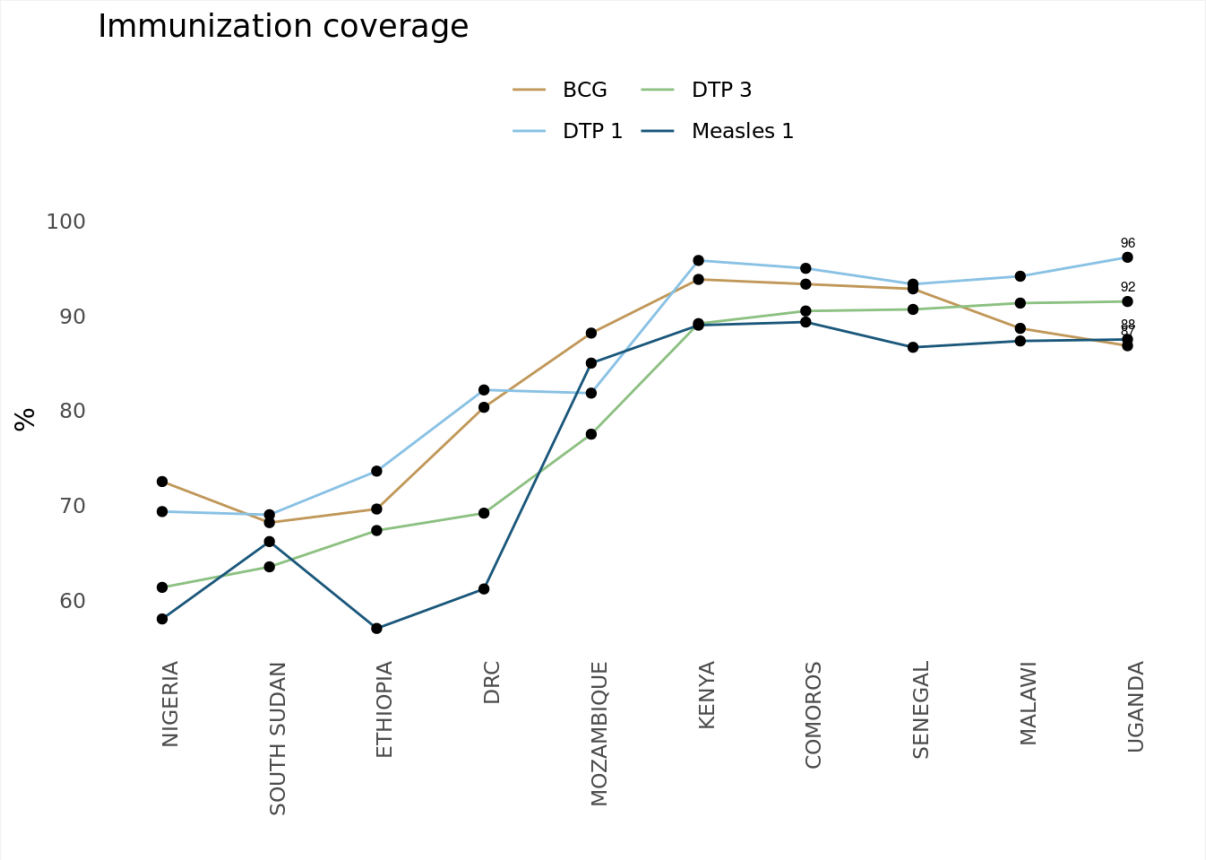

Figure 11: Immunization Coverage

Source: WHO/UNICEF, Joint reporting forms, Analysis by Consultant

Coverage rates for BCG, DTP1, DTP3, MCV 1 were generally highest in Kenya, Comoros, Uganda and Senegal. It was lowest in Nigeria, Ethiopia, DRC and South Sudan as shown in **figure 12.**

MCV 2 was not consistent across all the 10 countries, except Kenya, Malawi, Mozambique, and Senegal hence not captured in the chart in **Figure 12**. In most, it was recently introduced, from 2019, while others are yet to introduce it e.g., DRC, and South Sudan.

Highlight

Advocacy for targeted increased immunization coverage in Nigeria, South Sudan, Ethiopia, DRC and Mozambique; and for increased coverage for MCV 2 across all the countries.

Equity in Coverage

Disparities in child health outcomes still exist based on income level in the sampled countries. The difference in Under Five Mortality between the richest and poorest quintiles was highest in Nigeria and DRC, and lowest in South Sudan and Ethiopia **(Figure 13).** The lowest Under Five Mortality Rate (<40) was recorded

among the wealthiest quintile in Senegal and Kenya, while the highest was noted among the poorest quintile in Nigeria (>150).

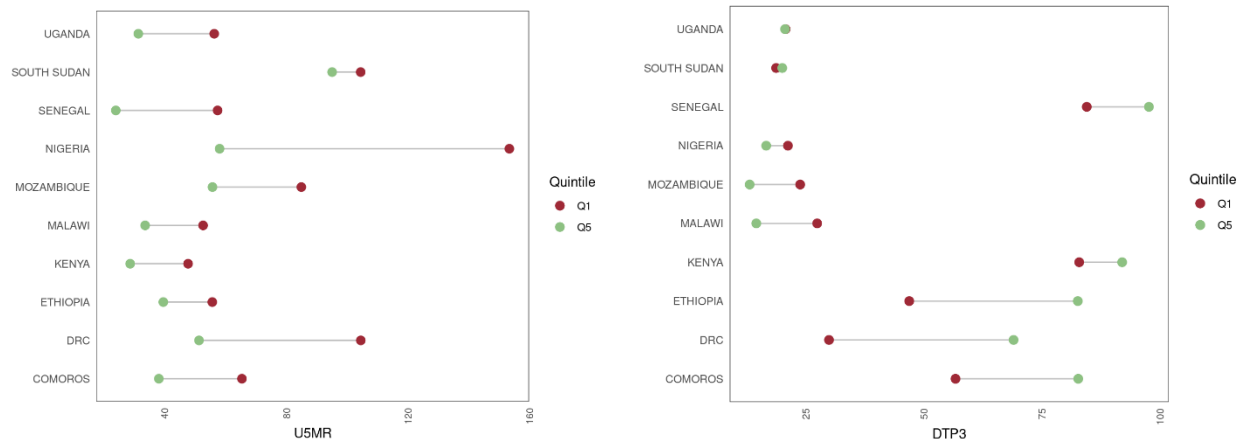

Figure 12:Under Five Mortality Rates and DTP 3 Coverage in the cluster

Inequalities in DTP3 coverage were highest in DRC, Ethiopia and Comoros; and least in Uganda and South Sudan. Notably, DTP 3 coverage was highest in Senegal and Kenya in both quintiles, and lowest in South Sudan, Uganda and Nigeria.

In most countries with low DTP3 and MCV2 coverage (Nigeria, Mozambique, Uganda and Malawi), the wealthiest income groups had the lowest coverage, while in most countries with higher DTP3 and MCV2 coverage, the poorest populations had the lowest coverage. This suggests an inverse relationship between income level and immunization coverage (DTP3 and MCV2) within countries with generally low immunization coverage, and a direct relationship between income level and immunization coverage (DTP3 and MCV2) in countries with higher immunization coverage.

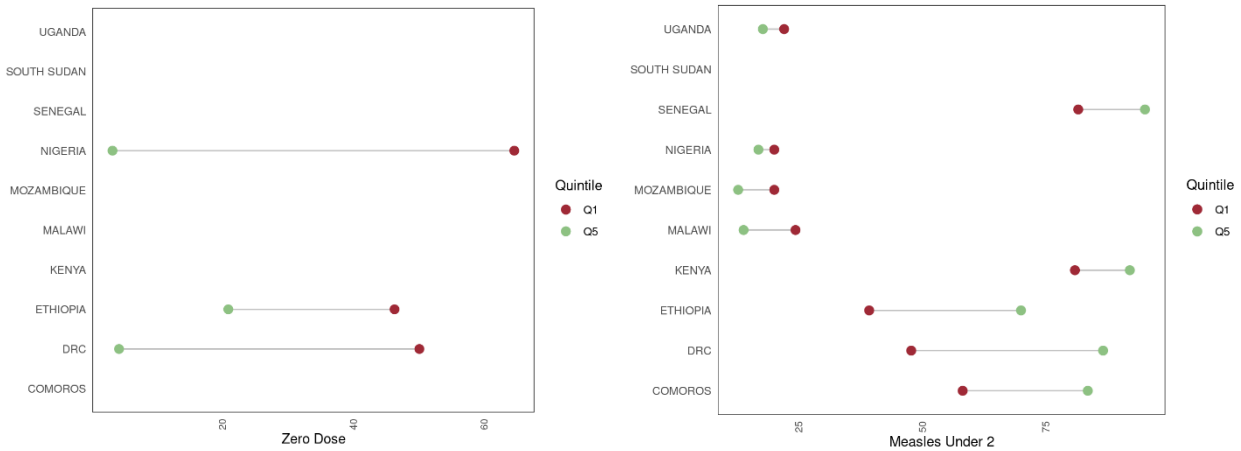

Figure 13: Zero Dose Children and MCV 2 Coverage in the cluster

Source: WHO Equity Database

Highlight

The inverse relationship between income level and coverage rates among the countries with low immunization coverage may in part be due to the fact that poor populations often rely on the public health system while the wealthier groups may have options for vaccination outside the respective countries, or limited linkage of their immunization data with the public sector reporting systems e.g., DHS platforms, or higher vaccine hessitancy among the wealthier income groups.

Coverage of second dose Measles Vaccine was low (<25%) in Uganda, Nigeria, Mozambique and Malawi; and highest (>80%) in Senegal and Kenya for both quintiles. Inequalities in coverage are highest in DRC, Ethiopia, and Comoros. While paucity of data limits analysis of Zero Dose levels in all 10 countries, available data shows the greatest inequality in zero dose proportions were noted in Nigeria (> 60% among the poorest, and <5% among the wealthiest). This was also noted in DRC (>50% among the poorest, and <5% among the wealthiest); and in Ethiopia (>45% among the poorest, and <25% among the wealthiest).

Immunization Financing

a. GAVI Eligibility

Only 2 countries within the cluster were in the accelerated transition phase while the majority were in the Initial Self-Financing Phase per the GAVI eligibility guidelines for 2023[3] captured in table 1 below.

Table 1: Gavi Eligibility Assessment (2023)

GAVI Transition Phase	Countries
Initial Self Financing (US$1085 GNI p.c.)	Mozambique, DRC, Malawi, Uganda & Ethiopia; S. Sudan*.
Preparatory Transition (>US$1085 <US$1730 GNI p.c.)	Comoros, Senegal
Accelerated Transition (US$ 1730 GNI p.c.)	Kenya, Nigeria
Fully Self Financing	None

b. Government Financing of Routine Immunization Services (Including Vaccines)

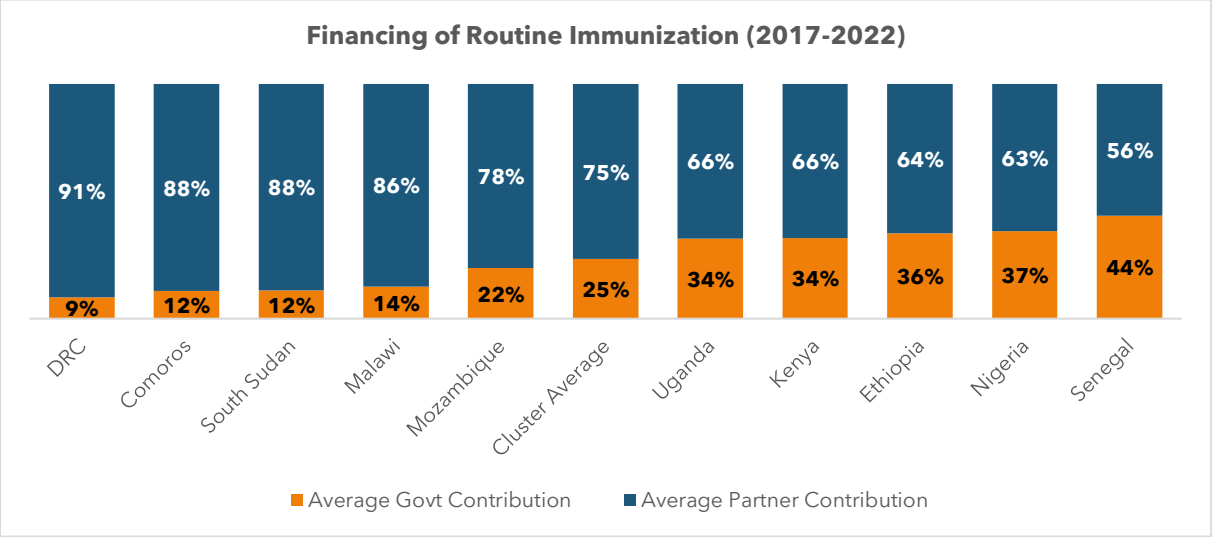

Figure 14: Financing of Routine Immunization within the cluster

Source: WHO/UNICEF, Analysis by Consultant

Between 2017 and 2019, the governments within this cluster funded an average of 25% of the Routine Immunization costs **(Figure 15).** It was highest in 2022 (31%), and lowest in 2019 (23%). DRC, Comoros, South Sudan and Malawi had the lowest government contribution while Kenya, Ethiopia, Nigeria and Senegal had the highest government contributions.

In 2022, Nigeria and Kenya had the highest government financing to Routine Immunization accounting for 55 and 50% respectively **(Figure 16).**

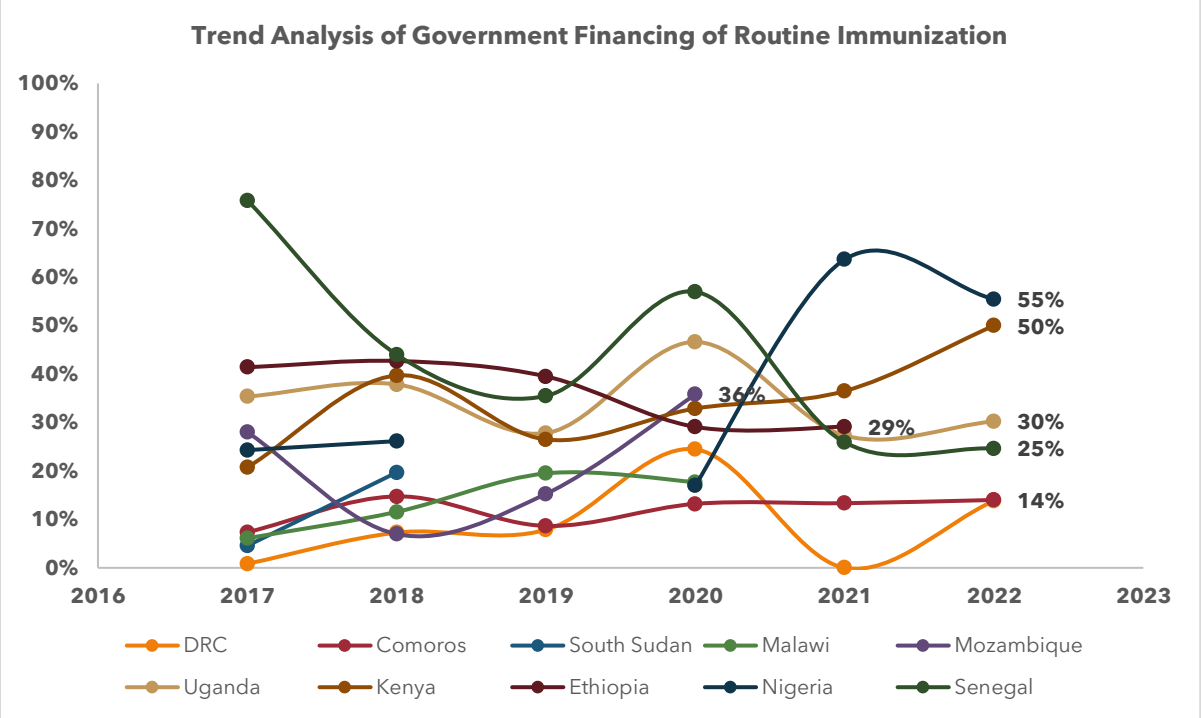

Figure 15: Trend analysis of Routine Immunization financing within the cluster

Source: WHO/UNICEF, Analysis by Consultant

c. Government Financing of Vaccines

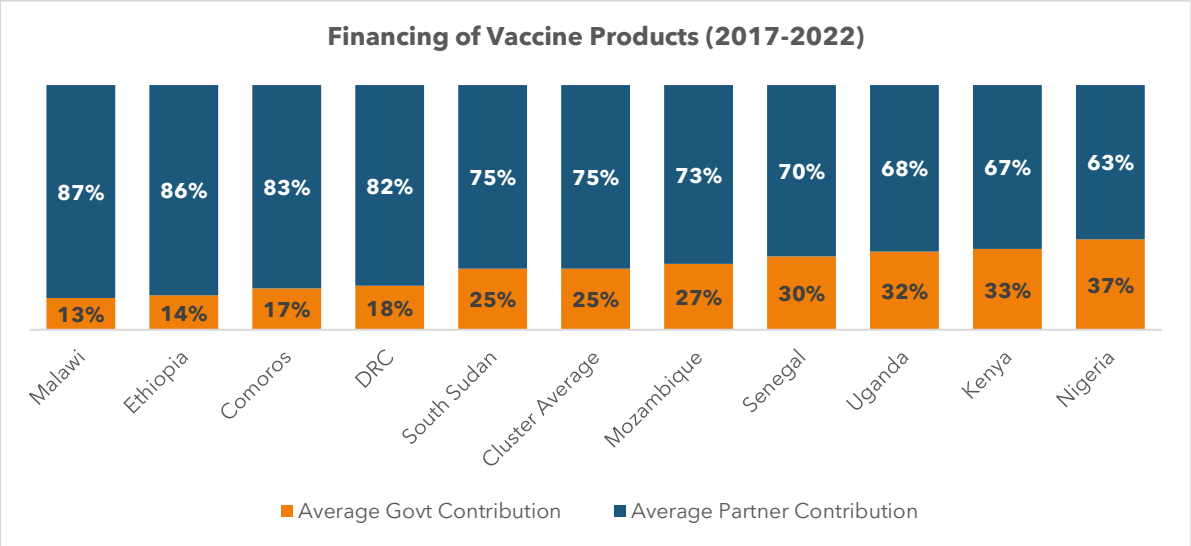

Figure 16: Financing of vaccines within the cluster

Source: WHO/UNICEF, Analysis by Consultant

Between 2017 and 2019, the governments within this cluster funded an average of 25% of the vaccine costs as shown in **figure 17.** It was highest in 2022 (37%), and lowest in 2017(16%). Malawi, Ethiopia, Comoros and DRC had the lowest government contribution while Senegal, Uganda, Kenya, and Nigeria had the highest relative government contributions.

In 2022, Nigeria and Kenya had the highest government financing to Vaccines accounting for 56% and 50% respectively as in **figure 18.**

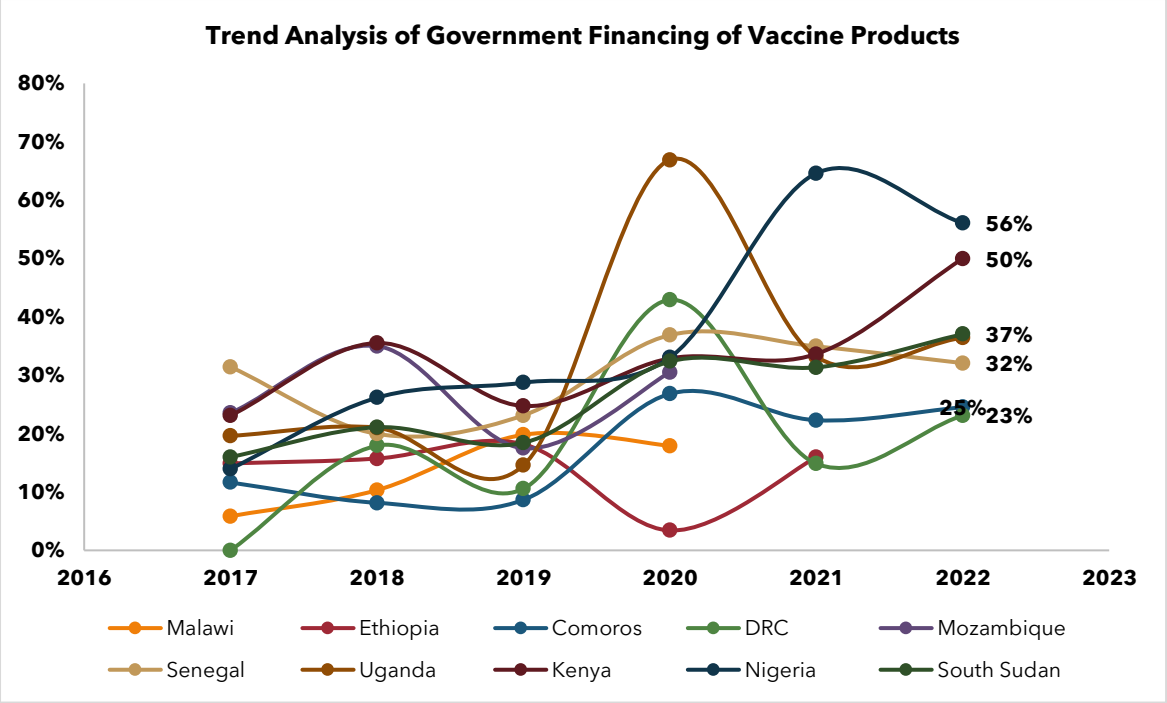

Figure 17:Trend analysis of vaccine financing within the cluster

Source: WHO/UNICEF, Analysis by Consultant

Highlight

While donors vary across the countries, **GAVI, WHO, and UNICEF were the most consistent and declared donor sources** of immunization financing captured in the respective Country Multi-Year Planning tools.

Private sector contributions were not visible within the existing CMYPs and are likely minimal, if monetary.

d. Prioritization of Immunization Services

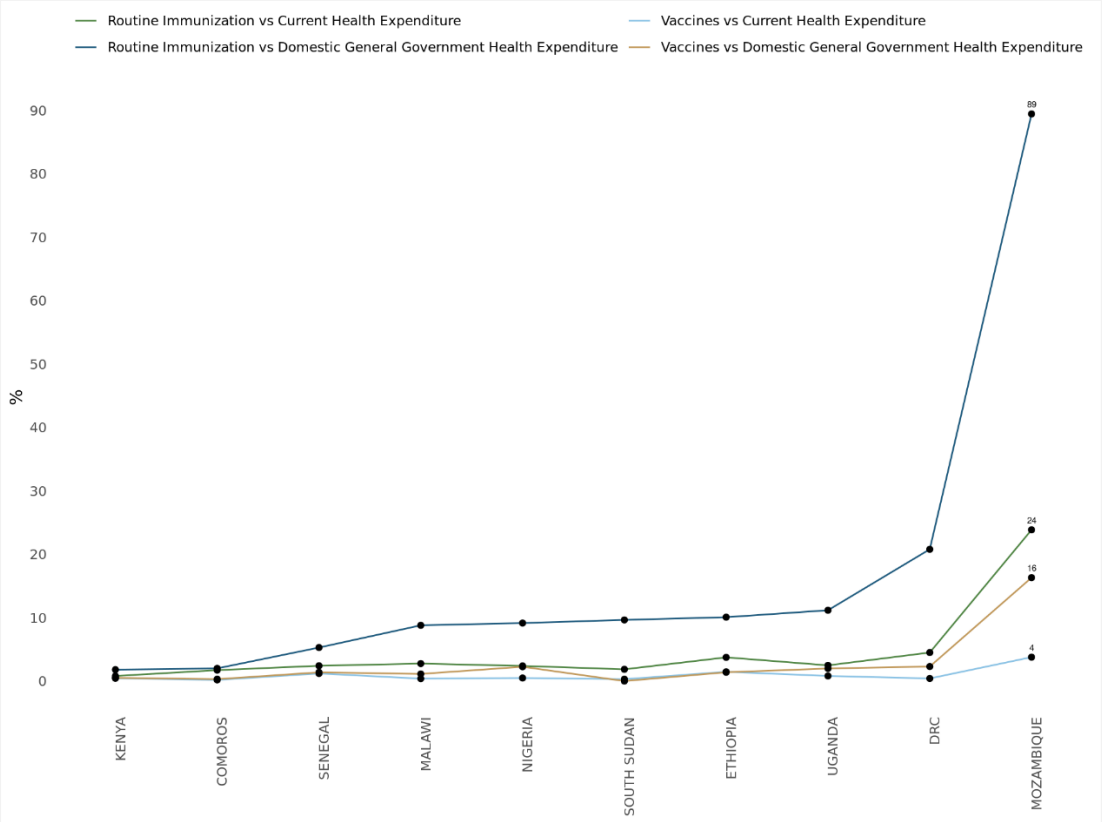

Figure 18: Prioritization of Immunization Services

Source: WHO/UNICEF, Analysis by Consultant

Expenditures on Routine Immunization, including vaccines, accounted for less than 5% of the current health expenditures and less than 10% of the Domestic Government Health Expenditures in most of the countries except for Mozambique **(Figure 19).**

Similarly, Expenditures on Vaccines, accounted for less than 3% of the current health expenditures and less than 5% of the Domestic Government Health Expenditures in most of the countries except for Mozambique.

The high proportions in Mozambique were due to increased donor financing of immunization services during the peak of Cyclones Idai and Kenneth between 2019 and 2020 as part of the humanitarian response.

e. Components of Immunization Expenditures

Expenditures on procurement of vaccine doses accounted for between 41% and 50% of all routine immunization expenditures in this cluster between 2017 and 2020 as shown in **figure 20.**

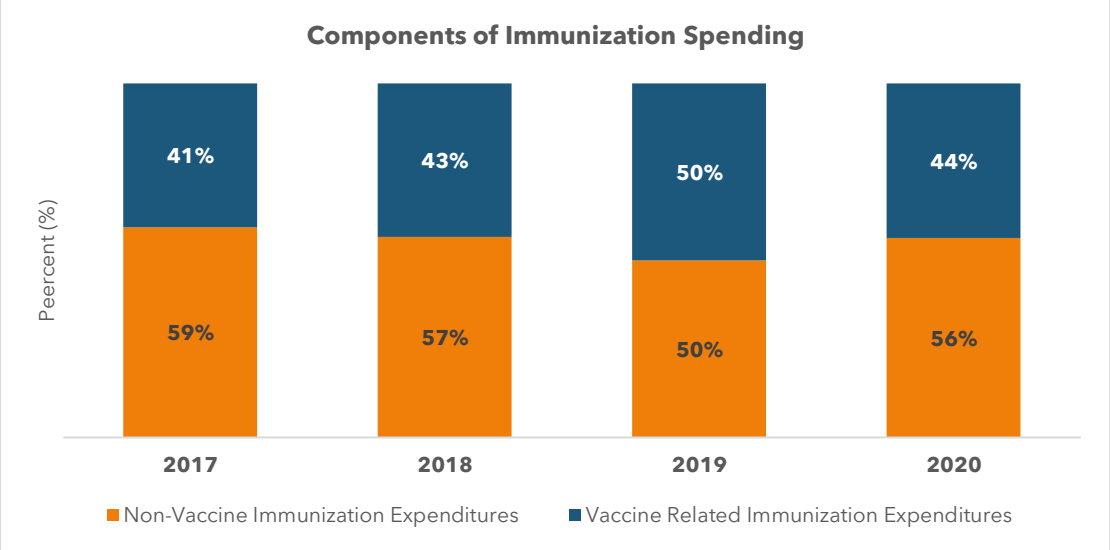

Figure 19: Components of immunization expenditure within the cluster

Source: WHO/UNICEF, Analysis by Consultant

Highlight

There is significant donor dependence in financing of immunization services, including vaccines, in all the countries in this cluster. This is further compounded by the low budgetary prioritization of immunization in the respective health budgets.

Increased budgetary allocations to immunization and vaccines will help ensure sustainability of these services beyond the donor transitions.

Improving efficiencies in operations and vaccine delivery systems (cold chain) can further unlock more resources for immunization services given that the operational costs account for close to 60% of the immunization expenditures.

Challenges

Supply-Side Challenges

1. **Macro Fiscal Constraints**

High debt levels, low tax mobilization, and weakening economies reduce the resources available for public services including resources for health and immunization. The macro level resource constraints hinder funding availability for vaccine procurement and service delivery.

2. **Weak Political Prioritization of Immunization**

Low political interest and prioritization of immunization in political agenda limits financing and implementation of immunization programmes.

3. **Low Budgetary Prioritization of Health and Immunization**

All countries face low budgetary prioritization of health and immunization services. Insufficient budgets limit vaccine availability and immunization program performance.

4. **High Donor Dependence**

Heavy reliance on external donors for health and immunization funding is a common challenge. Over-dependence on donors leads to funding instability and sustainability risks particularly in the context of donor transition.

5. **Weak Governance and Accountability structures for health and immunization**

Inadequate and weak governance structures for health and immunization services limit accountability and efficiency in the planning and delivery of immunization services.

6. **Limited Data for Evidence-Based Planning**

Data limitations across countries hinder evidence-based planning, monitoring, and accountability. Lack of data impedes immunization program optimization and progress tracking.

7. **Weak Health Systems**

Weak health systems limit access to essential services, including immunization. These deficiencies affect vaccine distribution, healthcare quality, and overall immunization program effectiveness.

8. **Inadequate Staffing**

Shortages of healthcare workers, particularly vaccinators, impact the quality of immunization services. Staffing issues reduce coverage and vaccine hesitancy mitigation efforts.

9. **Vaccine Procurement Costs**

The cost of vaccines and related supplies can strain healthcare budgets, especially when introducing new or expensive vaccines such as the malaria vaccine, HPV and MCV 2. High vaccine costs may limit the availability of vaccines and the capacity to reach vulnerable populations.

10. **Vaccine Supply and Logistics**

Geographic barriers, periodic vaccine stock outs, and challenges in vaccine procurement contribute to disruptions in immunization services.

11. **Inadequate Public Amenities and Infrastructure**

Insufficient public amenities and infrastructure, including electricity, roads, and network connectivity, influence immunization service delivery, and disrupt cold chain maintenance and logistics.

12. **System Inefficiencies and Resource Wastage**

Inefficiencies in forecasting, vaccine delivery, storage, and distribution result in wastage of resources and vaccines. This increases immunization program costs and hampers equitable vaccine access.

11. **Political Instability and Conflict**

Political instability disrupts health systems and immunization funding, hindering program effectiveness e.g., as witnessed in DRC, Senegal, Nigeria, and Ethiopia.

12. **Natural Disasters**

Natural disasters such as Cyclones in Mozambique, Comoros, and Malawi, disrupt health services and impact vaccine supply chains, immunization services, and require additional financial resources for recovery.

Demand-Side Challenges

13. **Vaccine Hesitancy and Misinformation**

Across countries, vaccine hesitancy, driven by misinformation, is a significant challenge. Hesitant populations might refuse vaccines, reducing coverage and herd immunity.

14. **High Out-of-Pocket Expenditures**

High out-of-pocket expenditures for healthcare increase the risk of financial hardship for individuals. Out-of-pocket expenses deter individuals from seeking immunization services.

15. **Inequalities in Access**

Inequalities in access to immunization services persist across countries. These inequalities result from geographical, socio-economic, and demographic disparities, reducing coverage and equity.

16. Poverty and Income Inequality:

High levels of poverty and income inequality in many countries limits access to healthcare services including immunization, reduces vaccine demand, and constrains government resources.

Recommendations

Improve Public Debt Management

- Implement sound debt management strategies to reduce debt burden and free up fiscal space for health and immunization.

Strengthen Tax Administration

- Invest in strengthening tax administration systems to improve tax collection efficiency and reduce tax evasion.
- Expand the tax base by bringing more people and businesses into the tax net.
- Simplify tax procedures and make it easier for people to pay taxes.

Increased budgetary prioritization of health

- Advocate for increased budgetary allocation for health at the national level.
- Link health spending to national development goals.
- Develop and implement costed national health plans.

Increased budgetary prioritization of Immunization services.

- Advocate for increased budgetary allocation for immunization at the national level.
- Link immunization spending to national development goals.
- Develop and implement costed national immunization plans.

Strengthen prepaid pooling mechanisms, preferably publicly funded mechanisms, to reduce OOP for health.

- Implement prepayment mechanisms, such as tax-based health funding of UHC and social health insurance, to reduce financial barriers to accessing health and immunization services.
- Provide financial subsidies to low-income households to cover their prepayment premiums, where needed.
- Exempt vulnerable populations, such as children, pregnant women, and the elderly, from prepayment requirements.

Multisectoral investments to address the drivers on inequality e.g., poverty, nutrition, infrastructure, security, education.

- Invest in social and economic development programs to reduce poverty and inequality.
- Improve access to education, healthcare, and other essential services for low-income and marginalized groups.
- Address the underlying causes of conflict and insecurity to create a more stable environment for health and immunization programs.

Strengthen data management systems across the health system and the public finance management system to enhance evidence informed financing of health and immunization services.

- Invest in data collection, analysis, and management systems to strengthen evidence-based planning, monitoring, and accountability.
- Utilize existing data sources to inform health and immunization program decision-making.
- Strengthen partnerships with research institutions and other stakeholders to generate and disseminate health and immunization-related evidence.

Increased investments towards strengthening existing health systems, particularly primary health care, to ensure populations have access to essential health services, including immunization.

- Invest in human resources, infrastructure, and essential services to strengthen health systems, particularly primary healthcare.
- Integrate immunization into other health programs and services.
- Deploy healthcare workers to underserved areas.

Capacity building on immunization financing, forecasting, monitoring for accountability

- Train and support government officials and other stakeholders on immunization financing, forecasting, and monitoring.
- Develop and implement tools and systems to support evidence-based immunization planning and decision-making.
- Strengthen accountability mechanisms to ensure that immunization programs are effectively implemented and managed.

Efficiency gains through leveraging technology and innovation to streamline vaccine delivery systems.

- Adopt innovative technologies, such as electronic vaccine intelligence systems and drones, to improve the efficiency of vaccine forecasting, procurement, delivery, and storage.
- Use technology to improve communication and coordination between healthcare workers and immunization programs.
- Strengthen partnerships with the private sector to develop and deploy innovative immunization delivery solutions.

Strategic Collaborations

- Strengthen partnerships between government, donors, the private sector, and civil society organizations to support immunization programs.
- Collaborate with other sectors, such as education and social welfare, to address the underlying determinants of immunization coverage and equity.
- Support the development and production of affordable vaccines through local, regional, and global initiatives such as the Africa Vaccine Markets Accelerator (AVMA) under the GAVI Alliance and African Union[4].

Domestic manufacturing to mitigate the costs of importing prefilled vaccines.

- Invest in domestic vaccine manufacturing capacity to reduce reliance on imported vaccines and reduce costs.
- Support partnerships between local and international vaccine manufacturers to transfer technology and knowledge such as the Africa Vaccine Markets Accelerator (AVMA) and the Partnership for African Vaccine Manufacturing (PAVM)[5] under the GAVI Alliance and African Union.
- Create a favorable investment environment for domestic vaccine manufacturers e.g., regulatory framework, tax incentives inter alia.

Mitigate against Political Instability and Conflict

- Strengthen political stability and good governance.
- Establish a health emergency fund to maintain immunization during crises.
- Develop and implement contingency plans to ensure immunization service delivery in conflict settings.
- Collaborate with humanitarian partners to support immunization in conflict-affected areas.

Mitigate against Natural Disasters

- Develop and implement disaster preparedness and response plans for immunization and healthcare services.
- Preposition vaccine stocks in strategic locations to mitigate disruptions in supply.
- Collaborate with international partners to create emergency vaccine supply mechanisms.
- Mobilize resources and partners to rapidly restore immunization services after disasters.

[4] Africa CDC & Gavi, the Vaccine Alliance host the First Manufacturers Marketplace for Vaccine Manufacturing African Union Member States | Gavi, the Vaccine Alliance

[5] new-era-vaccine-manufacturing-in-africa-wp.pdf (gavi.org)

CONCLUSION

Immunization represents a global health triumph, saving countless lives and fostering well-being, productivity, and prosperity at both individual and population level. However, its benefits are not uniformly distributed, with marginalized populations often denied access to these life-saving interventions. This comprehensive retrospective study across ten African countries highlights the importance of child health, as infants and young children form a significant population demographic. It reveals challenges, including low budgetary prioritization of health and immunization, high donor dependence, fiscal constraints, weak health systems, low Human Capital Index, and inadequate and inequitable immunization coverage.

The findings underscore the urgent need for targeted and predictable investments in immunization and child health, especially in low-income settings. Furthermore, the findings emphasize that though untapped, domestic financing is critical in ensuring sustainability of routine immunization in the context of donor transitions and new vaccine introduction. They also highlight the value of functional health systems, sound public finance management systems, political stability, social determinants of health, innovation and technology, and disaster preparedness in anchoring sustainable immunization services in these countries. Sustained advocacy by Civil Society can help ensure that key stakeholders including country leadership, and partners remain accountable and empowered in the quest for sustainable domestic financing of immunization services.

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Annex 1: Expanded Analytic Framework

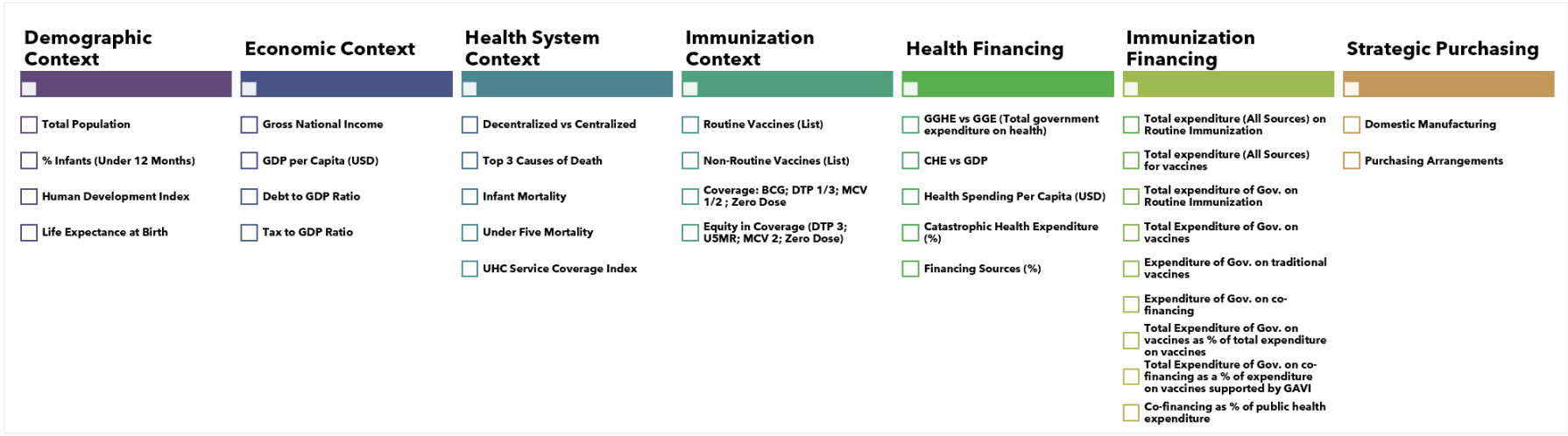

Figure 20: Expanded Framework