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INFRASTRUCTURE INVESTMENT AND THE COVID-19 PANDEMIC IN SUB-SAHARAN AFRICA

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KEY MESSAGES

- Africa suffers from inadequate basic services infrastructure, making the region vulnerable to epidemics.
- Investments in good quality basic services infrastructure will improve the continent's resilience to future epidemics, but also stimulate short-run socio-economic growth.
- Promotion of life-cycle cost approach to financing infrastructure projects is important.

1 | INTRODUCTION

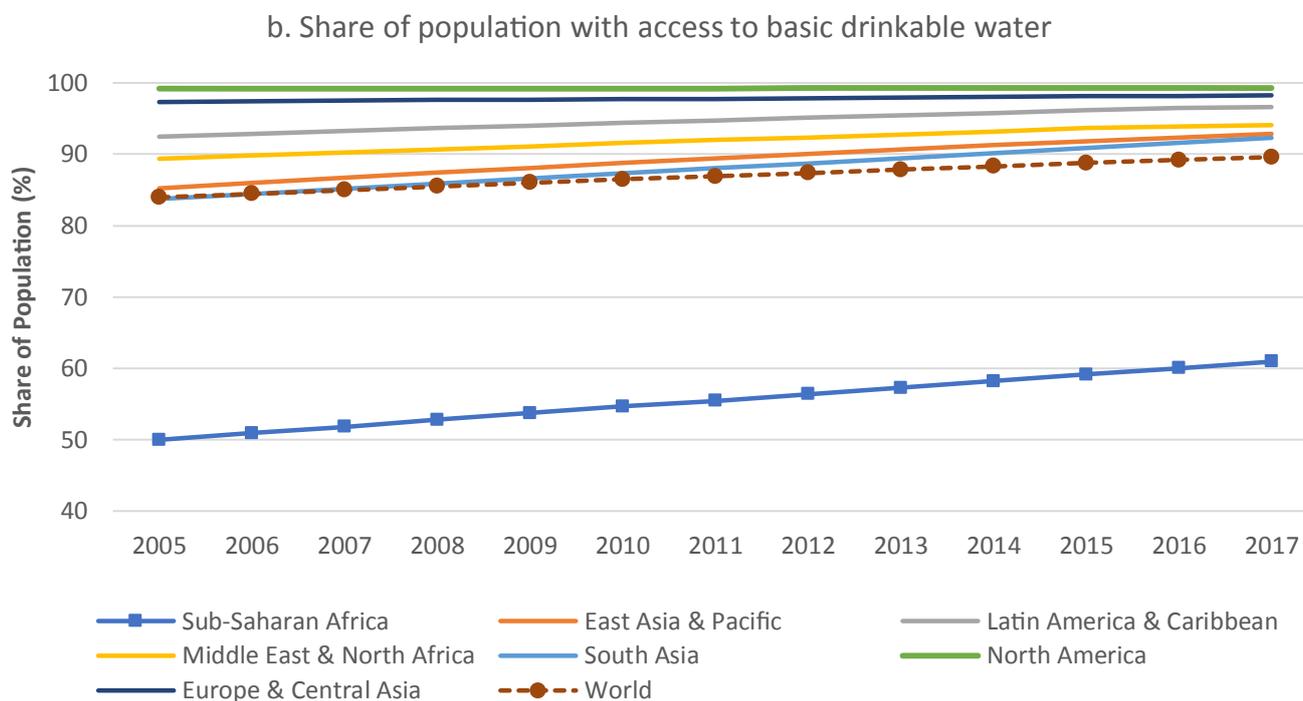
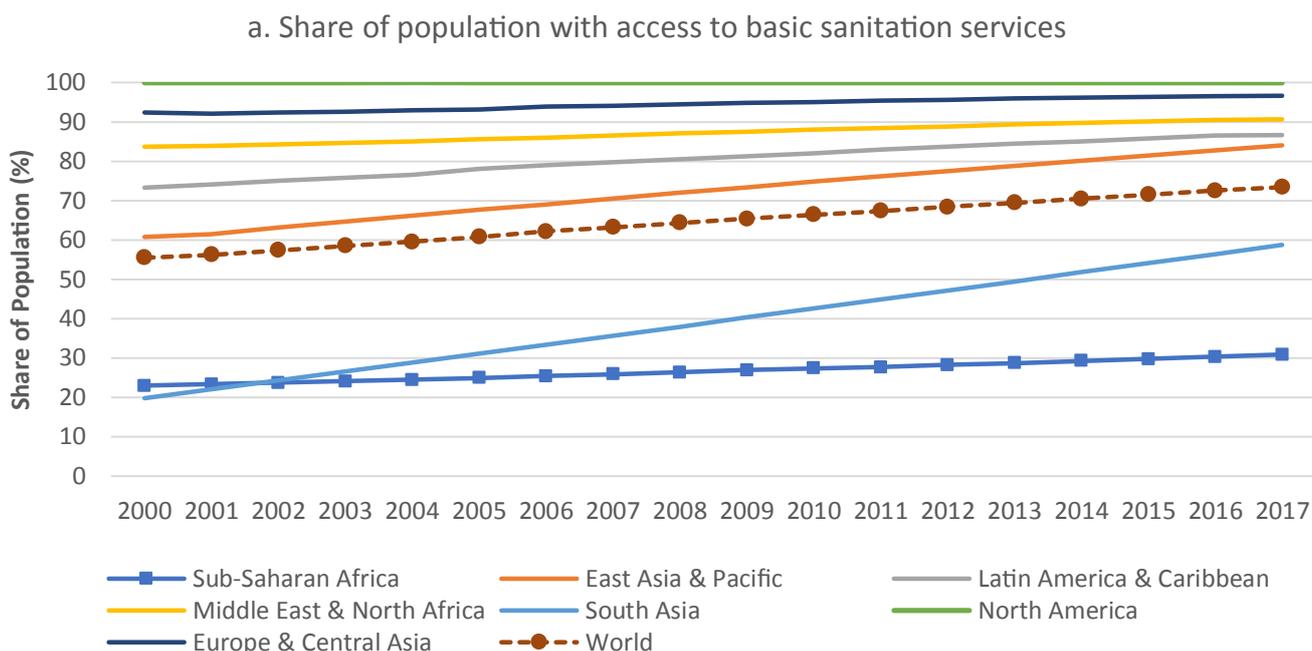
The COVID-19 pandemic has challenged macroeconomic fundamentals of both developed and developing countries. The early responses by many African governments have been on containment of the spread of the virus with restriction of movements of people through border closures, economic and social responses including social protection palliatives for vulnerable citizens, and preservation of businesses using limited monetary and fiscal instruments to mitigate the devastating effects of the pandemic. These early measures might have contributed to limit the spread of the disease. However, this should not make African governments complacent from addressing long-standing healthcare deficiencies and basic services infrastructure deficit. As countries relax the restrictions on movement of people, goods and services, the importance of investing in adequate healthcare infrastructure cannot be overlooked. Beyond spending on testing, protective equipment and ventilators, African countries should focus on improving access to adequate healthcare, clean water and sanitation infrastructure to limit their vulnerabilities to the pandemic and other future epidemics.

This brief argues that the emergence of the COVID-19 pandemic provides renewed urgency for African countries

to invest in the inadequate physical infrastructure for basic services such as healthcare, clean water, and sanitation. Investing in basic services infrastructure now can deliver a huge social and economic value, while making the continent more resilient to pandemics and other health shocks. The World Health Organization (WHO) estimates every US dollar invested in water and sanitation delivers nearly three-fold and four-fold returns, respectively, in Africa.ⁱ As the continent braces for a pandemic-induced sharp downturn in economic activities, the region's health vulnerabilities have become a concern to many.

Therefore, the brief discusses the importance of investing in basic services infrastructure in the region despite dwindling economies caused by the COVID-19 pandemic. It further discusses challenges of financing infrastructure for basic services, infrastructure quality and maintenance, and offer potential financing solutions. Considering the unsustainability of prolonged restrictions on the movement of people, large-scale social protection and cash handouts, and other immediate fiscal stimuli, long-term investments in infrastructure for basic services has downstream multiplier effects that can provide sustainable economic stimulus to rejuvenating African economies.

FIGURE 1 SHARE OF POPULATIONS WITH ACCESS TO BASIC SANITATION AND DRINKABLE WATER (2000-2017)



SOURCE World Development Indicators (WDI, 2020)

2 | BASIC SERVICES INFRASTRUCTURE DEFICIT AND NEED FOR INVESTMENT

a. Infrastructure Deficit

The COVID-19 pandemic has highlighted the long-existing infrastructure gap between the haves and have-nots, particularly, regarding access to basic services such as clean water, sanitation and healthcare. In the past two decades, there has been an upward trajectory in the share of population with access to these basic services in sub-Saharan Africa (SSA), but the population grew at an even faster rate. As of 2018, only 31% of the population had access to sanitation and 61% to drinkable water, significantly lower than the global average of about 73% and 90% for sanitation and drinkable water, respectively (Figure 1).

Compared to other developing regions, the progress in SSA has been slow. For perspective, 20% of South Asia's population had access to basic sanitation services as compared to 23% in SSA in the year 2000. Nearly two decades later, the population share with access in South Asia is nearly twice of those in SSA. These challenges are further exacerbated by the gap between rural and urban areas on one hand, and the wide gap between the richest and poorest in both urban and rural areas over the period 2000-2017 on the other hand.ⁱⁱ It is estimated that SSA infrastructure financing deficit for water and sanitation is between US\$43-53 billion annually.ⁱⁱⁱ This lack of access to physical infrastructure for basic services constrains Africa's ability to fully realize its development potential.

When COVID-19 became a pandemic, two key public health measures were recommended to curb its spread: i) social distancing, and ii) frequent washing of hands with soap and water.^{iv, v} However, these measures were difficult to implement in a sustained way in SSA because of its largely informal housing and work sector, and lack of adequate access to basic services. As of 2018, only 25% of the total population in SSA had access to basic handwashing facilities including water and soap (Figure 2). If access to clean water and sanitation is critical to curbing the spread of COVID-19, especially within fragile healthcare systems or where social distancing is harder to implement, investment in these facilities in Africa is highly necessary for resilience against the present pandemic and future epidemics.

Lastly, the basic services infrastructure deficit is compounded by weak healthcare systems as compared to the rest of the world. Africa has a significantly lower ratio of hospital beds, ICUs and health professionals per capita.

The region has an average of 1.8 non-ICU hospital beds per 1,000 people relative to 5.8 in France or 3.4 in Italy. The available estimates dating back to 2016 shows that 51% of the healthcare facilities in SSA have basic access to water services while 23% have limited access and 26% no access. This is much lower than the world's estimates at 74%.^{vi} It is estimated that 22 of the 25 countries most vulnerable to infectious diseases are in Africa,^{vii} and nearly all African countries critically depends on imports of medicines and pharmaceutical products where up to 94% of total stocks are imported.^{viii}

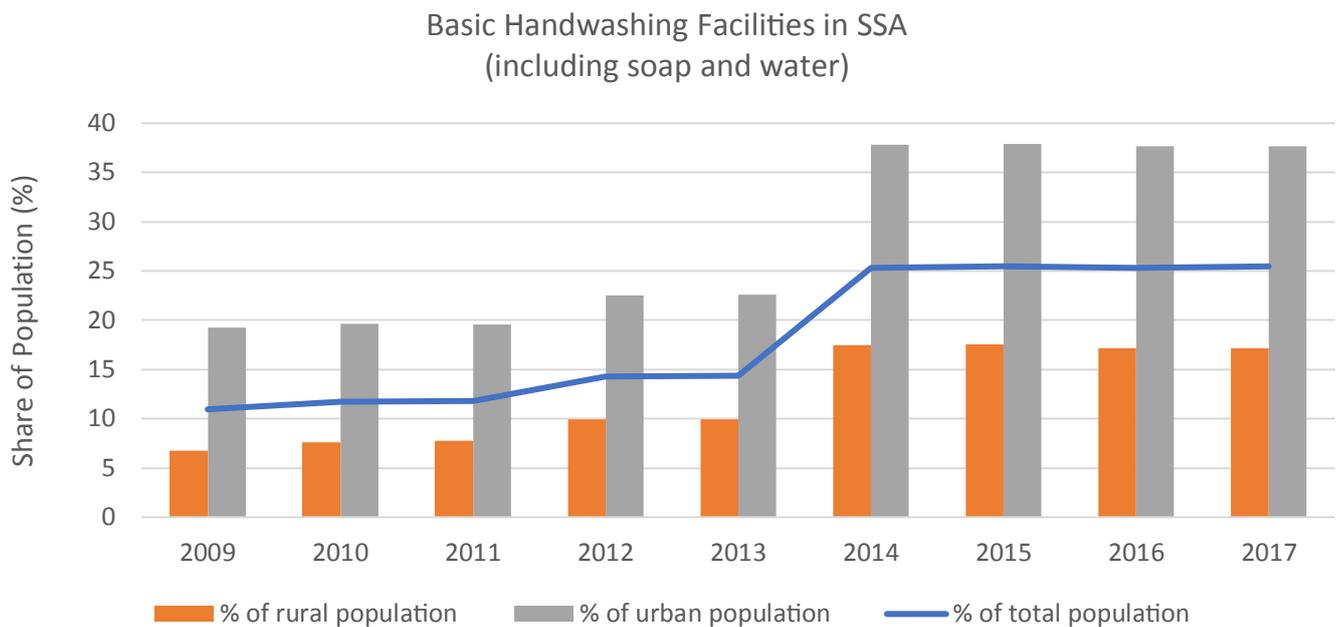
b. Need to Invest

A healthy population is an engine for economic growth because it is more productive.^{ix} The healthcare sector is a key contributor to economic growth as return on investment in health is estimated to be nine-folds the investment cost.^x Literature shows a positive relationship between healthcare expenditure and economic growth.^{xi} As of 2017, Africa accounted for 1% of the global health spending (US \$7.9 trillion), which represents 5.18% of its GDP (Figure 3). The continent has high unemployment rates, poor health facilities, high infection rates, and low life expectancy compared with developed regions, and cannot miss the opportunity of investing in its health sector especially during these trying times of COVID-19.

Considering that a safe, reliable, affordable and easily accessible water supply is essential for good health,^{xii} improving water and sanitation infrastructure is paramount at both community level and at health facilities like hospitals. Investments in infrastructure and operations of water-related services can provide additional high returns for economic growth through direct and indirect job creation.^{xiii} These sectors share a strong complementarity between them, and a joint investment in water and health sectors can stimulate higher growth.^{xiv}

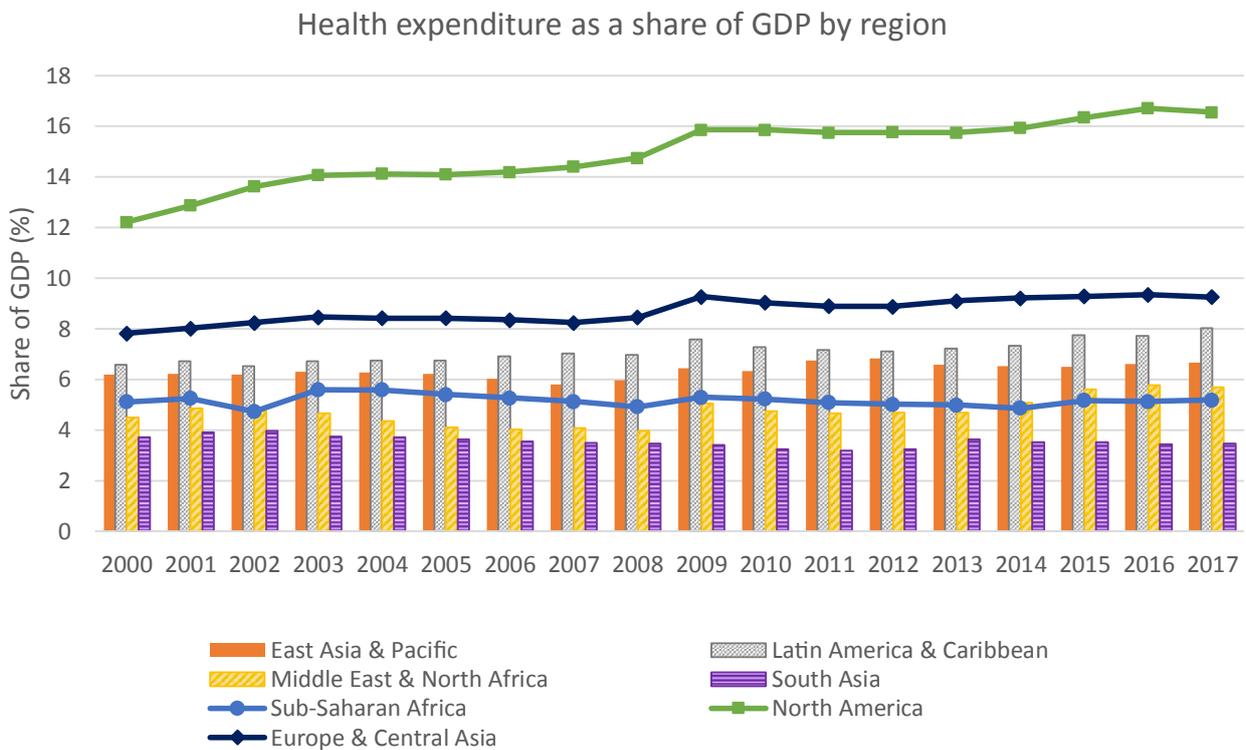
In addition, immediate and urgent investment in healthcare-related infrastructure has countercyclical financing effects on a dwindling economy. With fiscal limits in many parts of the continent, investments in basic services infrastructure may inject scarce liquidity in the economies to sustain jobs, create multiplier effects, and ensure consumer spending to empower other sectors of the economy. These multiplier effects can enhance inclusive economic growth via the sustenance or creation of decent jobs. Targeted investments in health systems, including in the health workforce and infrastructure, promotes economic growth along other pathways including economic output, social protection and health security.

FIGURE 2 SHARE OF POPULATION WITH ACCESS TO BASIC HANDWASHING FACILITIES (2009-2017)



SOURCE World Development Indicators (WDI, 2020)

FIGURE 3 HEALTH EXPENDITURE AS A SHARE OF GDP BY REGION (2000-2017)



SOURCE World Development Indicators (WDI, 2020)

3 | CHALLENGES TO FINANCING INFRASTRUCTURE INVESTMENTS

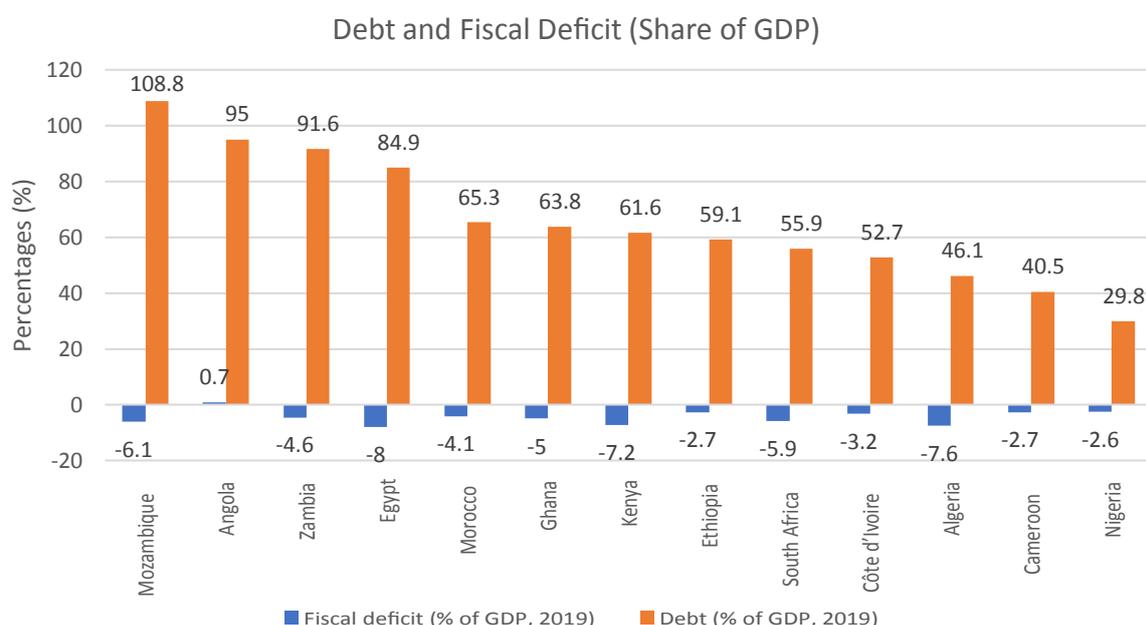
Access to high quality basic services infrastructure must be prioritized as part of post-COVID-19 stimulus plan. However, infrastructure investments are capital intensive and require huge sunk costs and long-term financing. Unlike advanced countries, many African countries are fiscally constrained and access to finance is highly limited. Their debts are rising due to binding budget constraints. More recently, COVID-19 pandemic is worsening their revenues as a result of economic slowdown. These developments expose the continent to scarce and expensive funding from international markets. Below, the challenges at both macro and micro levels are further highlighted.

- **Decline in economic growth:** Africa's economic growth, which remained stable in 2019 at 3.4% and was on course to record 3.9% in 2020 before COVID-19,^{xv} is now projected to contract sharply to an estimated growth rate of -1.7% in 2020, leading to a recession and the lowest growth rate in half a century. If the pandemic continues beyond the first half of 2020, the recession could be worse with a real GDP growth rate contracting further to over -3%, resulting in cumulative GDP losses ranging from US\$173.1 billion and US\$236.7 billion for 2020 and 2021 respectively.^{xvi} This will constraints Africa's ability to finance the needed infrastructure on the continent.
- **Rising debt levels and increasing fiscal deficit:** As of 2019, many African governments face rising debt-to-GDP ratios (Figure 4). The emergence of COVID-19 is estimated to further increase debt-to-GDP ratio by additional 10 percentage points.^{xvii} In addition, many governments are

already running fiscal deficits above 3% (Figure 4). These deficits are projected to double on the continent post-COVID-19, resulting in an additional public sector financing gap estimated at about US\$ 122 billion.^{xviii} Both of these challenges will constrain infrastructure spending in the years ahead.

- **High risks and low investment returns:** Investments in basic services projects are less attractive to private sector investors. According to the Infrastructure Consortium for Africa (ICA, 2018), water and sanitation projects have the least potential for private investment compared to other infrastructure projects like, ICT, energy, and transport. Some of the factors that contribute to the lack of interest by private sector investors are: (i) poor creditworthiness within the sector; (ii) high perception of political and regulatory risk, (iii) bureaucracy, red tape, corruption, and (iv) the long timescale needed for project completion in the continent. While measures such as institutional and governance reforms can address these challenges, they are long-run solutions. Addressing these risks in the short-term would require both implicit and explicit de-risking instruments in order to entice financing from the private sector.
- **Poor prior track record on closing infrastructure deals:** The continent has a poor track record of moving projects to a financial close. It has been estimated that about 80% of infrastructure projects in Africa fail to proceed beyond feasibility and business-plan stage. Only 10% of bankable projects reach financial close.^{xx} This challenge is attributed to lack of government capacity and inter-agency cooperation, community resistance to some projects, lack of long-term infrastructure master plans, and inadequate infrastructure policy frameworks among others. This poor track record deters private sector participation in infrastructure investment and makes it difficult to address the infrastructure gap on the continent.

FIGURE 4 DEBT AND FISCAL DEFICIT AS A SHARE (% OF GDP (2019) FOR SELECT AFRICAN COUNTRIES



SOURCE United Nations Economic Commission for Africa (UNECA, 2020)

4 | INFRASTRUCTURE QUALITY AND MAINTENANCE

The subject of infrastructure quality and maintenance is, perhaps, less discussed unlike the more pronounced infrastructure gaps and financing. However, this subject should be at the forefront of all investments in basic services infrastructure because many of the few existing water, sanitation and healthcare infrastructure in Africa are aged and based on old technologies, and as a result, largely inefficient. While this brief argues the need for investments in basic services infrastructure, it also maintains that building infrastructure is typically not enough if it is not of good quality and adequately maintained to ensure it delivers the required services.

Given the fiscal constraints faced by many African governments, more focus should be on building quality infrastructure with long-term maintenance plans to improve efficiency in service delivery. The costs of building poor quality infrastructure are huge. These costs are estimated to range between 1% and 20% of the original contract value.^{xx} For example, a US \$360 million boreholes (50,000 boreholes) and wells project in Nigeria failed because of poor construction, lack of expertise and experience of maintaining the system, and poor technology choice used.^{xxi} Prior literature also found that only one third of water points built by NGOs in a region of Senegal were working and 58% of water points in northern Ghana were in disrepair.^{xxii} All these resources went to waste and citizens remained with little access to clean water. In South Africa, poorly constructed wastewater infrastructure and failure to maintain it, resulted in hundreds of hospitalizations and death of 18 infants.^{xxiii} It is estimated that adequate maintenance of the current infrastructure stock in Africa can reduce the current infrastructure financing gap by about 25%.^{xxiv} These savings could be used to expand the needed infrastructure stock for services such as water, sanitation and healthcare facilities to curb the spread of COVID-19 and future epidemics.

To avoid wastage of limited resources due to poor quality infrastructure and lack of maintenance, interventions should happen at two levels; namely, at policy and implementation levels. At policy level, governments should ensure that infrastructure construction takes into consideration adherence to governance standards, social inclusiveness, seeks to limit social and environmental costs, improved safety, resilience against natural disasters, contribute to job creation, provide capacity building, and transfer expertise and know-how to local communities.^{xxv} At implementation level, implementers should focus more on life-cycle costs which take into account better planning, design, procurement, construction, operation and maintenance to improve value for money.^{xxvi} A paradigm shift is necessary as more focus is needed on investing in resilient and sustainable infrastructure that can withstand the impacts of epidemics such as ones caused by the

COVID-19 pandemic. DFIs are better positioned to influence this direction given their global influence in the development arena.

5 | POLICY RECOMMENDATIONS

While the COVID-19 has prompted all countries to act in the short-term to mitigate its economic and health impacts on their economies, we believe African countries should seize this opportunity to reconsider their long-term plans for infrastructure financing to limit their vulnerabilities to other future epidemics. In this section, we make some policy recommendations for financing and management of water, sanitation and health infrastructure to improve access to these basic services on the continent. These center around three key approaches from both short-term and long-term perspectives: (i) improve access to financing; (ii) government resources, and planning; and (iii) promotion of life-cycle approach to infrastructure projects.

a. Improve access to innovative and alternative financing

- De-risk investments in basic infrastructure services:** To encourage private sector investments in infrastructure for basic services, multilateral finance institutions and export credit agencies should provide guarantees, such as partial risk guarantees and other credit enhancement instruments, to debt providers, which will enable them to reduce their risk spread, thus reducing the overall cost of the debt. This has the potential to result in affordable social services for the poor and address the low access rate to these services as exposed by the COVID-19 pandemic. Such instruments include contractual closure, minimum revenue guarantees and political risks insurance (PRI) to name just a few. For example, PRI provides insurance risk against expropriation (including regulatory change and creep), breach of contract, war and civil disturbance, currency non-availability, and in some cases the non-honoring of a sovereign commitment.
- Publicly sponsored infrastructure funds:** This may include sovereign wealth funds. To prepare for future pandemics like Covid-19, African states should set up entities that invest in infrastructure projects based on private eligibility criteria and collaborate with private sector investors to finance the needed infrastructure on the continent.^{xxvii} Such funds can come from countries' foreign reserves and other sources such as exports of commodities like oil and minerals. Currently, there are only twelve (12) countries with sovereign wealth funds on the continent. According to a recent estimate, there are twenty-seven (27) countries in SSA alone that are classified as resource rich countries but only nine (9) of them have sovereign wealth funds.^{xxviii} Other countries should consider establishing such funds to close the infrastructure funding gap on the continent.

- **Public-Private Partnerships (PPPs):** Although the use of PPPs is common on the continent, however, the use of availability-based PPPs to deliver efficient and cost-effective basic services is recommended for African governments. Given the low access to water and sanitation on the continent and the high risks and low returns associated with investments in the water and sanitation sector, African governments could use the availability-based PPP or performance-based contracts (PBC) to provide services ranging from the provision of bulk water, leakage management to increasing connectivity to reduce its citizens' exposure to future pandemics like COVID-19. This approach has proved to be useful in increasing efficiency and expanding access in other developing countries in Asia. This type of PPP focuses on results, with payments conditional on the private sector partner achieving pre-defined performance standards. In this case the private sector partner does not take-over the management of the utility as that remains the primary responsibility of the public sector partner while benefiting from private sector expertise in key areas.

b. Government resources and planning

- **Refocus government resources:** To increase availability and access to basic services, African governments need to reallocate public resources from projects like ICT and energy that attract more private sector investors towards low-return infrastructure projects like water and sanitation that attract less interest from the private sector. This is to prevent crowding out private-sector financing and redirect governments' resources towards low returns infrastructure projects which are unlikely to attract private investments. Such reallocation may include providing free land to a private investor or transferring an existing asset to be managed and operated through PPPs.
- **Develop long-term infrastructure plans:** Long-term infrastructure planning is not yet in place in many African countries while this is a predominant tool to correct the perception of high-risk premiums for investments in Africa. Governments need to develop comprehensive national planning frameworks (e.g. National Development Plans (NDP) and Medium-Term Expenditure Frameworks (MTEF)) for programs and project selection, implementation, and maintenance which will give predictability and credibility in public finance systems and attract more private investments in basic services' infrastructure on the continent. Each country's infrastructure framework should be in line with regional and continental infrastructure priorities as reflected in Regional Infrastructure Development Master Plans (RIDMP). The commitment to the national infrastructure plan or framework should be reflected in individual governments' MTEFs. Therefore, the infrastructure plan should then act as a framework

for planning and cooperation with development partners and the private sector.

c. Promote a life-cycle service provision approach

- **Introduce Life-Cycle Cost Procurement:** To address the issue of poor-quality infrastructure for basic services such as hospitals, water and sanitation on the continent, governments need to shift away from low-bid approach towards life-cycle costs in infrastructure procurement. They should ensure project's operational and maintenance costs are fully reflected in the whole project life-cycle. The PPP model works well to embed life-cycle costs in the procurement process, however, when the traditional procurement approach is used, which is characterized by corruption, it is difficult to embed life-cycle costs in the procurement process.
- **Community-based infrastructure management:** During the COVID-19 pandemic, most water and sanitation infrastructure assets operated at below capacity and could not deliver the intended services to poor communities due to lack of maintenance and ownership by these communities. Given that many of the basic services infrastructure projects are targeted at rural or poor urban communities, it is important to enhance capacity building at these communities' level and strengthen community ownership. A community-based management system under a demand-driven approach is more impactful when applied during the whole project life-cycle. In addition, inappropriate emphasis on provision of infrastructure without maintenance should be avoided to ensure proper delivery of intended services.
- **Set new standards for infrastructure development:** To address the problem of poor infrastructure quality and lack of maintenance, multilateral financial institutions and other development finance agencies can help to set new standards and certification for infrastructure projects and professionals. In collaboration with local governments, the international community could provide training certifications for public servants managing infrastructure projects. Such training should aim at addressing challenges experienced by practitioners in the infrastructure space. It should focus on developing skills in infrastructure planning, transaction support, risk allocation, infrastructure maintenance and deal sourcing to name just a few. A training program like the chartered financial analyst certification system for infrastructure would have broad ranging benefits. Multilaterals and governments can also develop staff exchange programs. Governments employees involved in infrastructure development could be seconded to work in multilateral institutions for a specified period to gain the necessary skills required for infrastructure development.

REFERENCES

- i World Health Organization. (2012). Global costs and benefits of drinking-water supply and sanitation interventions to reach the MDG target and universal coverage (No. WHO/HSE/WSH/12.01). World Health Organization.
- ii UNICEF (2019). Progress on household drinking water, sanitation and hygiene 2000-2017. Special focus on inequalities
- iii https://www.icafrica.org/fileadmin/documents/IFT_2018/ICA_Infrastructure_Financing_in_Africa_Report_2018_En.pdf
- iv <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>
- v <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html>
- vi WHO & UNICEF (2019). WASH in healthcare facilities: Global Baseline Report 2019
- vii Moore, M., Gelfeld, B., & Adeyemi Okunogbe, C. P. (2017). Identifying future disease hot spots: infectious disease vulnerability index. *Rand health quarterly*, 6(3).
- viii United Nations Economic Commission for Africa (UNECA), 2019. Healthcare and economic growth.
- ix Bloom, D. E., Canning, D., & Sevilla, J. (2004). The effect of health on economic growth: a production function approach. *World Dev.*, 32(1), 1-13.
- x World Health Organization (WHO), 2016. Working for health and Growth: Investing in the health workforce. High level commission on health employment and economic growth
- xi Bakare A.S and Olubokun S.2011. Health Care Expenditure and Economic Growth in Nigeria: An Empirical Study. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)* 2 (2): 83-87.
- xii Hunter, P. R., MacDonald, A. M., & Carter, R. C. (2010). Water supply and health. *PLoS medicine*, 7(11).
- xiii World Health Organization (WHO), 2016. Working for health and Growth: Investing in the health workforce. High level commission on health employment and economic growth.
- xiv IMF, 2004. Health and Development: A compilation of articles from finance and development
- xv African Development Bank, 2020. African Economic Outlook. <https://www.afdb.org/en/documents/african-economic-outlook-2020>
- xvi African Development Bank, 2020. African Economic Outlook Supplement.
- xvii African Development Bank, 2020. African Economic Outlook Supplement.
- xviii African Development Bank, 2020. African Economic Outlook Supplement.
- xix Lakmeharan K, Manji Q, Nyairo R and Poeltner H. 2020. Capital Projects & Infrastructure: Solving Africa's infrastructure paradox, Mckinsey & Company.
- xx Abbasnejad Behzad. 2013. Poor quality costs in construction, Literature Review. Master of Science Thesis in the master's degree Programme Design and Construction Project management,
- xxi Okereke O.C. 2017. Causes of failure and abandonment of projects and projects deliverable in Africa, Vol. VI, Issue I -January
- xxii Okereke O.C. 2017. Causes of failure and abandonment of projects and projects deliverable in Africa, Vol. VI, Issue I -January
- xxiii Mema, V. n.d. Impact of poorly maintained wastewater and sewage treatment plants: Lessons from South Africa. Built Environment, Council for Scientific and Industrial Research.
- xxiv African Development Bank. 2009. Supporting infrastructure investment in Africa. Tunis: African Development Bank. Development Research Brief, No.10, August. Accessed: <https://www.afdb.org/fileadmin/uploads/afdb/Documents/Financial-Information/Infrastructure%20Investment%20in%20Africa.pdf>

- xxv Runde, D. F. (2017). Quality infrastructure: Ensuring Sustainable Economic Growth, Center for Strategic and International Studies, CSIS.
- xxvi Infrastructure Consortium for Africa. 2018. Building quality Infrastructure for Africa's Development. Background Paper: The 12th Infrastructure Consortium for Africa (ICA) Annual Meeting Plenary Meeting on 22 November 2016 Abidjan, Côte d'Ivoire.
- xxvii Konfidants. 2018. The African Sovereign Wealth Funds Index. The Afrochampion Initiative.
- xxviii Konfidants. 2018. The African Sovereign Wealth Funds Index. The Afrochampion Initiative.

